Social Differential and Access: A Study of Private Information Technology Education and Training Centres in Andhra Pradesh

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To my beloved parents

Nagendram Gundemeda
Narayana Gundemeda

Declaration

I hereby declare that the work embodied in this thesis entitled, **"Social Differential and Access: A Study of Private Information Technology Education and Training Centres in Andhra Pradesh*'** is an original work carried out by me for the award of degree of Doctor of Philosophy from the University of Hyderabad.

I declare to the best of my knowledge that no part of this thesis was earlier submitted for the award of research degree of any other University.

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This is to certify that the research embodied in the present thesis entitled, *Social Differential and Access: A Study of private Information Technology Education and Training Centres in Andhra Pradesh* was carried out by Nagaraju Gundemeda under my guidance for the full period prescribed under Ph.D. ordinances of the University.

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Chapter-I

Introduction and Theoretical Framework

1.1 Introduction

Historically human beings as toolmakers transformed the techniques of production and gained control over nature. The countries that were under colonial rule and gained independence in the 20th century also recognized the potential of modern science and technology for economic and social development. The governments of developing countries announced policies related to the development and deployment of modern science and technology in various sectors of production and services. Development of modern science and technology was sought to be achieved by expanding the existing institutions and establishing new institutions devoted to development of human resources to carry out teaching and research.

In the 21st century one of the most important technologies is Information Technology (IT), which unleashed far-reaching implications for production, services and culture. The advanced countries have been undergoing transformation with a wide range of application of Information Technology. Most of the developing countries have also recognized the potential of IT for economic and social development. Political, cultural and education sectors are gradually getting transformed due to the introduction of IT, thus creating conditions for major social change in societies.

To sustain the economy based on IT, it is necessary to develop software, hardware, appropriate organizational innovations and highly skilled manpower with high technological skills. It is here that education plays an important role. Countries, which provide IT education to train IT professionals, tend to have great advantage in the present day context. The demand for IT professionals has generated flow of trained IT personnel across countries and continents.

IT professionals from the developing countries like India have been migrating to USA, Europe, and some of the Asian countries like Singapore, Thailand and Malaysia. The push factors for the migration of IT workers are limited employment opportunities, under employment, low salaries and lack of infrastructure. The pull factors are high salaries, social recognition, rich lifestyles and good employment in the countries of destination.

Due to high esteem and social prestige, in addition to the monetary benefits and number of perks, associated with the information technology jobs, members of diverse social groups have begun to attach a great deal of importance to information technology education. As a result thousands of IT institutes emerged over the last two-decades across the country both in public and private sector to provide IT education at different levels. Although diverse social groups have been obtaining degrees and diplomas in IT education, access to IT education opportunities tend to be influenced by the pattern of organization and distribution of IT institutions and the socio-economic and cultural background of the students who are interested in pursuing the IT courses. The aim of the present study is to

explore how far IT education is accessible to different social groups in a highly stratified Indian society.

Indian society is stratified according to caste, class, gender and region. Access to opportunities in education is influenced by the social economic position of a particular individual in the system of stratification. Access to opportunities is also influenced by the way education is organized in terms of public and private sector organizations. Although a number of sociological studies have been carried out on education in relation to social stratification, these studies have not examined the values attached to the IT education and extent of access to it because IT Education its employment potential and the prestige associated with it have begun to be noticed in the recent times.

In this context, the study aims to examine the organisation of IT education and the degree of access to different social groups. The study also presents the motivational factors and attitude of students on IT education. It is indispensable to give a conceptual view of the origin and growth of Information Technology and its role in shaping evolution of information society, and its far-reaching implications for the diverse sectors.

1.2. Information Technology: An introduction

Technology is one of the greatest engines of economic growth and social change in society, and its role has been increasing day by day. Information Technology is not only transforming the way information is produced, distributed, and consumed, but also changing the form and organization of the diverse sub-systems of the society in a significant way.

1.3. Information Technology: Definitions

Scholars have defined Information Technology from various perspectives; here some of the definitions are discussed. UNESCO (1999) defines Information Technology as "scientific, technological and engineering disciplines and the management techniques used in information handling and processing, their application, computers and their interaction with men and machines and associated social, economic and cultural matters" (Satyanaraya.R 1996: p.67).

According to Sansanwal (2001) Information Technology is "a term -used to cover technologies used in the collection, processing and transmission of information. It includes microelectronics and info-electronic based technologies incorporated in many products and production processes and increasingly affecting the service sector. It covers inter alia computers, electronic office equipment, telecommunication, industrial robots and computer controlled machine, electronic components and software products." (P. 15)

Sansanwal (2001) defines, information technology as a systematic study of artifacts that can be used to give form or description to facts in order to provide meaning or support for decision-making and artifacts that can be used for the organization, processing, communication and application of information.

Shaozhi Su (1988) views information technology as the term, which a aggregates number of new technologies including electronics, computer hardware and software, robotics, computer-aided design and manufacture, photo voltaic technology, biogenetics and yet other new inventions. Combinations of

technologies, products and techniques have combined to provide new electronic dimensions to information management.

The above definitions imply that Information Technology is a very broad concept with applications throughout the sciences, engineering, education, economy and services. It deals with how we generate, compute, store, and use information.

1.4: **Information Technology- Scope**

The recent great strides in technology present tremendous opportunities for human development, but achieving the potential depends on what kinds of technologies are to be developed and how technologies are used. The rat race for knowledge, with the advent of knowledge economy at the forefront of the global interaction, a great deal of attention has been focused on information and communication technologies (Human Development Report, 1999).

The blend of computers and communications unleashed an unprecedented exploration of ways to communicate at the start of the 1990s. Beginning with this period there is a tremendous productive gain; ever-falling losses and rapidly growing networks of computers have transformed the computing and communications sector. The first half of the 1990s experienced a shift of Internet from a specialized tool of scientific community to a friendlier network transforming social interaction *(Ibid).*

1.4.1.Information Technology-Flexible production

The invention of computer is the most important event in the history of technology. Industrial revolution helped in reducing the need for arduous physical

labour - tractors replaced horse-driven ploughs, steam shoals replaced hand picks and so on. Computer technology will allow similar elimination of the need for tedious, repetitious and uncreative mental labour. Computer-based occupations require semi and highly skilled human force. Computer-based production is based on knowledge not on the machines. As the IBM slogan says 'machines should work; people should think' (Douglas, 1998).

Information Technology is profoundly changing the production system shaped by the 18th century Industrial Revolution. Mass production of standard goods had given way to flexible production of customized products, along with new techniques like just-in-time production and inventory methods that demand closer proximity between suppliers, buyers and markets.

Information Technology also created new products that offer new opportunities: the developing countries could take part in the production of Information Technology, not just make use of it. Lyon (1988) viewed that information technology, by shortening labour time, practically replaced labour as the source of added value in the national economy; knowledge, information and supplant labour, and capital becomes the central variable of the economy.

1.4.2. Information Technology-The service sector

Information revolution has transformed the nature and significance of services and made the service sector as the largest economic sector and the largest employer in most industrialized countries (for example in the U.S., two-thirds of GDP and three-quarters of jobs). Until recently, most services had to be produced

locally, customized to buyer needs. Now advances in informatics and telecommunications abolish distance. Information provided on a screen or a phone can be handled anywhere in the world: airline reservations, engine design, security monitoring, accounting and management services etc. It is recognized that information technology is virtually spread into all spheres of social life and knocking at the doorsteps of every field (Lyon, 1988).

Information Technology also fundamentally changed the delivery of a wide range of services. For example, there is great interest in Information Technology application to health care in order to deliver services more efficiently and effectively, to encourage preventive medicine, and to provide in-home alternatives to hospital care. New technology can link educators, researchers, students, policy-makers, and institutions. within or outside the country, and has a great potential for "distant learning" and mass education.

1.4.3. Information Technology and Governance

Governments as the biggest data-collectors need information to make policy decisions. IT can enhance everything from policy analysis to accountability. IT can make tax collection effective, improve the management of the civil service and public enterprises, to gain these public benefits, databases must be created. Further, IT can also help governments deal efficiently in managing the crisis. With this foregoing account on the definition and scope of IT, in the following pages we review sociological perspectives on technology in general and I T in particular.

1.5. Sociology of Technology: Theoretical perspectives:

Sociologists have recognized the need to understand the socio-economic and cultural context, which influence the development of technologies at different levels at different points of time. Science and technology increasingly becoming a key determinant in explaining successful national development and competitiveness in the world system (Dore, R 1989). In order to explain technology design and development, one has to be aware of the complexity of technology and technological knowledge itself. Technology is not a neutral factor so it cannot be considered a black box *((Ibid).*

Technology is a bundle of different components (Rothboeck, 2000). It was named as a techno-economic paradigm that includes, technological, institutional and social competence. Technology is the result of specific experience in design, production, path-development of economic, political and cultural decisions (Patel and Pavitt, 1995).

Ogburn (1922) opined that sociologists' interest in technology takes two major forms. First, sociologists attempt to understand the context that produce technology and promotes its uses by the society. Second, sociologists study the application of technology in the society.

Ogburn one of the first sociologist to observe the technology and its impact on culture. He argues that material culture tends to change faster than nonmaterial culture. Although technology changed at a breathtaking pace, the changes in government, the economy, education, and religion in order to keep pace with

technology have **been** much slower. Ogburn names the gap between material **and** nonmaterial culture as a "culture lag".

Technological deterministic viewpoint sees technology as an autonomous entity with its own logic that is not subject to human control. Basically it emphasizes that human beings create tools, but ultimately tools control the human society. Porat (1977) analyzes **the** rise of the information society in the United States as a gradual evolution that stems directly from the organizing principles of industrialization and the realities of capitalism, not from a revolution initiated by the invention of computer or other technologies. The concept of information as an object is seemed to have emerged in Europe in the 17^{th} and 18^{th} centuries in response to enlightenment values.

Mackay (1995) point that until recently most of the sociologists didn`t show any interest in understanding the society and technology relationship. Very few studies were carried out to understand the internal relationship between these two major entities. But this trend has changed considerably since the 1980's particularly with the progress and advancement of both (physical) information technology and (social) debate surrounding it.

Mackay (1995) viewed that, sociologists of technology are primarily concerned **with** explaining how social processes, actions and structures relate to technology; **and concerned with** developing a critique of notions of technological determinism. Technological determinism is the concept, which explains that technological advancement is autonomous of society; although technologies shape society, technology can't replace the existing social structure.

Here technology is viewed as the key-determining factor in society. The fundamental notion of the technological determinism is neither its theoretical sophistication nor its explanatory utility. Rather it may be important because, primarily it is the single most influential theory that attempts to explains the relationship between technology and society (Mackenzie and Wajcman, 1999). Practically world technologies do not follow some pre–determined course of development, the technological impacts vary from one culture to another, depending on a broad range of social, political and economic factors.

Encyclopedia and Dictionaries have described information technology as modern design for presenting information that prefigures the rise of modern approaches to inventing and distributing information. Bell (1980) and Porat (1977) attempted to provide an explanation of the relationship between industrial society and the information society by highlighting the interconnectedness. Empirical data is marshaled to indicate that the information workforce grew to a large size much earlier in the twentieth century than that has been previously expected.

The experience of living in the information society is addressed as the construction of private spheres within media environment. The consumption of information has become an increasingly necessary and conspicuous aspect of everyday life. The question of proper social distribution of information is considered in the context of several prominent theories (Porat, 1977).

William's (1983) concept of 'symptomatic technology' **explains that** technology is a symptom of social change. According to this theory society is in the driving seat of history, given a strong social demand **then** a suitable technology will

be found. The key theme of the social shaping of technology perspective is that it serves as a needed corrective to technological determinism (Winner, 1999).

Basically technology, in essence, is social in its roots as well as in its effects. Choice and social negotiation are part of the design. Two broad approaches have dominated the social shaping of technology.

The first approach is basically 'micro' in nature and the second is neo-Marxist. First approach consists of three schools:

a) The social constructivist
b) The systems
c) The actor-network.

The social constructivist approach (Bijker *et al*, 1987) bound to the sociology of scientific knowledge (SSK). It treats scientific facts as socially constructed rather than existing in the natural world and awaiting discovery, technological artifacts are socially constructed. Basically, technology emerges out of processes of choice and negotiations between the 'relevant social groups', and interpretative flexibility' i.e. different meanings/ view varies corresponding to the interpretation of the social classes.

Hughes's (1986) network, or system theory views functional groups i.e. builders, inventors, engineers, managers, financiers, heterogeneous social groups/classes, organisations, institutions and disciplines become part of a 'seamless web'. Hughes approach is most applicable to the large technological systems. The actor network approach specifically varies from the social

constructivist agenda where it lacks in providing ground distinction between the technical and the social factors (Callon, 1986; Latour, 1987; Law 1987).

The notions of 'actors'- physical and social that are involved in the development of technological systems replace the conventional categories distinguishing animate and inanimate things and forces. According to Law (1987), the management or enrolment of both physical and social actors into networks-using heterogeneous engineering builds the technological systems. This blend of heterogeneous elements and the advancement of technology are viewed in terms of the relationships formed between human and non-human elements of actor-networks.

Second is the neo-Marxist approach, which is associated with Braverman (1984) and Russell (1986). They argued that technological change could not be completely understood with reference to particular/ individual inventions. Rather there is need to examine how broader socio-economic forces affect the basic nature of technological problems and solutions.

This perspective fundamentally criticizes the social constructivist approach for neglecting the broader political and socio-economic context within which a technology is developed. According to this approach technology is designed consciously or unconsciously to protect, secure and give an edge to particular social class. Although these arguments are partially true practically technologies are not simply the direct translations of economic imperatives into tangible machines and operations.

Winner (1999) distinguishes those technologies that are political in nature. They are designed to achieve political intent, and those that are political without intent views technologies which either require or are more compatible with particular social relations (e.g. nuclear power and the strong state, to guard plutonium). Thus, in one way or other all technologies are political. The modern computers are the core to fulfill the primary requirements of the military. For instance the massive main frame, built in 1946 in the university of Pennsylvania, was intended to assist the aiming of guns, and was soon involved in calculation for the atomic bombs (Lyon, 1988).

Winner (1999) pointed out that as a corrective of technological determinism, the social shaping of technology approach has its own limitations. For a while, social shaping of technology is opposed to technological determinism, but it nevertheless shares one fundamental concern. In differing ways, both firmly rooted their focus on the first sphere of a technology- its conception, invention, it roots within a complex of social forces, which not only anchor, but mould the inventing process (Mackay, 1995).

The social shaping of technology is not a complete one because of its failure to consider the social forces at work on the other side of the technology; especially the way that technology come to be actively adopted or appropriated by their users. People are not merely passive subjects to technology, but they are active, creative and expressive subjects.

People may reject and redefine the technological functions; they may redefine technology in a way that defies its original, designs and intended purpose.

So the appropriation and adoption is an integral part of its social shaping. According to Noble (1984) technology leads a double life, one that conforms to the intentions of designers and interests of power and another that contradicts them - proceeding behind the backs of their architects to yield unintended consequences and unanticipated possibilities.

Although the appropriation of technology may not be completely separate from its design and development; technologies are designed to meet particular goals and objectives. In the words of Mackenzie and Wajcman (1999) 'technologies can be designed to open certain options and close others'.

There is a third body of literature, which deals with the social shaping of technologies in relation to consumption. According to Hall (1980), technology facilitates, it does not determine, and they may be used in number of ways. In simple, social appropriation of technology is crucial force in social shaping of technology. While talking about the 'double life' character of technology Keen (1987), contended that 'the character of technology is complex and contradictory; technology leads a 'double life 'or has dual effects.

1.5. Implications of Information Technology for Education

We have seen that IT has far reaching consequences for the economy, polity and culture. Social shaping of IT and it's grounding in a given society, starts with interaction between IT and education. The transformation of education may be the most important of the many practical revolutions sparked by computer technology. Computer technology will alter the very "goals of education". Douglas (1998)

points out that the very technology-causing problem has the remedial power to come through the existing problems. Another fundamental change in education caused by the computer technology will be skills that students need to develop.

Thus in the traditional three "r" s (reading, writing, arithmetic's) of education, only reading is going to survive unscathed. According to Douglas (1998) the driving force behind the present day civilization is the phenomenal growth of Information Technology.

The application of Information Technology within the government, education, media and the domestic sphere as well as in the work place implies that the machines mediate more and more social relationships. So there is need for highly skilled professionals to meet the requirements of production and service industries in information society.

In order to train the information technology professionals there is need to organize information technology education at different levels. The demand can only be met if the percentage of population engaged in software, hardware, and peripherals production grows in correspondence with these developments. In the long run the industry engaged software creation, adoption and application would become a major employer.

As microcomputers with large-scale integration have become available, they are being used for an ever-greater number of applications and range of equipment and systems are also deployed to meet the software technology development. As mentioned above, well-trained manpower i.e. trained software knowledge professionals are very important. Education is an important domain,

which is being influenced by information technology with incredible speed. The changes being introduced in the sphere of education have generated growing interest among the world community of educationalists and the social scientists to understand role of IT in education. India is no exception in this area.

Education plays an important intervening role in the process of social shaping of technology. As we discussed earlier the factors that influence technology development is economic, social, political, technological, and scientific. Technology developments also shape an educational environment conducive for the technological growth. The values that guide the content of education, and the actual content are important in this context. It is through education that human resources both in quality and quantity in science and technology are shaped and sustained.

1.6. Sociology of Education: A Conceptual Framework

In order to study how IT education is shaped, it is useful to draw concepts and theoretical perspectives from sociology of education. Sociology of education is primarily concerned with family, education system, economy, polity, and relations between these instituions. The concept of culture in sociology of education is primarily used in theories of socialization. The process of socialization is perceived as building of the consciousness of human subjects through internalization of culture.

Sociology of education also concerned with the social class differentials in access to education. Sociologists are increasingly focusing on how educational experience differs by virtue of race, caste, and social class, and they make

suggestions for improving the experience of marginalized social categories. Sociological studies also examine how the growth of technology transforms priorities of the educational system. The nature of education becomes **a** central issue for sociologists who **followed different** approaches to understand **the nature of** education in relation to society.

The functional and conflict theorists provide alternative perspectives regarding the forces that bind societies together and the role of educational institutions in society. First, the study presents functional theory to illustrate its application in the analysis of educational institutions. Secondly, outline the conflict theory. The functional school of thought views education as a basic necessity for the progress and development of society. To maintain stability and social order education is considered as the most vital institution.

1.7. Functional approaches

According to functional theorists the societies and biological organisms share common features. Both are composed of many distinct, but interdependent parts, and each part makes its contribution to the survival of the whole. Both tend to maintain a state of relative equilibrium. If one part of the system disturbs, or threatens to destroy it, all of the other parts react to bring the system back to an **even keel.**

The same could be applied to human bodies. In an analogous fashion, societies adopt to the physical environment, maintain adequate levels of **production, distribute** essential **goods and services, keep** conflicts under control,

and so on. Hence functional theorists point out that societies cannot survive unless their members share at least some homogeneous sets of perceptions, attitudes, and values.

Structure and Function: For functional theorists, societies are made up of different parts. These parts are institutions that make up the social structure of every society. Functional theorist's views on institutions highlight the significant contributions of each part of society to the survival of the whole. This contribution is its function, and functional theorists show how these institutions, norms, and social roles function in continuing survival needs of various societies.

1.8. Durkheim's approach

The traditional conceptual framework in sociology of education is primarily drawn from the functionalist perspective, and derived primarily from the writings of French sociologist Emile Durkheim. He is considered as one of the founding fathers of sociology and sociology of education. He conceives sociology as 'science of institutions'; Durkheim (1956) while talking about the common education, argued in favor of state controlled education system, which is universal in nature. His emphasis is on elementary education. He viewed education as a process, which enhances the progress of social order and strengthens the social system through it.

Durkheim's approach in understanding the problem of social order highlights two basic ideas. First, Durkheim assumed that modern societies are held together by the mutual interdependence of social groups. The complex nature of the

division of labour shapes social groups as mutually interdependent, and ultimately contributes to the social stability and social order of the society *(Ibid).*

Secondly, he emphasized that for the collective interest of society, individual has to sacrifice some of their self-interests. Durkheim pointed that for the smooth functioning of the society social groups and individuals should learn the language, and acquire skills. He stressed that learning should create a sense of commitment to the integration of the society, and internalization of its most central values and ideas. One must change from being egoists, responding greedily to his/her own endless self-centered desires, to a moral citizen, responding in terms of his/her duty to the state.

Parsons (1959), another pioneer of functional tradition, noted that an educational institution in modern society performs the role of 'socialization' and 'selection' of individuals for diverse needs. It is the function of the educational system to "select" the students for different occupational slots as well as to socialize the selected. For Parsons the most important selection is between those who go to college and those who fail to go.

Parsons contends that the fundamental base for the selection into colleges is achievement; these instituions reward children with high grades. In the higher grades, the accomplishment is increasingly measured in intellectual terms. It is not sufficient to try hard; one must also succeed in mastering the material. Parsons argues that schools must reward children on the basis of achievement and that is the central to the larger view of the integration of educational and economic systems in modern societies.

Parsons emphasizes that in modern societies different individuals must be allocated to occupation according to their ability to perform effectively **in their** respective roles. The modern societies demand most talented and experts in particular fields. Here the achievement takes primordial role rather than the ascribed status as in the case of traditional societies. However industrial society allocate the roles on basis of achievement.

To sum up, Parsons's argument highlights the functional interdependence of educational and other institutions in the society. He attributes two basic functions for education. They are socialization and selection. Schools fulfill these two processes, and provide well-qualified individuals for the societal roles. Allocation to these roles is purely based on achievement and merit. Schools also promote value consensus and depend upon it for their smooth operation.

Davis and Moore (1945) employed Parsons's idea of Vole allocation', in order to understand social stratification. According to functionalist scholars, social stratification is a means of ensuring that the most talented individuals to fill the most important position of society. The high rewards and awards for these key positions work as the motivating factors for the students to compete for the functionally important positions. Davis and Moore viewed that education is a means to demonstrate ability to achieve higher position in the society. Education works as an agency, which differentiates the people **based on their** ability and merit.

The functional theories emphasize on the meritocracy to legitimize the claims of high skills and high rewards, became more **popular** among the **followers**

of this school of thought all over the world. Daniel Bell's (1972) concept of post-industrial society extends the meritocracy thesis and emphasizes the selection based on merit. Bell argues that without that achievement one cannot fulfill the requirements of the new social division of labour, which is a feature of the post-industrial society. Formal educational qualifications work as an entry device into the system but subsequently achievement brings material and symbolic benefits.

However, the conflict theorists launched a vehement criticism on the functionalist approach in understanding the educational system and questions of equality of opportunities in the society. Conflict theorists have criticized the functional school of thought on the grounds of comparing biological systems with social systems. According conflict theorist social institutions are not biological organs and individuals arc not biological cells. Human society and institutions are historical creations. Human behavior is purposive and goal directed. Man has the power to think. Thinking, perceptions of the world, attitudes, norms and values all affect one's own behavior.

1.9. Conflict Perspective: Approaches to Education

Conflict theorists approach to the education is in quite contrast to the functional approach. Conflict theorists primarily focus on the coercive nature of society and the pervasiveness of social change. To conflict theorists, power struggle is the driving force in transforming the social institutions. They see two antagonistic groups in the society i.e. the powerful and the marginalized. According to this, powerful social groups that seek cooperation from the less powerful and

marginalized control societies on the one hand; and societies are perpetually changing due to the power struggles that result in formation of new elite groups, replacing the old.

Conflict theorists argue that the social systems are fundamentally divided into dominant and subordinate groups. The relationship between these groups is exploitative in nature, with the dominant group controlling most of the material and non-material resources. In addition to this, the dominant classes also try to impose its own values and worldview on subordinate groups. The subordinates on the other hand, in the process of achieving control over forces and means of productions work as a constant threat to the stability of the dominant elite (Dahrendorf, 1959).

Althusser's (1985) interpretation of transformation in education is based on the structural version *of* Marxism, which proposes a historical context, for analyzing both structural forms and transformations in functional forms. As discussed earlier. conflict paradigm views education as a constituent of the state.

According to Althusser (1985) the state power and state apparatus works as agency in the reproduction of the existing social order.

Ideological State Apparatus (ISA) in the process of shaping the educational systems to meet the requirements of the state transformed the institution of education, which was characterized by the absence of both centralization and bureaucratization, permitting a situation of voluntarism and diversity replaced with centralized and structured nature of system. According to this view, advancements in education functioned as one of the elements of reproducing the culture of existing dominant social groups.

The period of post -1960s witnessed the break down of functionalist paradigm in sociology of education, the works like Young's study on curriculum, and the work of Bowels and Gintis (1976) highlight that educational institutions function above all as agencies that necessarily reproduce the social relations of capitalist production.

Hayek (1960) launched a powerful critique on the notion of meritocracy and achievement as the basis of reward, and vehemently opposed any attempt to legitimize social inequality from meritocratic perspective. According to him inequality is the inevitable outcome of a market economy. He also rejects the notion of functional importance of differential positions and attributing needs or requirements. In the streamed system, preferences to the streams vary according to the importance given to particular streams, by different groups across societies where the prestige and occupational status play crucial role in determining importance attached to particular discipline by various social classes.

Here it is note worthy to highlight the contributions of Gramsci (1971), an Italian Marxist thinker, who differentiates state and the civil society. According to him hegemony of a class develops at two levels, one at the level of the state and two at the level of the civil society. For illustration laws, and educational institutions undergo the process of hegemony. According to Gramsci, schooling plays an important role in modern society. The school system is one part of the system of ideological hegemony in which individuals were prepared to maintain the status quo.

He further argues that social character of the traditional schools tend to be determined by the each social group in society and evolves as typical school which perpetuate a specific traditional function of the ruling class. He criticized different types of vocational schools that aimed to promote the modernization of Italy, rather he preferred, to evolve a single type of formative school (primary-secondary) which would nurture the child to attain his choice of job, providing capability of thinking, studying and ruling (Gramsci 1971).

Similarly the writings of Bowles (1976) provide a clear example of the application of the conflict model to contemporary educational institutions, especially those in the United States. The themes of conflict, change, and coercion appear throughout his works. According to him, in pre-capitalist economies skills are generally passed from parents to children through informal mode of education. He stressed that the capitalism replaced the family and church as the agents of socialization and forced those institutions as less effective agents of socialization. He argues that the mass education, compulsory public schooling aimed to serve the vested interest of capitalist system; Firstly, mass education could supply workers with the cognitive, intellectual, and technical skills required by the capitalist economy.

Secondly, it could supply workers who had already learned the values and behavior conducive to productive labor. Children could be taught punctuality, discipline, and acceptance of responsibility for their work. Thirdly, the schools could teach loyalty to the state and obedience to the law. This loyalty could be achieved by convincing children that the system was benevolent but in reality

actually legitimizes existing inequalities in the social division of labor by justifying that these inequalities are based on merit rather than on coercion.

According to Bowls 'equality of educational opportunities', and merit and reward system are myths. He argues that the educational system rewards children differentially on the basis of their class origins. Children from elite families become the elite of the next generation. Children of the poor remain poor. Bowles' analysis represents the conflicting interests of various social groups and the ways in which those in power can use such social institutions as the agents to justify and maintain an essentially coercive and exploitative system.

However, Bowles' analysis fails in explaining the evidence that schools do permit upward mobility or in accounting for efforts to reform schools in the interests of greater social equality. While dealing with these issues, Bowles pointed that they are merely subtle mechanisms to maintain the system and not meaningful avenues to equality.

Bernstein (1970) shows the causal relationship between the class and the linguistic values and ideas, he concludes that linguistic ideas work as agents of symbolic control over education. Educational institutions tend to shape by the state goals to suit the interests of the privileged and affluent sections of the society at the same time it also excludes the lower classes of from the educational system.

Goldthorpe (1997) while talking about credentials criticized the meritocracy theory and argues that the educational systems of modern societies do not necessarily function it assumed, both either in identifying talent among diverse

social sections at large or in providing talented individuals to serve technical and high position jobs.

If labour is governed by possession of formal qualifications this is not advancing meritocracy but rather rising "Credentialism" (Berg 1970, Dore 1976, Collins 1979).

According to this school of thought qualifications are being used not in the interests of raising levels of individuals 'efficiency' and social efficiency. Rather than reducing disparities among different classes and ethnic groups the credential system accelerates inequalities.

The conflict theorists also criticized the functionalist interpretation for being dogmatic in exaggerating the positive contributions that various parts of society make to the functioning of the whole and for ignoring the destructive effects of other elements (Demaine, 1981).

1.10. Education and the ideology of parentocracy:

According to Brown (1997) the social character of educational selection has been an important area of sociological concern, which particularly gained momentum since the Second World War. This interest not only reflects the importance attached to education as a crucial determinant of future life chances, but also the growing commitment in generating equality of educational opportunities.

The commitments and concerns have led sociologists to examine the extent to which educational change had actually generated a more 'open' and 'equal' society. The idea of meritocracy becomes widely accepted practice of sociologists

located in advanced industrial societies. The popularity of Marxist scholarship in the 1970's in education was largely in response to the failure of reforms in western societies in extending education to working class children *(Ibid).*

Marxist perspective perceives liberal reforms as legitimating the interests of capitalist classes. Brown (1997), developed a new concept called 'third wave', according to this, the socio-historical developments of British education is neither a drive towards meritocracy nor the result of socialist victory of educational developments. The third wave is associated with the rise of the educational parentocracy where a child's education is increasingly dependent upon the economic potential and wishes of parents instead of ability and efforts of pupils.

Brown's 'third wave' characterizes the rise of ideology of parentocracy. This imbibed the notions of 'parent choice' 'educational standards' and 'free markets'. Brown analyzed the qualitative and quantitative expansion of education over a period by comparing with change in 'Waves'.

First wave associated with the development of mass schooling in the 19 century. It was intended to confirm rather than 'transcend' existing social divisions (Hurt, 1981).

The elementary education has largely aimed at instruction to meet the minimum requirements perceived to be necessary in order for the working poor to fulfill their future roles in a changing society. In Britain secondary education remained in control of middle classes until 20th century. The second wave is characterised by ideological shift in organizing principle, from education

determined by virtue of birth to one based upon one's age, **aptitude and ability** (achievement).

The later stage of second wave incorporated the issues of gender, particularly by feminist writers who have attacked a class-based, but gender- blind sociology. It was found that during the second wave gender inequalities have declined, despite the fact that core gender divisions remain (Arnot and Weiner, 1993).

Brown (1997) claims that the third wave is still in infant stage. The third wave is an attempt to address the inherent contradictions of market system of education and the rise of parentocracy.

Brown (1997) attempts to why the ideology of parentocracy has come to dominate the educational agenda during the late 20^{th} century. Secondly, what are the implications for educational selection and legitimacy? Brown addresses the above questions from two broader standpoints; firstly, the ideology of parentocracy and introduction of third wave policies have developed against the backdrop of high youth unemployment and economic recession. Brown claims that third wave was a response to traditional concerns about the social consequences of youth unrest, particularly those **who are situated in urban locations.**

Regarding the relationship between the education, certification, **and** social change, Brown **points out that the third** wave is a manifestation of **a** power struggle **for** educational certification, **which is undermining the principle of** equality of educational opportunities.

The shift towards the 'credential society' (Collins 1979, Murphy 1984) has gained momentum in the 1980s and continuing till today despite the decline in youth unemployment in West and USA. The acquisition of educational credential has become synonymous with an insurance policy to minimize the livelihood risk fuelled by the expenditure cuts in higher education, and declining rates of employment (Bernihill 1988). These trends minimize the scope for lower class students. Although they have intellectual potential their financial position hinders their chances of gaining access to educational opportunity.

1.11. Education and Feminism

Weiner (1997), while interrogating the relation between feminism and access to educational opportunities, examined the link between the women's education and transformation in the society in the form of 'wave'. The first wave started in the early period of the 19th century stretching into the first two decades of the 20th century, and the second from the late 1960s. The first wave movement was associated with the rising aspirations of liberal individuals drawing specifically on ideas about natural rights, justice and democracy, for extending legal, political and employment rights of middle class women.

Of liberal feminists demand access to education, and equal opportunities for both sexes to create an environment where individual woman's potential can be encouraged and developed. The second wave is associated with women's movement, which had employed a more radical approach and dissident origins in Marxist scholarship. Firestone (1970) in 'Dialectic Sex' defined society in terms of

sex or class system and encouraged feminist revolution. This group of feminists asserted the women's freedom and demanded for wider accessibility to education, employment and space in modern means of production and services.

1.12. Social Class and Education

According to the Marxist view, social class refers to a group's relation to the means of production and power struggle (Bowls and Gintis 1976, Cox 1948). For non-Marxist's social class is synonymous with socio-economic status of particular groups. Weber's theory of social stratification differs from Marxist theory of class because he introduced additional structural category called 'status group'.

According to this, status groups are communities, which develop and continue in the form of life-styles. social honour and esteem. Weber's perception of social category depends on the definition and meanings attached by other to the social relationships. According to Weber societies are divided into groupings and strata, which intrinsically have distinctive life-styles and worldviews. When the status and class groupings conflict the members tend to accept fairly stable patterns of subordination and super ordination.

Weber analyzed power relations from pluralist standpoint. Though he accepts the Marxist analytical understanding of power that those who have control over the means of production exercise political power either directly or indirectly, he argued that the emergence of economic power might be an outcome of power existing in other institutions. According to him, power varies significantly across the time and

space. Power is an out come of social, historical and structural circumstances (Gerth, H and Mills, 1958).

According to Ogbu (1997) social class refers to a section of society's population differentiated by education, occupation, and income. Ogbu (1997) argues that social inequality is a universal phenomenon but social stratification is not. The fundamental base for social inequality are age and sex. Social ranking of individuals should be considered as social stratification rather than arrangement of social groups or social categories in a hierarchical order of sub-ordination and domination in which some groups have unequal access to the fundamental resources of society (Berreman, 1982).

Ogbu (1997) pointed out that in western societies there is a differential relationship between members of its constituent groups to the fundamental resources. According to this, "some people by virtue of their membership in particular social groups, have almost unimpaired access to the strategic resources, which some other people, by virtue of their own membership in other social groups, have various impediments in gaining access to resources". (P.766)

It is common for different social stratification systems to exist within the same society. They include social class, ethnicity, racial, caste, and gender stratification.

Towards more inclusive perspective:

The distinguishing feature of class stratification is based on the economic status, an acquired characteristic. According to Ogbu (1997) in a social class system, social and political positions are often based on training and ability rather than ascribed status. It appears to be the case in West and USA. Ogbu noted that

vertical mobility, upward or downward, from one ranked stratum to another is legitimized in a class system. Ogbu (1997) argued that from comparative perspective the persistence of black-white inequality in general and in education in particular is due to racial stratification.

1.13: Political Interests and Education

According to Archer (1984) 'state educational system' is considered to be a "nation–wide and differentiated collection of institutions devoted to formal education, whose overall control and supervision is at least partly governmental, and whose component parts and processes are related to one another". (P. 19).

Archer (1984) points that the definition of state system helps to distinguish it from earlier forms of education. Those who controlled education also owned it, in the sense of providing its physical facilities and supplying its teaching personnel. According to Archer (1984) education was private enterprise, and control derived directly from ownership was concentrated in a very restricted part of any population, but this educationally dominant group tends to come from different sections of different societies.

Archer asks, why do the educational characteristics change? The answer is simple: change occurs because those who have the power to modify education's previous structural form, definitions of instruction and relationships to society, pursue new goals.

Archer argues that education derives its characteristic features from the aims of those who control it. It immediately raises problem concerning the

identification of controlling groups, the basis and process upon which control rests, the methods and challenges through which it is exerted, the extensiveness of control, the relations of others to this control, and their educational consequences.

As Ranson (1985) points out the complex, often ambiguous, traditional framework of decision making in education with its assumption about who should be involved, whose values count, how decisions should be arrived at is being clarified, concentrated and centralized.

1.14. Challenges and changing priorities in higher education

The educational policies and priorities tend to be influenced by external and internal factors. Defluer (1976) claims that when the U.S.S.R put the first satellite into space in 1957, shock waves went through American educational institutions. Demand was made that educational institutions should produce more scientists, engineers and technicians to meet the Russian challenge and lots of funds were allocated to encourage the scientific education. In the recent past transformation in education is associated with, and indeed often seen as a consequence of the Information Technology revolution.

A number of scholars have focused on the structural changes in education with progress of Information Technology. According to Stonier and Conlin (1983) we now live in a post- industrial society and for better or worse we have moved into an information age. As pointed out earlier, developments in Information Technology and its far-reaching implications have begun to influence education system in significant ways. According to Robins and Webster (1989) the real

significance of Information Technology initiatives is a consequence of the ability to engage with **and reinforce a broader transformation in the structure and character** of education.

In Britain there has been a profound argument against the academic drift towards the humanities and social sciences (Gambrich, 1985), and an assertion of the importance of science, technology and engineering courses, which are assumed to be more important for the Britain's economic renaissance. As a result, the British Government launched a programme to increase 2500 Information Technology seats at graduation level.

Presently educational methods and policies are not supplying the stream of managerial talents which business and industry requires currently, the notion of pools of skills must be renewed, enhanced and expanded if the U.K. is to be successful in the current process of industrial regeneration (Robins and Webster, 1989).

According to Robins and Webster (1989) developed societies are undergoing fundamental transformations. This transition is associated with new flexible and decentralized forms of production, new class segmentation and with new forms of social control. As a result, it has become necessary to subordinate the educational system to the changing needs of the economy. Educational institutions are directed to produce skills, expertise and orientation, appropriate to the new forms of production.

To summarize, in the western societies the direction and content of education has been influenced by **the economic, political, cultural and** technological

factors. Regarding access to education, social stratification system that has evolved over time tends to influence the degree of access to educational opportunities. At this juncture it is useful to examine how education is organized in India and see the nature of influence of social stratification systems in Indian society on the direction, content and access to education.

Section-II

1.16. Education in India

The Indian educational system has been changing from time to time, with corresponding changes in the political regimes, and social structure the process of inclusion and exclusion has been continuing in educational system. Education system is characterized by a tradition of exclusion. Although education in the country has increased phenomenally, access to educational opportunities continues to be limited (Chitins, 2000).

Historically, education was considered as a sacrament, which strictly governed by the religious ethos, and values. Role of learning and dissemination of knowledge was assigned to the Brahmin caste in hierarchy. Over a period of time the process of imparting and disseminating knowledge legitimized and led to denial of access to other caste and women from learning. The pre-British India only gave space to the so-called savarna castes or upper castes in general and Brahmins in particular *(Ibid).*

1.17. Growth of modern educational opportunities:

The introduction of western education system significantly changed both the meaning and content of education. The introduction of printing press revolutionized the educational system and shifted the emphasis from personal, oral communication to impersonal communication of ideas through books, journals and media. This brought the sacred books to the doorsteps of diverse sections of people cutting across the caste, class and gender. The modern education gradually opened to all castes, religious groups and women (M.S.A Rao, 1985).

Education becomes a symbol of prestige and means of contracting better marital relations. Improved economic position and adoption of westernized style of life provides upward mobility possible within the framework of westernization. The process of social mobility, however, interacted with the process of sanskritisation where caste groups, or particular sections of these, being benefited by the new education and employment opportunities, tried to rise high in the caste hierarchy by claiming a higher status.

Formal education acts as means to acquire new skills for exploiting new economic opportunities outside the caste; English educated sections were differentiated educational preferences on the basis of income and values attached to each profession. The medical and engineering professional courses were ranked higher to teaching and law professions over a period of time (M.S. A Rao, 1985).

The growth of number of women in education also led to the emergence of a category called 'career women' who sought employment at different levels cutting across the professions. The demand for professions along with the salaried occupations have led to the growth of the middle class whereas in Europe the growth of middle class was an out come of industrial society *(Ibid).*

1.18. Education and social mobility

The social background of students, to some extent, determines the choice of courses, and the level of aspiration of the students is influenced partially by the occupations of their parents. Therefore, students hailing from lower caste and class and rural background tend to have lower aspiration levels compared to the high

class, higher castes and urban background students. When students from lower socio-economic background get access to higher education and good jobs it not only improves the income level but also enhances the social status of the family and caste (M.S.A Rao, 1985).

1.19.Education and stratification:

The foregoing account states the nature of relations between education and social mobility. According to M.S.A Rao (1985) the functions of education can be distinguished into two: first, differentiation, and second, selection. According to this, education acts as a differentiating agency to maintain and supply appropriately socialized individuals to each one of the strata. This differentiatiating function tends to become prominent in societies where rigid social stratification exists.

Secondly, the 'selective' function is considered to be more prominent in open class societies. The education system tends to select students from particular socio-economic strata. Individuals or a group belonging to particular socio-economic background exploit educational facilities of higher quality better than others.

At one level it is directly having a bearing on occupational mobility and subsequently enhances the economic status, while at another other level it works as an element of social prestige. Social mobility may occur at intra-generational or intergenerational levels. The latter is associated with first generation students.

Industrialization and urbanization created a condition for obtaining educational degrees within specialization for gaining occupational opportunity.

The higher positions in the industrial society demanded for higher learning, and education became an important avenue to upward social mobility in the hierarchy. In addition to education caste, race, religion, and income are basic indicators of social status (Sachidananda, 1997).

The degree of access to education to different sections of society varies from country to country and within a country from region to region. Sachidananda (1997) illustrates two sets of factors responsible for the differential access to education to different social groups.

One set of factors, revolve around ideological, cultural patterns, which discourage or reject the value of equal access to educational opportunities for all the sections including marginalized and downtrodden in addition to women. This operates in the form of segregation of educational institutions, denying admission to a particular category of students.

Other factors, attitudes of students to education also change significantly from one community to another and one status group to other. The social groups that were historically denied access to education tend to be unaware of educational opportunities as well as aspiring for the highest positions through education. Sachidananda (1997) pointed that the unequal access to education is glaring in nature within the existing social structure.

Stratification system and educational system of society are interrelated. The educational requirement of different social strata varies in nature. These requirements give rise to different pattern of preferences and different types of educational institutions, which caters to their needs. Due to the historical legacy,

even today the educational, economic, and political opportunities are determined by factors related to social stratification. The differences between status and cultures of different castes still persist to a large extent and continue to influence each groups ideas, life styles, educational opportunities, educational aspirations, social mobility and standard of life and cultural capital (Shah and Shah, 1998).

Regarding the questions of accessibility it was the elite class that first entered new occupational avenues created during the colonial period. Although the post-Independent state policies, as part of promoting education, opened it to all in principle but empirical studies carried out by number of scholars across the country show that the modern education right from the beginning is under the hegemony of the middle classes, upper castes of the Indian society.

1.20. Organisation of Education

There is a dichotomous educational system going side by side in Indian society. One, state-centred institutions and second private corporate institutions. Pinto (2000) argues that Indian educational system is a mockery, since its inception. The high and middle classes manage to have the best education in quality, English medium institutions especially those managed by private corporate bodies help them towards social mobility and to climb the ladder of success. The lower middle classes and marginalized weaker sections have to do with the single teacher and ill-equipped public institutions.

According to a survey conducted by India Today (2001), a popular magazine, the top ten colleges in science, commerce and arts located in big cities

and controlled by the private management. There is no single government college in the top ten colleges.

Private corporate involvement in education not only reflects the fundamental divisions of society but also perpetuates social inequality. The private enterprise in education has got considerable importance due to the scarcity of higher and better quality of educational facilities offered by the government, due to its inability to meet the ever-increasing demand.

Jayaram (1990) adds that the private enterprise is largely capitalistic in orientation and operates strictly according to the principles of market economy. It mainly caters to the affluent sections and the 'middle class mobiles' in the urban areas.

Some of the complex formalities of the educational system that are primarily designed so effectively to contain the burgeoning demands for higher and professional education in fact act as social bottlenecks, necessarily favouring the elite and higher echelons on the stratification pyramid. This is one of the notable ways in which the educational system directly reinforces the prevailing stratification and rigidifies it further (Jayaram, 1990).

The steady growth and development of private education with state patronage and protection, and the resistance to a comprehensive reorganization of education could be viewed as part of a strategy of the privileged to transmit their privilege to their children (Westergaard and Resler, 1975). One can also see that in the Indian context education with its emphasis on screening excludes some sections as in the western societies.

1.21.Inequality in quality education

The existing educational system is not sufficient to meet the required qualitative and quantitative demands of the society. There exists a wide disparity in the quality of schooling that different groups of population receive. In the world countries in general and India in particular one notices the dual educational system-private education for privileged sections of the society and common or public system crowded by the weaker and depressed castes of the society. The qualitative differentiation among the public schools and private schools on the one hand and between public schools and special schools on the other hand are well recognized. Chitins (1975) provide some insights into the problem relating to the quality and standards of colleges crowded chiefly by scheduled castes and scheduled tribes vis-a-vis others.

According to Pinto (2000) there is a link between the poor allocation of funds to primary education and constant encouragement to higher education .He observes that the expansion of colleges has been on account of pressure from dominant social groups like ex-Zamindars, industrialists, local politicians and other pressure groups.

The changing patterns of education system in the context of globalization is undermining the ethos of equality of opportunities enshrined in the Indian Constitution which has recognized the prominent role of education for over all growth of the Indian society since Independence. In practice unfortunately the education system as a whole utterly failed to achieve the core objectives and goals of the constitution in relation to primary education (Pinto, 2000).

The progress of education among the lower castes and classes and particularly among scheduled castes seems to be very slow and halting. Even though the Government has taken up the cause of ameliorating the educational situation among the Scheduled Castes and Scheduled Tribes, the results has been far from satisfactory (Chitins, 1975; and Karlekar, 1975).

Sivakumar (1982) observes that the relationship between specific social origins (caste, income and educational) and student's attitudes did not, by and large show any significant differences. Her study revealed that none of the social origin parameters were by themselves individually significant and at the same time any combination of various parameters produced different types of ethos, which were significant.

Naik (1970) vehemently criticizes the existing education system of India, particularly regarding the questions of equality of opportunities. He criticizes those Indian educational systems geared to the welfare of the upper and middle classes and serving the interests of these groups even to this date. Education has thus become a means in extending the status quo and continuation of privileges. This is working against the very philosophy professed in the Constitution.

1.22. Gender

Chanana (2002) while examining women in education pointed **that** the interface between the social institutions of family, marriage on the one hand and the larger **and** modern institutions **like** education and employment on other have remained unexplored systematically. According to Chanana the social

transformation that has been taking place due to the private and public domain have begun to intersect the lives of educated individuals.

Tilak (1987) in his study 'the economics of inequality in education[1] found that the incidence of unemployment is higher among women than men at every level of education. It is due to lack of adequate and suitable employment opportunities for women and deliberate discrimination in the job market, which may be based on false or real notions of women's productivity. The discrimination against women at lower level of education might essentially indicate social and cultural discrimination where as at higher levels of education, labour market discrimination appears to be more important.

1.23. Motivational Factors

Students make decisions related to their work, educational activities etc. But the other persons, like parents, teachers, peer groups and relatives, make other important decisions. The most central of these are, first, where a student will be located in the educational system, and second, how far to continue once he is placed in the system. Further, the meaning that parents attach to education in general and specific streams of education in particular influences the preference of students. Sometimes, the meanings attached by parents to particular streams of education and the meanings the students attach to the streams may be conflicting.

Bidwell (1988) explains that the decisions have strong consequences for educational attainment because economic and political systems frame the educational opportunities that are possible for a student to realize through capacity

and effort. Therefore, as curricula become more divergent and as boundaries between streams or tracks harden, parents and educators, rather than students, make framing decisions increasingly, because each decision has become more consequential for everyone who has an interest in a students' educational trajectory.

Lastly, even students' own everyday decisions about academic efforts come more and more under parental and teacher's influence (at least in the upper reaches of the differential system), as these actors put pressure on students to follow through once the consequential framing decisions have been made (Bidwell1988).

In comparison with Britain, Europe, or Japan, in U.S.A. students are more likely to make the decisions all by themselves that frame their educational trajectories, and they are probably subject to relatively weak influence by parents and teachers when they make more immediate decisions about academic efforts (Bidwell, 1988).

As a result of structural-temporal properties of educational allocation, parents, officials of educational institutes are the dominant actors in taking decisions about where and for how long a young person will continue schooling and, at least in Japan, about how hard to work. Students have a relatively subordinate place as educational decision makers (Dore, 1976).

According to Parkins (1979) stratification implies not simply inequality, but a set of institutional arrangements, which guarantee a fairly high degree of social continuity in the reward position of family units through the generations.

The socio-economic status of parental households influences educational aspirations of students, their commitment to the student role, their educational achievement, their participation in co-curricular activities and their friends groups (Shah and Shah, 1998).

1.24. Language and educational opportunities

Language, a primordial means for communication, and dissemination of knowledge, is another source of inequality in Indian education. The constant encouragement and promotion of English as a link language by bureaucrats and academic elite led to perpetuation or institutionalization of English in elite institutions for upper class and middle classes of Indian society which extended already existing social differentiation and disparity through education (Kumar 1997).

He, further, explains that the fundamental difference between English medium private schools and Government run schools is the amount and quality of curricular material available to children.

1.25. Commercialization of Education

Xavier (2000) vehemently criticized the transition of Indian education system to produce IT professionals for the global market forces. He viewed that in the context of market economy, the advanced countries may take the globalization process in education for profit motive and transform it from an institution of knowledge to mere business.

The educational system of India before accepting the partnership with global market forces has to answer a few sociological questions: Is profit motive

overriding concern of the partnership? Are educational priorities kept in the forefront? What about the access factor? Is it only the affluent benefiting from the partnership brought about by globalization? How the access of the less privileged sections ensured? The above questions are of vital concern with regard to globalization in Indian education.

The foregoing account highlights that Indian education has been adopting a policy of inclusion and exclusion. Although the level of intensity has been changing in exclusion and inclusion due to historical, social, political and economic transformations, still exclusion is continuing in different forms.

Further, the organization of education is acting as means to limit access to some of the social groups, which are situated in urban settings and nearer to urban conglomeration, while majority of the rural students do not have 'proper' access to education particularly higher and professional education.

The position of individual or social group or a particular caste has a bearing for accessibility. According to this the traditional upper castes that have access to education since ancient times continued to dominate in the educational sector. For example, some of dominant castes such as the Kamma and Reddy in Andhra Pradesh became successful in gaining access to and control over the education system.

With the above backdrop the study argues that although scholars explored the importance of social economic and cultural factors in understanding access to educational system, sociologists have yet to look at the social roots of the recent

demand for Information Technology Education and its access to different social groups.

The aim of the present study is to explore social factors that determine access to IT education. How the socio-economic background, rural-urban origins affect the chances of individuals in gaining access to IT education? At the organizational level IT education organized in private institutions also seem to affect accessibility in terms of the affordability of IT education.

1.26. Scope of the Study:

The present study focuses briefly on the evolution of IT education and training in India in response to the global demands and also covers the effects of global slowdown on Indian IT education industry. The study broadly addresses the organization pattern of IT education and its implications for accessibility in India in general and Andhra Pradesh in particular.

It also presents a detailed analysis of the relation between the social background of aspirants and the access to IT education. The social differential indicators such as caste, income origins, rural-urban, gender background are selected to reflect social differentials. The attitudes and perceptions of the students on the IT education particularly in the context of the IT industry slowdown are also covered.

1.27. Perspective of the Study

Theory of social exclusion, founded upon the writings of neo-Weberain sociology developed by Parkin (1979), Collins (1986) and Murphy (1984) views

that the capitalist societies of West have been experiencing a shift in the nature of social exclusion.

Parkins (1979) observes " in modern capitalist society the two main exclusionary devices by which the bourgeoisie constructs and maintains itself as a class are first those surrounding the institutions of property, and second academic or professional qualifications and credentials. Each represents a set of legal arrangements for restricting access to reward and privileges. Property ownership is a form of closure designed to prevent general access to the means of production and its outcomes, credentials is a form designed to control and monitor the entry to a key position in the division of labour" (P. 47-48).

According to this conceptualization, social exclusion is individualistic in nature rather than 'collectivist'. The entry to elite groups is attainable by all through an 'open' competition for credentials. Whereas collectivist approach to exclusion operates by the direct transmission of advantage to another group members on the basis of their origin such as caste, class, and gender.

The source of exclusion is not based upon the specific attributes of individuals but the generalized attributes of social collectivities (Crompten, 1993). To address the question of education and the occupational structure Collins (1979) has chosen social exclusion theory. According to Collins the changing relationship between education and the occupational stratification should be understood as a group conflict over scarce resources (Credentials, income, occupational status).

Due to the over dependence of the middle class on education as a means to professional occupations and as a source of reproducing social status and privileges

to the next generations, led to cutthroat competition in educational system. The changing recruitment pattern also emphasized upon occupational careers to acquire credentials through formal examination (Bourdieu and Passeron, 1990)

Brown (1997) viewed that in an elite system of higher education the possession of higher qualifications represent a passport into professional and managerial occupations. The reasons for the growing competition for credentials is due to the over emphasis of employers in selection of qualified graduates for recruitment. The over-supply of graduates labour has also accelerated the problem of 'credential inflation' (Dore, 1976).

Credential inflation also intensifies the competition for credentials from elite and most popular educational institutions, because degree holders stand 'relative' to one another in a hierarchy of academic and social worth. Even market gives priority to status credentials (Hirsh, 1977).

The process of acquiring the credentials or diploma and degrees in IT education acquired significant importance in the wake of the phenomenal growth of IT industry and IT enabled industries in India.

The private sector has taken the lead role in promoting and sustaining IT education industry in the country. It is quite important to understand the social-economic background of the social groups who have attached lot of significance to IT education.

The study assumes that the stratification system influences the **extent to** which access to IT education is equally distributed. Given this perspective, one can say that the degree of access to educational opportunities, especially at higher level,

is unequally distributed. The unequal distribution of access arises from structured social inequalities based on social stratification systems such as caste, class, religion, gender, region, and rural and urban distinctions.

1.28. Statement of the Problem

IT education and training assumes lot of significance in the context of growth of IT industry both in India and abroad to train the software professional as well as the work force associated with IT enabled industries such as medical transcriptions and call centres. The offshore business transactions of the multinational companies have been accelerating the growth of IT industry. The monetary benefits and social prestige associated with the IT jobs social groups of diverse background seem to attach lot of significance to IT education.

The study aims to understand how and in what ways the organisational structure (IT education in private sector) itself differentiates the pattern of accessibility. The private corporate initiatives in shaping IT education and training and its integration with world economy have larger implications for the diverse sections (IT education seekers and providers) associated with IT education.

The study primarily focuses on how organisation of IT education in private sector influence pattern of accessibility. It tries to analyse the relationship between the socio-economic background and degree of access to IT education.

1.29. Objectives of the Study

The objectives of the **study** are **to**

Describe the organisation of Information Technology education.

Describe the socio-economic profile of the students pursuing IT Education in private corporate institutions

Understand the relation between the social background of students and the degree of access to IT education and training.

To suggest alternatives in addressing the current problems in making information technology education accessible to wider sections of the society including disadvantaged social groups in the society.

1.30.Hypotheses:

There is variability in degree of access to Information Technology education among various social groups.

The variability in the degree of access to Information Technology Education is influenced by position of the social groups in the stratification system (caste, class, and gender).

1.31.Chapter scheme

The present study is organised into seven chapters. The first chapter dealt with the origin and growth of Information Technology and its far-reaching implications for various sectors with special focus on the development of IT education. The chapter also presented the perspective of the study, the problem and objectives of the study apart from the detailed review of literature. The second chapter deals with methodology and the concepts used in the present study. Chapter

three presents the organizational pattern of IT education both in formal and non-formal sectors of India and highlights the regional inequalities in the concentration of IT education and training centres all over the regions.

The fourth chapter provides the socio- economic profile of the students who primarily hailed from different social backgrounds and its consequent role in determining access to IT education and training. The fifth chapter shows the relations between the independent variables (social background variables) and dependent variable (the degree of access to differential levels of IT education). A systematic analysis is presented by blending the empirical data with the theoretical framework on social stratification and access to educational opportunities. The sixth chapter deals with the perceptions and anxieties of the students about IT education particularly in the era of downturn in IT industry. Seventh chapter provides a brief summary of the findings and conclusions that emerged out of the study.

Chapter-II

Methodology

2.1. Introduction:

As discussed in the first chapter, the aim of the present study is to examine the relations between the social background and access to IT education. Within this framework, an empirical study was conducted on the question of access to different social groups.

The present chapter discusses the methodology adhered to in selection of the cities, selection of IT education centres, and sample of respondents. This chapter also covers the tools and techniques of data collection employed in the study. The chapter is broadly divided into two sections, while the first section deals with the selection of fieldwork methods, section two focuses on the concepts employed in the study.

2.2. Research Design

Research design of the present study adopts cross-sectional design. Study shows how the social background influences accessibility of IT education and training opportunities to members drawn from different social categories in Andhra Pradesh. The study also demonstrates how and to what extent social background determines accessibility levels of social categories that differ by virtue of their birth into particular families and social categories.

2.3. Pilot study

Andhra Pradesh in one of the major sources for human resources in the field of IT in India. On an average 23% of the total software personnel originates from the cities and towns of Andhra Pradesh. IT jobs are highly coveted among the members of middle classes and upper castes in Andhra Pradesh.

Following a review of literature of Information Technology and society relations in general and their implications for IT jobs in particular, the researcher conducted a pilot survey among 40 students pursuing IT courses in two IT training centres by using the questionnaire and interviews to collect data from students. Another interview schedule was also prepared for eliciting information from management of IT education centres.

2.4. Selection of the field

In accordance with the objectives of the study and research design I selected four cities namely Hyderabad, Vijayawada, Warangal, and Tirupathi. The rationale behind selecting these four cities as field sites is: Firstly, apart from Hyderabad the other three cities represent three regions of Andhra Pradesh namely costal Andhra, Telangana, and Rayalaseema respectively. Secondly, a significant number of IT Educations centres are concentrated within these cities. Thirdly, all the four cities have acquired reputation for quality in imparting education at different levels and finally the political economy of these cities is also unique in nature compared to the other cities of Andhra Pradesh.

The rationale behind selecting Hyderabad is, that it has been projected as the future capital of Information Technology industry in India. As a result of several proactive policies of the state government, a significant number of software and hard ware companies have been established in Hyderabad. As a corollary of these developments hundreds of IT education centers emerged across the city ranging from international to local institutions that offer a wide range of courses.

Vijayawada, known as one of the major commercial and educational centre of Andhra Pradesh, is located on the banks of river Krishna. The hinterland of Vijayawada is agriculturally prosperous due to the availability of the Krishna river water for irrigation. Because of green revolution and the strategic location of city, a significant number of educational institutions were started to meet the demands of the city aspirants and the students from near by towns and villages.

It appears that some of the economically resourceful castes and classes by virtue of their landownership seem to deploy their agrarian surplus in IT education, as an avenue of investment. IT has become another avenue for such investment for accumulation of capital by investing in IT educational instituions.

Warangal is a historical city and known as the major commercial and educational centre for Telangana region. Warangal city and district are relatively prosperous in agriculture compared to other cities of Telangana. A significant number of government and private educational institutions have been established in city. Similarly a significant of number of IT education institutes also have emerged in city, which range from local to internationally reputed instituions like NUT and Aptech.

Tirupathi is more popular as a temple city, because of the local deity Lord Venkateswara. As a result of investments of resources by the temple management, a number of educational institutions ranging from elementary school to university level have developed. On the other hand a significant number privately managed colleges shaped the Tirupati town as a centre for educational activity including IT education and training. NUT was the first training centre to come up in the city and the number has increased to 20, which offer different types of courses in IT field.

In contrast to other cities, in Hyderabad most of the IT education and training seekers belong to social groups like middle classes, comprising professionals, self-employed (business), civil servants, and white-collar workers. The other three cities primarily located in midst of the rural hinterland. The composition of IT education and training seekers tend to be different in the four cities selected for the study.

Primary data were collected from a sample of students drawn from the IT education and training institutes in four cities of Andhra Pradesh.

2.5. Selection of IT education centres

IT education is imparted by academic and industrial organisations both in public and private sector, but it is dominated by the non-formal sector (Private). The reputed IT education centres were selected for the present study namely NUT, Aptech, CMC, and SSI. The selected were either franchise or the branches of the respective training organizations mentioned above. The study was conducted in 16 IT education centres selected from four cities of Andhra Pradesh.

The rationale behind choosing these centres is; firstly, the total strength of these centres is significantly higher when compared to other training vendors, secondly, all the above centres are spread across the selected cities. Thirdly, the selected centres seem to be more popular when compared to the other training vendor in training industry and evolved new trends in extending the scope of IT education and training by innovative methods.

2.6. Selection of sample

The major focus of the study is the students. To understand organizational details data also collected from the management of the IT education centres. At time of study the enrolment in each centre varies from 150 to 160 students. Centre management refused to provide the list of total students enrolled in different courses. As a result it was difficult to get the list of students from each centre. Further, the enrolment kept changing every month. Under these circumstances 1 selected 15 students from each of the 16 centres on the basis of their willingness to participate in the study. This constitutes approximately 10% of the enrolled students.

The respondents for the present study were the students in 18-30 years age groups who were pursuing IT education courses at different levels. This may be called as a purposive sample. The managing officials of the centres allowed me to interact with students. The students were advised to assemble in a room to interact with me. During the interaction I asked them to respond to the questionnaire.

The total sample of the study is 240; fifteen incomplete questionnaires were not included in the analysis. Data obtained from 225 respondents were analysed. The table No.2.1 provides details pertaining to the name of cities selected; number of centres covered and the total sample have drawn for analysing the data.

Table No.2.1 selection of sample

Name of the city	No of centres selected	Size of the sample
Hyderabad	04	60
Vijayawada	04	60
Warangal	04	60
Tirupati	04	60
Total	16	240

Primary data consist of rural-urban, caste, social class, and gender background of the student's apart from the motivational factors and the meaning that they attached to IT-education, to mention a few, were collected from the students. The data also cover about their educational qualifications/occupational position of respondent's parents.

2.7. Secondary Data

The data were drawn from the Government reports, on growth and development of IT industry and the spread of Information Technology, IT policies of the centre and state Governments in addition to the relevant journals, periodicals of IT organization were also collected for data.

2.8. Techniques of Data Collection

The present study employed both qualitative and quantitative techniques. In addition to the questionnaire that was used to collect data from the students, to get qualitative data the researcher used two methods; firstly, personal in-depth interviews to understand the personal profile and attitude of the respondents. Secondly, focus group discussions were conducted to get an idea of how students collectively perceive about IT education and prospects of IT education and training.

Data pertaining to their experiences with the training staff, and with their peer groups were also captured in detail. For the quantitative data the researcher used the questionnaire method, which consisted of questions relating to socio-economic background, their motivation and their expectation and experiences were identified. The data were collected over a period of 8 months i.e. during January 2002 to August 2002.

2.9. Plan of Analysis

In this study, caste background, social class, rural-urban, gender and Income level of the students are independent variables. The degree of access, perceptions and attitudes of the students are considered as dependent variables. Contingency analysis of the data was carried out to understand the relationship between social class and caste background of the respondents and degree of access to IT education.

2.10. Experiences in the field

The researcher experienced major problems in convincing the managers of IT education centres and he was stopped in entrance gate in two IT education centers.

The managers insisted that it was that the policy of the centre not to allow the 'outsiders' into their centers. They were suspicious about the researcher intention. To establish rapport, I mentioned to the managers that my purpose was academic one and I also showed questionnaire to the managers.

The managers did not want- questions on IT courses offered by the centre, fee charged for the particular courses, infrastructure facilities like number of computers, power supply, qualifications of teachers etc to be included in the questionnaire. They were also suspicious that 1 may use the data for reporting to the press. The heads of the IT centres heads also objected to some of the questions, which primarily focuses on the organizational structure of the center.

The centre managers were hesitant to reveal any information pertaining to their student's socio-economic background and they were also not interested to disclose the fee structure and the salary of employees, information about the infrastructure. Moreover, since I was a student they did not take me seriously and dismissed my request to conduct my study. Even after repeated visits to the four centres I couldn't get any information, these experiences led to disappointment. To overcome the problem, I slightly changed the strategy by framing indirect questions in the questionnaire and interview schedules meant for the managers. These modifications removed their reservations and allowed me to interact with the students.

I approached the centre heads through students of the same centre. This modification helped in obtaining information from the management as well as the respondents. The new strategy worked well and the IT education centres gave

permission to conduct the study. The attitudinal change gave an opportunity to explain the objectives of the study and motive behind visiting the IT centres.

Section-II

Operationalisation of the Concepts

The present section provides a brief description of the concepts used in analyzing the thesis. The following concepts were used in understanding the relation between the social economic background of the students and access to IT education.

2.11. IT education and Training

It is a scientific process of imparting education pertaining to the IT based technologies and providing training in required skills related to electronics, computer hardware, software, computer-aided design and manufacture, software tools and their applications in various domains.

2.12. Formal and Non-formal IT education

In India IT education is broadly organized in two sectors; one is formal sector and the second is non-formal sector. The formal sector refers to government-run educational institutions such as universities, colleges that disseminate knowledge in the field of Information Technologies and allied sectors. The non-formal sector refers to private sector. IT industry, IT education and training industry are predominantly dominated by the private sector. Organizations and enterprises that provide IT education and training are also referred to as IT education and training vendors.

In India, several types of IT training vendors ranging from international to local offer courses of diverse nature and operates in a flexible mode in changing the courses in correspondence with the market demands.

The unique feature of the non-formal sector is franchise system, according to it the franchise has to pay some amount as royalty for using the brand name of particular IT education and training vendor.

2.13. Social stratification

Social stratification is a hierarchically organized structure of social inequality. It exists in all human societies. In the Indian context, the classes, caste, gender, ethnicity and age constitute social stratification systems.

2.14. Caste

In India, caste is one form of social stratification as mentioned above. According to this, caste groups are ranked as low or high on the basis of the degree of the ritual purity of occupations pursued. The Brahmin is ranked as highest, followed by Khatriyas, Vaishyas, Shudras and Untouchables.

However, caste has been undergoing significant change since independence, but it is not wiped out from Indian society. However, castes are ranked, and endowed with endogamous entity. Caste system is an ascribed entity, which determined by birth into particular community.

Although the causal relation between the caste and occupation is significantly declining, still the caste system is playing a crucial role in facilitating

access to some castes groups while simultaneously marginalizing the disadvantaged communities from access. In this study caste is used as synonymous with *jati*. In the study we adopted the strategy of asking the respondents to place their caste in one of the broad groupings adopted by the state- OC, BC, SC, ST etc.

2.15. Class

Class is a hierarchical distinction exists among social groups or individuals within society. In the western context it is synonymous with social stratification. Marxism views class as economically conditioned and inherently conflictual divisions of society grounded on ownership and non-ownership of property.

The class differences have begun when a particular social group claims the resources of production and denying the same to other social groups. In different historical contexts the property relations shape the social relationships. The class system is exploitative in nature where in the property owned class exploit the property less, there fore conflicts is inevitable product of class relationship.

However Weber's approach to class is significantly different from Karl Marx construction of class, according Weber class means all the persons in the 'same class situations'. Within the situations individual and the generational mobility is smoothly takes. He considered status and prestige as a distinct source of inequality (Coser 1977).

Though he recognized the ownership and non-ownership production is the base for class inequality. He emphasized the role of markets and skill set in expanding the class system beyond two dichotomous entities. He identified

different classes, they are; the working class, the petty bourgeoisie, the property less intelligentsia and specialists, and classes privileged by property and education. However, Weber viewed that social class is tends to change more frequently. Weber emphasis on number of factors determining opportunities and rewards become influential in understanding social stratification.

Most of the modern sociologists theorized class by taking either Marx or Weber as a base point, recognized that class is fundamental and dynamics of society is remains as 'objective' class interests. However it is important to note that most of the empirical works on class and social mobility has adopted 'occupational' definitions rather than the criteria of property relations *(Ibid).*

In the present study class categorization of classes has been done based on the perceptions of the students about the social class position of their parental household in terms of higher, middle, and lower classes

2.15 Equality of opportunity

The concept that envisages the equality of opportunities irrespective of the caste, class, gender, race, age, language, region and religion. The concept got very much importance in understanding the nature of organization and distribution of resources of diverse kind in the society. The concept has origins in educational polices of England, in the view of providing access to secondary education to all the sections particularly the disadvantaged. It promised the 'equality of access'.

The sociological debates crystallized on two major issues related to equality of opportunity; A), the extent to which it is socially desirable, feasible, and

relevant, B) the extent to which particular educational innovations aimed in the view of achieving expanded equality of educational opportunity have been successful or unsuccessful.

The present study examines how the indicators of social differentials determining in providing equality of opportunities particularly in the case of IT education in relation to the diverse social groups which differ by virtue of the birth in particular social setting.

2.16. Motivation

As mentioned in the first chapter motivation is one of most important variable in understanding the meanings attached by the diverse social groups to education and particular streams. The present study analyzes the concept of motivational factors based on the meanings that the students, attach to IT education.

2.17. Access

The term access is used in the present study to refer to entry in the context of equality of opportunity and social justice it also refers to right to entry. A study on differential access may be carried out by following one of the research strategies mentioned below: a) by comparing two matched groups: One, a group enrolled in IT education and training courses; and second a group that is not enrolled. The second by focusing on the differences among those who are enrolled. The present study adopted the second strategy to understand the degree of access. The first

strategy poses several practical problems and hence the second strategy was adopted.

Having described the methodology in the present chapter, before going to examine the relation between the social differentials and access to IT education it is quite important to understand how the IT education is organized in India in general and Andhra Pradesh in particular. The next chapter also talks about how the organization of IT education has larger implications on the issues of access to different regions and social groups of diverse nature.

The following chapter dwells upon the organization of IT education and its implications for accessibility.

Chapter-Ill

Organization of IT Education and Training in India

3.1.Introduction

Present chapter provides an overview on the pattern of organization of Information Technology Education both in formal and non-formal sector. The description would help us to examine how the organizational settings influence the access to modern educational opportunities in addition to the social background of the aspiring students.

This chapter deals with a systematic description on how the IT education is organized in India in general and Andhra Pradesh in particular. To get a comprehensive understanding about the origin and growth of IT and consequent demand for IT education and training, it is important to understand the political, economic and social factors that contributed to the rise of information society and its significant attributes.

3.2. Information Technology

Technology is one of the greatest engines of economic growth and social change in society, and its role has been increasing day by day. Like all major transformations in history, the impact of Information Technology is multidimensional: technological, economic, social and mutation for social development, for people's lives and well being (Castells, 1999).

The invention of computer is one of the pivotal events in the history of human civilization. In the early 1960s computer technology began to have enormous influence on science, mathematics, engineering, business, and commerce. But today's computer technology reaches far beyond the limited scope of early years. Presently it touches virtually every field of the human activity, and it has transformed many of them beyond recognition (Douglas, 1998).

Information Technology may not be the only cause for the changes in our lives but without the new information and communication technologies none of what is changing our lives would be possible. Since the 1990s the entire planet has begun to get organized around telecommunication networks with computers at the heart of information systems and communication processes.

Information Technology will undeniably be pervasive in rich and profound in nature. In fact, so many people are aware of its potential and as well as its replacement of human resources which led to fear of loosing employed. The questions pertaining to control and vigilance on human kind is also worrying different social groups (Webster and Robins 1989).

According to the econometric studies there is a close statistical relationship between diffusion of information technology, productivity, and competitiveness among countries, regions, industries and firms (Dosi et al 1988). As a whole there is little chance for any society, to develop in the new economy without its incorporation into the technological system of the information age. The society should have ability to use advanced information and communication technologies, which in turn requires an entire reorganization of society (Castells, 1999).

3.3. Rise of Information society

If we trace the history of information society, it has roots in the literature of 'post industrialism', a popular social science concept of the 1960's and 1970s, which heralded the end of the industrial capitalist era and the beginning (or start) of a 'service' or 'leisure' society. Particularly Daniel Bell's (1973) work on post-industrial society has become popular in information society literature.

According to him, just as agrarian society was replaced by industrial society as the dominant one, economic emphasis shifted from land to manufacturing. Basically the post-industrial society emerged as a result of the economic tilt towards the service-based society in the later half of the 20th century.

David Lyon (1988) in *The rise of Information Society: Issues and Illusions* starts his argument quoting Steve Woznaik "People started getting together and explaining the idea that there was going to be a revolution in technology which was going to change society so drastically". During the last two decades success in any field has become practically impossible without information technology. In manufacturing, policing, medicine, entertainment, banking and education, or for that matter any other field, information technology is set to change drastically every thing that human beings do in advanced societies (Lyon, 1988, P.1)).

Douglas (1998) in *The New Renaissance-Computers and the Next Civilization* emphasized that in order to understand the significance of information revolution there is a need to look for historical parallels. The information age has to be understood in the context of already existing technological advancements particularly in the field of language, writing, and printing. Douglas (1998) argues

that Information Technology has begun to change radically change the social institutions, work place, **business** organizations, culture, family relations and education system. Technology tends to create technocracy a rule by technocrats or technological experts.

Analytical discussions of James Martins (1978) **The** *wired society* or the *Wealth of Information* emphasized the role of information in an era of information age. Alvin Toffler's popular Third Wave' concept shows the significant changes in social structure. According to Toffler the first wave is agriculture, the second wave is industrial and the third wave is Information Technology. Stonier (1983) claims that Information Technology will enable the population to overcome the environmental and ecological issues caused by industrialism.

David Lyon (1988) quotes James Martin's, 'The Wired Society' in which Martin stresses the non-polluting, non-destructive, quality of IT in its favour. The history of an industrial society can be used as an analogy for what will happen in information society. It is legitimized to claim that what steam engine (or more properly the clock) was to industrial society the computer is to information society.

The roots of the information society idea are not limited to Sociology alone. According to James Beniger (1986) the roots of the so-called Information Society are more properly sought in what he calls the 'control revolution', analysed at the turn of the century by theorists of bureaucracy, such as Max Weber. Sociological theories have not yet crystallized around the concept of 'information society'.

According to Stonier (1983), now we live in a post- industrialist society and for better or worse we have moved into an information age. Information society promotes democratic state and strengthens its services.

At this juncture Manual Castells (1999) raised several questions as, is there a shared meaning for every one? Or must we differentiate people in terms of their specific relationship to the process of social change? If so, what are the criteria for such a differentiation?

3.4. Human resources in the wake of Information Society

Human resources play an important role in sustaining the growth, development and deployment of Information Technology. In this context, it is a pertinent task to examine the nature and quality of human resources. There is need for highly skilled professionals to meet the requirements of production and service industries including education.

In order to train the information technology professionals there is a need to organize Information Technology education at different levels. Information Technology skill profile tends to change from the concentration on middle-range craft and supervisory skill to increasingly high-range qualification and from narrow specialization to broader, multipurpose skills for information handling. Diversity and flexibility at all levels works as substitute for homogeneity and dedicated systems.

In the long run industry of software creation, adoption and application will become a major employer. As microcomputers with large-scale integration have

become available, they are being used for an even greater number of applications, range of equipment and systems.

According to Douglas (1998) the new computerized servant class would be radically different from those of the past, and it would completely avoid the moral difficulties involved with slave holding and other inequalities through the ages, but it may not avoid all the practical difficulties involved with the existence of social class.

Key to information society discourse is the contention that 'information workers' are rising to a majority within the labour forces of the advanced societies. According to Marc Porat (1977) as early as in 1967, 50% of the American workers were engaged in the 'information sector' and they received 50% of the total employee remuneration.

3.5.RegionaI Variations in participation in promoting Human Resources

As part of the software development, regions and firms that concentrate on the most advanced production and management systems are increasingly attracting talent from around the world, while leaving aside a significant fraction of their own populations whose educational level and cultural/technical skills do not fit the requirements of the new production system. For example, the Silicon Valley, the world centre for production of Information Technology is attracting every year thousands of engineers and scientists from China, Taiwan, Singapore, Korea, Israel, Russia, and Western Europe in general and India in particular (Castells, 1999).

3.6. Demand for IT professionals: Projections

The rise of information society in **the** west is fundamentally driven by **the** wider application of IT in all the spheres of life. Still most of the western countries have shortage of IT professionals. According to the **IT** industry estimates, US **with** its present ten million IT workforce needs to fill 1.6 million new jobs in the **next** one year (2002), in Europe there is a shortage of over 2,00,000 IT professionals, Japan projects nearly one million new jobs, Germany is looking for 20,000 IT specialists and Italy is seeking 15,000 additional manpower. All these countries are looking towards India to fill the demand -supply gap (Verma and Sarita 2001).

3.7. **IT** professionals required by **India**

The studies show that although India is one of the major hubs of human resources for software production and promotion still the existing human resource are not sufficient to meet the requirements of India by 2008, if the present trend continues with the same growth rate. Table No.3.1 shows the supply of IT software professionals.

The following Table No.3.1 shows that total demand for IT professionals is expected to grow three fold from 4,16,000 in 2001-02, to 11,76,240 during 2004-05, but the supply rate is not corresponding to the growing demand, it **would only** double from 4,28,000 to 8,75,000 during **the** corresponding period and result into **a** shortage of 3,01,240 IT professionals.

Table 3.1 India IT labour supply: Software Industry*

Name	2001-02	2002-03	2003-04	2004-05
Existing Work Force	3,60,000	4,28,636	5,42,494	6,75,252
Mew IT Labour	1,32,986	1,58,099	1,72,977	192194
Effective no of IT Professionals returning to India**	-64350	-44241	40219	7800
No of IT Professionals	4,28,636	5,42,494	6,75,252	8,75,246

** Based on the number of IT professionals leaving the country and the number of those returning to India. *Excludes Information Technology Enabled Service (ITES) Professionals.

* Excludes Information Technology Enabled Service (ITES) Professionals.

** Based on the number of IT professionals leaving the country and the number of those returning to India.

Source: *NASSCOM (National Association of software and services companies),* Extrapolation and analysis by *Data quest (2002).*

3.8. IT education and Training

The technological sector interacts with the cultural sectors of **information** and communication to radically modify society. A new **culture of knowledge and** expression is emerging as a **culture of artificial intelligence and virtual reality. A** social theory of information works as remedy to the **current lack of rigorous and** imaginative foresight concerning digital **world of societies.**

According to Tom Stonier (1983) development of Information Technology and its far-reaching implications have begun **to** influence education system in significant ways. Technological innovations **in** general and information technology revolution in particular have led to steady changes in educational priorities **and** curriculum structure both in western and Indian educational systems.

The studies also emphasized that an adequate level of education in general, and of Information Technology education in particular is essential for the design and productive use of new technologies (Freeman, 1992). But neither the limited number of scientists and engineers nor the acquisition of advanced technology can be a factor of development by itself without an appropriate organizational environment (Castells, 1995).

The foregoing account states that to sustain the information economies, it is very essential to design and develop the software to fulfil the present needs and that of the future in different sectors of a country. Owing to IT applicability in all spheres of social, economic, and cultural life, trained human resource is a prerequisite. Western countries like Britain had taken special interest to promote Information Technology oriented courses to bridge the gap between industry and education.

3.9. IT education and training: Developed countries

The application potential of Information Technology **in diverse** fields **led to** rapid growth of IT industry as well as IT enabled service industries. **The concept** of IT literacy also got immense importance in developed countries by the 1960's and

70's. Virtually all the commercial and non-commercial organizations and institutes of simple to complex range adopted the use of IT in their day-to-day events.

It is also very clear from job advertisements particularly from early 1980's that ones chances of getting employment are enhanced by the possession of qualifications in micro-electronics, computing, systems analysis, telecommunications, fiber optics, expert systems and so on. As mentioned earlier, advent of Information Technology in the late 1970s the education systems of Western Europe and America witnessed a gradual transition towards Information Technology oriented streams. IT courses got institutional support because of its market value, as a part of initiatives on the number of seats in IT related streams increased with manifold rate (Robins and Webster 1989).

3.10. IT education and training in India

To meet the demands of IT sector, Governments in several countries including some developing countries realized the need to give a new thrust to IT education. The Government of India also responded to the growing demand for human resources both within the country and overseas by introducing Information Technology streams at different levels. Owing to the social prestige and monetary values attached to the Information Technology education, career oriented young persons cutting across the age, class and caste groups have begun to opt for IT courses.

As a result, a number of IT training institutes both in formal and non-formal sector were established across the country by offering different types of

courses with varying duration such as long-term and short-term courses. At this point, it should be mentioned that the government, which is unable to meet the expected demands, has been encouraging enrolments of those who can support their education by paying higher fees even in public funded institutions. Further, the government has been encouraging private initiatives in the field of higher education (Maheswari, 2000).

3.11. IT education: Formal Sector

The buzzword in Indian higher education today is Information Technology. This can be seen in the proliferation of IT- related courses in colleges and mushroom growth of computer engineering in engineering colleges (Pillai, 2000).

In India, one can witness a shift from traditional disciplines in basic sciences to technologically oriented disciplines in general and IT education in particular because of the wide range of opportunities associated with it. According to *The Hindu* (2001), a newspaper most of the people are spending more money on education than on any other item /activity. Since Independence this is the first time that a good number of Indians have been thrilled at the prospect that a degree IT course can offer them good employment in foreign countries and an increasingly liberalized India as well. The country is witnessing a mushrooming of engineering colleges in large numbers and computer training institutions *(The Hindu* 27-2-2001).

IT education and training is imparted by two sectors in India; formal sector consists of academic institutions such as universities, colleges and special

institutions. The non-formal sector is dominated by the private vendors ranging from local to international level. They are NUT, Aptech, CMC, and SSI, to name a few which has acquired national stature, and thousands of local institutions spread across the country.

The IT education and training that began in the 1970's and by the late 1980s received consistent and considerable attention, as values attached to different streams of education significantly changed in the context of globalization. The Indian higher education is being shaped by technological factors as in the western context, particularly the computer education virtually transforming the educational ethos and priorities. MNC's and Indian business houses have been entering the educational market in a big way.

In India to support IT industry there has been a consistent encouragement to run the three-year MCA programmes, four year B. Tech and M. Tech both in public and private sector colleges and universities. Private initiative in functional training in the use of software packages started. To develop manpower development in the IT area started resembling responses to a crisis caused by an extremely limited number of software personnel. Almost all universities started /expanded degree level programmes in IT. Government has been liberal in giving affiliations to privately run institutes that focus only on IT degree programmes (Maheswari, 2000).

Out of over 700 engineering colleges in the country, around 500 offers B. Tech. Programmes in electronics, computer science and engineering, and 300 universities/colleges, offers BCA/BIT, three/four year programmes after 10+2,

have been introduced of late in various universities including Indira Gandhi National Open University (IGNOU). The formal sector, at degree level (B. Tech./BE/MCA), is in a position to produce 75,000 graduates every year.

3.12. Limitations of Formal sector

The World Bank report (2000) on 'Science and Technology Man power development in India' pointed that India is undergoing a major crisis due to its tremendous growth, limited resources, high wastage, and over- centralized governance. It is also observed that it is unable to maintain quality and relevance, which ultimately, fails to respond quickly and adequately to the country's requirements.

Some of the major problems faced by the higher education in India are as follows; firstly, over-centralization and lack of autonomy and accountability of institutions resulted as malpractices in examinations, out dated curricula, poor infrastructure etc.

Secondly, the large wastage of the scarce resources in the form of dropout and failure rates are as high as 40%, over supply of graduates from traditional disciplines led to huge unemployment and underemployment.

Thirdly, the mismatch between student demand and market requirements and institutional output and training modalities, there are related issues to this; when students demand the streams, which have employment potential, some resulted in exceeding the admission capacity in particular streams. There is cutthroat competition for admission into premier institution like IITs.

Fourthly, the high demand for admission in professional streams has resulted in creation of admission capacity in many areas far beyond the needs of the economy. On the one hand there is over-supply of engineering graduates in specific disciplines like mechanical engineering and electronics, on the other hand there is shortage of manpower in the disciplines like Information Technology related courses. This reflects both unscientific planning of programmes and the poor quality of training in most of the colleges.

Fifthly, despite the phenomenal expansion in higher education in the country since Independence, only 6% of the relevant age group of 18-23 years is enrolled for higher education due to the limited capacity (share of the science and technology education accounts for less than 2%). This limits the access particularly to the professional courses, which led to mushrooming of thousands of private institutions for training at different levels.

Sixthly, there is wider disparity among the regions in India in the development of educational institutions due to the socio-economic and historical backgrounds. The trend shows that the southern states and western states are ahead of the eastern and northern regional states in terms of number of institutions, admission capacity, and quality of the streams (World Bank, 2000).

The above problems are interconnected and the accumulation of this entire problem ultimately failed to fill the gap led to the entry of Non-formal sector, which is purely controlled and regulated by the private players.

3.13. Non-formal sector

The non-formal sector has been playing a vital role in imparting IT education and training, with a large number of IT education centres spread across the country. The non-formal sector accounts for more than 5000 training centres in India. The non-formal sector, particularly, organizations like NUT, Aptech and Department of Electronics Accredited Course Certificate (DOEACC) scheme are filling the space not only by providing short-term, skill-oriented programmes, but also by providing opportunities to university students, who could not get admitted to degree programmes in IT, to pick up IT expertise while being enrolled in a non-IT degree course in degree/university.

Data Quest (July,2002) claims that, India needs three categories of IT workforce; first the experts, second the programmers, and third would be IT-literate executives, businessmen and government officials. About 0.5 million students are getting IT training in non-formal sector. The non-formal sector as mentioned above has over 5000 training institutions and is rapidly increasing at the rate of around 20% per annum (Maheswari, 2000).

The total revenue being generated by IT training sector was Rs. 2,594 crores for the year 2000-2001. During the last two decades, a large number of training centres in the private sector have grown significantly and have been providing training at degree and diploma level in Information Technology, especially the software development.

Table No.3.2 shows the number of institutions currently accredited with DOEACC (As in September 1998) at different levels and their output so far.

Table: 3.2. Number of centres currently accredited with DOEACC

DOEACC	0	A	B	C	Total
Institutions	**444**	**114**	30	**11**	599
Registration	**1,10,000**	2,14,000	**4000**	**3900**	1,39,000
Pass outs	7572	1,107	13	**14**	**8706**

Source: *Soni.G, Mehta.S.C, Khurana (2000).*

The level 'O' of DOEACC is a foundation course in which the student acquires familiarity with basics in computer. The level 'A' is **equivalent to** PGDCA (Post Graduate Diploma in Computer Application) course. The levels B and C of this scheme are equivalent to MCA and M.Tech recognized by AICTE. Soni *et al* claim that DOEACC scheme is growing at the rate of over 35-40% every year.

Table 3.3. DOEACC Projections: The expected output projections of DOEACC scheme:

Level	1998-99	2001-02	2007-08
O	3700	33100	3,42,100
A	1350	6650	87, 600
B	10	500	12,550
C	24	105	1020
Total A, B, C	1384	7255	101170

Source: *Soni, Mehta, Khurana* (2000)

Table No.3.3 **demonstrates the steady growth of IT courses at** different **levels** ranging **from** the basic O **level to advanced** C **level courses. The projection indicates that by the year 2007-08 the output of DOAECC scheme in IT education would be 1,01,170.**

Apart from the DOEACC scheme, the prominent training vendors in the **non-formal sector imparting and training a large number of students.** Infact, **it**

accounts for 0.5 million pass out per year. Although the recent slowdown cost the IT education segment 38% or Rs 1,595 crore in 2001-02 compared to the 2000-2001's 2,591 crore-worth of IT industry. Still it managed to survive with the changing times. As per the Data Quest (2002), a computer magazine, there are more than 5000 training centres affiliated to major training organizations spread across India. Out of these the share of the top 15 vendors accounts for 75% of the training centres in 2001-02. Table No. 3.4 shows the top vendors in IT education and their share in the industry.

Table: 3.4. Major players in IT education industry

Rank	Company	No of Centres	Percentage
1	NUT	2577	36.6
2	Aptech Training	2214	31.4
3	Tata Infotech	706	10.0
4	SSI	650	**9.0**
5	CMC	253	**3.7**
6	IBM India	174	**2.4**
7	CMS Computer institute	138	**2.0**
8	Onward Novell Software	125	**1.7**
9	Microsoft Corporation	125	**1.7**
10	C-DAC's ACTS	105	1.5
Total		7067	100

* As on December 31, 2001. Source: Data Quest, (2002)
Note: The numbers in the brackets shows the percentage of the frequency.

Table 3.4 clearly indicates that the share of NIIT and Aptech accounts for more than half of the IT education and training industry. The NIIT and Aptech spread across the country and these organizations acquired an edge over other vendors due to the strategies and methods followed by respective managements.

The strategies employed by IT education and training vendors are one, franchise system, two, aggressive campaigning, three, more flexibility in design and offer of courses and four flexibility in fees.

3.14.Franchise system

All the major vendors of IT education and training claim that they have been working towards expansions of their training centres all over the country cutting across the regions. The IT education vendors follow franchise model to expand their centres. According to this, the corporate office of the respective vendors through an advertisement call for the applicants to start a franchise. The vendors select persons on the basis of educational qualification, communicational skills, work experience in IT education and training field, and economic capability of the interested entrepreneur.

According to the terms and conditions of the agreement the local manager of an IT centre has to pay certain percentage of the revenue as a royalty for using the brand name of the vendor. As part of the agreement, the vendors supply the study material, methodology and issue of a certificate.

Most of the vendors ranging from global to regional follow this franchises model to expand their training base within different cities and towns. This is more evident in the case of leading training vendors such as NUT, Aptech, CMC, and SSI to name a few.

3.15. Aggressive campaigning

The role of advertisement is immense in promoting IT education and training. All the training vendors take the help of media, both electronic and print, to promote

their centres, all the newspapers both local and national covers the role and credentials of these centres in imparting IT education, their specializations in particular fields, the varieties of courses they offer, and benefits and advantages of the courses etc to attract students from diverse social backgrounds cutting across their age, profession, and educational background.

Some of the prominent vendors like NUT and Aptech became successful in creating an imprint in IT education with their training centres among different sections of the people particularly students and educated sections.

3.16. Flexibility in design and offer of courses

The IT education vendors always keep track of the changing trends in the demand for skills in IT industry at a global level. They design courseware and methodology in tune with global and domestic requirements. The duration of the courses and fee are flexible in nature; some courses hardly take a couple of weeks whereas the long term courses takes nearly four to five years.

The fee structure varies according to the duration ranges from Rs 500 to more than Rs 50,000. In addition to the above factors, there are diversified courses, which are aimed to attract different age groups ranging from kids to old age people and different professionals, students and educated classes to pursue IT courses. Curriculum in Private IT education institutions generally ahead of teaching in formal sector; as the process of curriculum reform in academia tends to be much slower *{Data Quest*, May 2001).

3.17. Regional distribution of IT education centres

As discussed earlier the growth of IT education and training is a response to the demand generated by the process of globalization. Demand for IT education and training is primarily driven by the market forces in the interests of developed economies. Although thousands of IT education institutes have sprung up across the country the distribution of these centres is uneven across the region and within a given region. The uneven distribution indicates motives behind the organization of IT education and training by the private sector in different states.

Table No 3.5: Distribution of IT Education cross the regions

S.No.	States	Frequency	Percentage
1	Southern states	1334	41
2	Northern states	840	26
3	Eastern states	484	15
4	Western states	577	17
5	North-eastern	37	01
Total	All India	3272	100

Source: Data Quest, (May,2001).

The data presented here are drawn from the Data Quest 2001, May special issue on IT education centres and courses. Table 3.5 indicates a clear pattern of the distribution of IT education and training centres across the states. Southern regions, comprising Andhra Pradesh, Karnataka, Kerala and Tamil Nadu account for 41% of all IT education centres.

Most of the training institutions as mentioned above are under the control of non-formal sector. The basic objective of the corporate vendors is accumulation of profit. They tend to provide their services in the regions, which have the economic potential.

Table No.3.5 demonstrates that in the northeastern region, due to economic underdevelopment and lack of links with the mainstream society the expansion of IT education centres is limited. That is why only a few centres can be seen in this region.

3.18. State-wide distribution of IT education and training centres

Although thousands of IT education and training centres have come up across the country the distribution of these centres is uneven, varying from region-to-region and even within the regions. To understand the trends in distribution an attempt has been made to examine the distribution of IT education and training in different states.

The data presented in the following table is drawn from the Data Quest, May 2001 special issue on IT education centres and courses. The issue of the magazine contained information in each of major training centres located in different cities and towns of different states and union territories.

We counted these training centres and tabulated the data. The Following Table 3.6 indicates a clear pattern in the distribution of IT education and training centres. The centres are heavily concentrated in a few states. Tamil Nadu tops with 714 centres and Mizoram with only one centre stands last of all the states in India.

Table No: 3.6. Distribution of IT centres in different states

S. No	Name of the state/Union tertiary	No of centres
1	Andhra Pradesh	222
2	Arunachal pradesh	3
3	Assam	16
4	Bihar	137
5	Chattisgharh	5
6	Goa	10
7	Gujarat	303
8	Haryana	21
9	Jammu& Kashmir	17
10	Jarkhand	20
11	Himachal Pradesh	7
12	Karnataka	266
13	Kerala	129
14	Madhya Pradesh	81
15	Maharashtra	227
16	Manipur	4
17	Meghalaya	6
18	Mijoram	1
19	Nagaland	3
20	Orissa	111
21	Punjab	61
22	Rajastan	82
23	Sikkim	4
24	Tamilandu	714
25	Tripura	4
26	Utter Pradesh	328
27	Uttaranchal	33
28	West Bengal	216
29	Andaman	--
30	Chandigarh	11
31	Dadranagar	37
32	Daman& Diu	3
33	Delhi	207
	Total	3272

Source. Data Quest (May, 2001)

In western India, Maharashtra and Gujarat account for 530 centres. Among the northern states UP accounts for the largest number that is 328. Northeastern states provide a dismal picture. Manipur, Mizoram, Assam, Arunachal Pradesh

accounts for only 30 centres. The distribution indicates that IT education and training in the non-formal sector are concentrated in a few states in the country.

The factors responsible for such uneven distribution have to be located in the policies of the state governments towards development of IT, differentials in the levels of economic development and the quality of education offered by the states. In the southern states Karnataka is the leading and it has emerged as a hub of Indian IT industry followed by Andhra pradesh and Tamil Nadu.

Southern states have a large number of engineering graduates produced by a large chunk of engineering colleges with proper infrastructure. As a result, most of the IT education and training centre are concentrated in southern states, which provides education and training in software both on part time as well as regular long-term basis.

The main engine driving the IT education and training is the monetary and non-material benefits associated with software professional's jobs and related professions. Here are some of the highlights of the survey conducted by the Data Quest (2001) an IT magazine.

Table No: 3.7 Out-turn of manpower from Degree/Diploma colleges*

Name of the Item	2000-01	**2001-02**	2002-03	2003-04	2004-05
Professionals passing out with degree in IT (A)	53,370	**71,066**	81,423	93,968	99,162
Number of (A) joining the IT industry	42,696	56,853	65,138	75,175	79,330
Wastage	10,674	14,213	16,285	18,793	19,832
Professionals passing out with diploma in IT (B)	41,128	44,175	45,221	45,871	47,017
Number of (B) joining the IT industry	31,669	34,015	34,820	35,320	36,203
Wastage	9,459	10,160	10,401	10,551	10,814
Total IT professionals from degree & diploma	94,498	105,081	126,644	139,839	146,179
Effective number of pass outs joining the IT industry	74,365	90,867	99,959	110,495	115,833

Source: Ministry of HRD, Department of Secondary Education & Higher Education, and Nasscom.
* Extrapolation and analysis by *Data Quest* (2002, July).

One has to admit that the highest paid professionals in the country are software professionals. The survey also pointed out some interesting trends. A steady growth of woman representation in software sector has occurred accounting for almost 30% of the total software professionals in the country.

The major highlights are; first, the salary of IT professionals, with one-year experience IT professionals get 1.25 - 2.4 lakhs i.e. 10,400- 20,00 per month, With two years experience they could get 2.4- 4.5 lakhs i.e. 20,000-37,500 per month. Between two to five year experiences professionals could get Rs 3.1- 5.9 per year,

i.e. 25, 800- 49,166 per **month.** Between **5-10** year experiences professionals would expect Rs **4.7- 13 per year i.e. 39,000- 1.08 lakh per month.**

A vast **array of perks and benefits become very common in** software industry. To mention a few perks offered by companies: life/ medical insurance, subsidized restaurant food, availability of employee stock option, training sponsorship, housing loan, club membership, car loan, annual foreign trips. Survey also highlighted pretty much hikes, usually twice in a year.

However, after September 11th attacks on World Trade Centre (WTC) in New York there has been a downturn in salaries and perks. The early period of 1970's witnessed the coming up of IT education and training industry with a few companies set up in non-formal sector. The IT industry shows a steady growth in 1980's and got momentum in late 1990's. The industry has been performing well with the growth rate of 30- 35% per year, the software industry was expected to reach Rs 39, 500 crore in 2000- 2001 as per the Nasscom projections. Table No.3.7 displays the manpower trained by the professional and diploma colleges.

3.19: Standards in IT Education: Gap between the IITs and other educational institutions

Nasscom (National Association of software and service companies) strategic review (2002) claims that higher education institutions in India are losing their ability **and** credibility in filling the requirements of the industry. Further, apart from the premier institutions **such as IITs, and IIMs, other academic** institutions could not maintain proper academic standards.

Apart from this, the number of qualified graduates and post-graduates coming out of the higher education system is not significant enough to make a meaningful difference to fulfill the gap between demand and supply logic in a large country like India. For example, the country produces about 1.6 lakh engineers per year, but only about 3,000 engineers (pass outs from IITs) are of international quality. This is not more than 2% of the total engineers graduating every year *{Data Quest*, July 2002).

3.20. Filling the gap

The Data Quest claims that by 2004, there will be a short fall of a million software professionals in the U. S alone. The U.S would require 9.2.million new entrants. According to the Nasscom estimates India would require 2.2 million IT professionals to achieve the target turnover of $87 billion by 2008. IT institutes in the formal sector training about 70,000 IT professionals per year, and the non-formal sector training 0.5 million students annually.

The recruitment pattern for employment of the IT companies showed that only 20% students with diploma background were able to get employment. It is observed that although IT training market has been expanding in quantity. The quality of faculty to train those knowledge workers is not growing proportionately. This is the basic limitation both in formal and non-formal sector IT institutes.

Owing to the ever-changing scenario in software industry IT educational institutions both in formal and non-formal sectors have been challenged to anticipate market shifts and at the same time continue the basic structure of the

academia. Most of the people continue to believe that IT can offer better career options than most of other disciplines, in spite of the tentative slowdown *{Data Quest*, July 2002).

3.22.Urban domination in software Industry

Data Quest (2001) on the basis of survey claims that among the software professionals 65% of those with 2- 5-years experience, considered as the backbone of IT industry hails from the urban cities and towns.

3.23.Changes in the course according to demands

Based on industry demands, and global economic trends, IT training institutions design and revamp the course structure every year. The demand for particular course totally depends on the needs of the market forces and as a result the fluctuations in the IT market determine the rise and fall of the IT courses.

The Data Quest survey highlights that in addition to a standard set of packages meant for corporate houses, private institutes also provide some flexibility through customized courses, based on specific requirements. Overall the IT industry realized that training is critical for skill up gradation.

The basic objective of the training is to master multiple operating systems to enhance one's knowledge in fundamentals, thus ensuring job market value and future prospects; but the fundamental question is: Are the pass outs from IT training centres in the non-formal sector really acquire multiple IT skills? Do they stand on equal basis with engineer and MCA counter parts? These are some of the important questions. It is an industry norm rather than a mandate to seek B.E;

B.Tech and MCA mainly because of the tough selection 'filter' that they go through. In fact, their qualification is taken as recognition of their abilities *(Data Quest*, May 2001).

3.24. Slowdown in IT industry

One can get an idea of the impact of the slowdown by looking at the observations made by the IT education and training industry reports. It is observed that the computer education industry seems to be facing challenges with changes in student's attitudes due to the slowdown in IT industry.

Data Quest (2002) highlights that out of 15 lakh students who did some sort of computer course or other during 2001 only 30,000 got jobs. It further confirms the above fact. According to it out of 5 lakh students who did NUT courses only 16,000 got jobs. It claims that an overwhelming majority of undergraduates who are responsible for 70% of the industry 's revenue realized that quickie courses in non-formal sector would take them nowhere.

The CEO of Aptech admitted that, the number of students opting for short-term courses has fallen by 30-40%. This is due to the slowdown in the American economy on which the Indian IT industry mainly depends. According to statistics out of 4,30,000 students in Aptech 2,00,000 opted for short-term courses, this registered a drop rate of 30-40%.

3.25. IT education and training: Andhra Pradesh

Government of Andhra Pradesh has quickly recognized the potential of Information Technology to boost the state economy and its applicability in shaping

the state towards E-Governance. The Government of Andhra Pradesh has been consistently supporting the growth and development of IT sector and its related fields. Another major initiative of the state is the move towards ushering in electronic Governance. The primary motive of these efforts is to leverage the power of information and communication technology to enable Government function effectively (Chowdary, 2000).

Following are some exemptions from the existing laws and incentives, which have been introduced to promote the IT industry:

- Exemptions from environmental clearance
- Exemptions from zoning regulations for purpose of locations
- Fiscal incentives
- Power tariff at rates applicable to industry
- Exemptions from sales tax
- Self-certification for purposes of compliance of the following acts like water and air pollution Act, factory Act, employment exchange, minimum wage Act, contract labour, working men compensation Act, Andhra Pradesh shops and establishment Act and employees state insurance Act.
- General permission to run a three shift operation
- Rebate in land cost keeping in view the high employment potential
- Relaxation of FAR for IT parks
- Exemptions from stamp duty transfer of property and registration charges for all IT parks (Satish Babu, D.R. 2001).

The incentives and programme aimed at promoting IT industry and IT enabled services have smoothened the way for the IT education **and** training industry. IT courses **have been** opened in number of Government colleges as well as privately managed colleges.

Andhra Pradesh is one of major sources of human resources in the field of IT. According to the *Data Quest,* a computer magazine, 23% of the total software engineers in India are from Andhra Pradesh. The number of engineering colleges increased from 32 in 1995 to 225 by 2002. Most of the IT training institutions and colleges are privately funded and managed. Bachelors in Computer degree (BCA) was introduced in 414 colleges and MCA courses was introduced in 116 colleges, together these institutions will produce about 10,000 IT/software graduates, about 5000 MCA and over 16,000 BCA s per year (Chowdary, 2000).

Different social groups in Andhra pradesh have begun to attach a lot of significance to the IT professional jobs, and it resulted in the increased demand for IT education and training across the state, particularly in towns and cities. The data presented earlier clearly showed that Andhra Pradesh has 222 IT education and training centres. At this juncture it is very important to understand how the IT education and training centres are distributed across the state.

Table No: 3.8 **Distribution of IT education centres at regional level**

Name of Region	Frequency of Centres	Percentage
Costal Andhra	38	17
Telangana	18	08
Hyderabad	145	64
Rayalaseema	21	10
Total	222	100

Source: *Data Quest* (May, 2001)

Table No.3.8 demonstrates the skewed distribution of the IT education centres in Andhra Pradesh. The distribution pattern reveals that the major cities such as Hyderabad and Secunderabad have maximum number of IT training centres compared to any other city in the state, followed by the cites in costal region of Andhra Pradesh, which is more developed than Telangana and Rayalaseema regions.

The trend shows that the major target of IT education centres is big cities the second best option is well-developed cities, and the third commercial towns. As a result, IT education is confined to the big cities and towns. Mandal level towns which are the centres of agrarian activities and nearer to the surrounding rural area students interested in IT training did not attract the IT education vendors. Young aspirants from small towns and rural areas find it extremely difficult to gain access to IT education.

Jayaram (1990) argues that the educational system primarily designed so meet the demands for higher and professional education in fact it always works in favor of the elite and higher echelons on the stratification pyramid.

Westergaard and Resler (1975) highlights that the steady growth and development of private education patronage and protection of state, and the resistance to a comprehensive reorganization of education could be viewed as part of a strategy of the privileged to transmit their privilege to their children.

Castells (1999) pointed out that although the process of globalization encompasses the entire planet affecting all people and all territories, not every place or person is directly included in it. In fact most of the people and most land are excluded, switched off, either as producers or consumers or both.

To summarise, the rise of Information society is associated with the evolution of Information Technology. The nations across the world embraced IT as facilitator in production and services. For sustaining the information society, human resources trained in IT workforce are crucial. In the process of training IT professionals, thousands of IT education and training institutes have spread across India in general and Andhra Pradesh in particular due to the enthusiasm of the different sections of the society seem to attach a lot of significance to IT education and career in IT related fields.

With the above backdrop, an attempt has been made to understand the pattern of organization of IT education and patterns of distribution of IT education centres all over India in general and Andhra Pradesh in particular. The trends in organization demonstrated that although there are a variety of IT education and training vendors imparting IT education only a handful of vendors became successful in IT education industry among the top 15 vendors the first two account for more than $2/3^{rd}$ of the IT education industry share. The rest of the vendors share is not much significant.

Major IT education vendors adopt franchise system, resort to aggressive advertisement campaign and offer multiple courses to meet the requirements of

students drawn from educational streams like, professionals, and diverse age groups, children, house wives.

The distribution of IT education centres is uneven both at national and state level. The patterns of distribution shows that at the national level only the southern states are far ahead while the eastern regional states are lagging behind in attracting IT education vendors. The western states particularly Maharasthra and Gujarath have attracted significant number of training centres. A significant number of institutes are concentrated in Delhi the other states do not have as many training centres.

Within Andhra Pradesh also the state capital Hyderabad and its twin city Secundrabad account for the largest concentration of IT education centres. The IT education and training vendors also offer courses in the district head quarters and commercial centres. The under developed regions and rural areas are neglected by the IT vendors. As a result, no IT education centres are found in these regions. The uneven distribution of IT education and training facilities has implications for access to IT education. It is clear that only a few cities and big commercial towns have IT education centres. In other words for those living in small towns, and rural areas including tribal areas access to IT education is very limited.

The following chapter provides the socio-economic profile of the students.

Chapter-IV

Students Enrolled in IT Education Centers:

A Socio-Economic Profile

4.1.Introduction

As mentioned in chapter two, data were collected from 225 respondents of 16 centres situated in four cities of Andhra Pradesh. Apart from the social background, the other indicators such as parental income, parental education, rural and urban background was also collected.

This chapter provides a profile of the student's social origin and a brief analysis of relationship between social origin and access to IT education is given.

4.2. Age distribution of respondents

IT education and training tend to attract various social groups cutting across the age factors. With the growing importance for computer literacy and the demand from the market and industry led to attach more significance to Information Technology course with varying duration.

There are multiple factors driving different social groups ranging from children to age-old persons. Table No 4.1 provides a brief description of the age groups of students enrolled in IT education and training centres.

Table No: 4.1 Profiles of the respondents

Age group	Frequency	Percentage
16-20	111	49
21-25	97	43
26-30	17	08
Total	225	100

Table No.41.1 indicates that almost 50% of the respondents fall in the age group of 16-20 years. In other words, half of the students are those who pursuing either intermediate (10+2) or under graduate degree programme and learning computer skills simultaneously. The second largest numbers of the students fall in the age group of 20-25 (43%). This trend demonstrates that those even at the master level education students were pursuing IT education to enhance their skills. The two groups accounts for more than 90% of the total sample. Although diverse age groups are registered in IT education, the driving force of the training industry in the non-formal sector is the college going students.

The students whose age fall under the category of more than 26-30 is relatively less compared to students from other age group. Table No.4.1 implies that the students in the 15-25 age group outnumber all other age groups in IT education and training. There are multiple motivational factors at macro level pull factors such as high salaries, employment opportunities, social prestige, abroad trips, higher education and 'push' factors such as unemployment, underemployment, lack of proper working conditions are responsible for the greater demand for IT education.

4.3.Caste wise Distribution of respondents

Sociologists regard caste as one of the basic foundations of social stratification in India. Stratification system and the educational system are not independent entities. They are interrelated. Caste is considered as one of the important variables in understanding the social structure of the Indian society since the social position (status) of a particular individual or social group varies

according to his/her caste origin. Caste status is an ascribed status. It accords a high status to a particular individual or social group by virtue of their birth in it. It also accords high status and power to a particular set of communities and denies the same to others on the basis of hierarchical relations between the purity and pollution of the occupations practised by different caste groups.

In this study categorization was done on the basis of the respondent's perception of position of his / her caste in the hierarchy. For the purposes of the present study we followed the classification of caste groups adopted by the government of Andhra Pradesh in terms of OC (other castes), BC (backward castes), SC (dalits) and ST (tribal groups).

The specific caste groups included in upper castes or other castes or forward castes, BC, SC, and ST are given bellow. The respondents included in the study were asked to indicate to which of the caste groups in terms of OC, BC, SC, ST did he or she belong.

a. OC includes the respondents hailing from upper castes namely Brahmin, Vaishya (Komati), Khsatriya, Kamma, Reddy, Kapu, and Velama.
b. Backward castes or other backward castes consist of Golla, Gouda, Chakali, Mangali, Mudiraju, Kamsali, and Kummari etc.
c. Mala, Madiga castes come under SC (Dalits) and
d. Lambadi, Yerukal, and Koya come under ST category.

The data collected on caste affiliation is presented in table No.4.2.

Table No.4.2: Caste profile of students

Caste	Frequency	Percentage
OC	131	58.2
BC	72	32
SC	21	09.3
ST	01	0.5
Total	225	100

Table No.4.2 shows that 58% of students belonged to upper castes, 32% belonged to backward castes, 9% belonged to Dalits and only 0.5% of belonged to the Scheduled tribes. The ST's representation is insignificant compared to the other caste groups. The proportion of the upper castes is almost double that of the backward castes and five times higher than the representation of scheduled castes in the IT education enrollment. The trend indicates that proportionately upper castes have greater access to IT education compared to other castes.

4.3. Gender profile of respondents

Sex disparities in educational opportunities tend to be greater in developing countries, and India is not an exception to this. The 1960-70's green revolution in agriculture sector, steady growth of Industrial sector and recent developments in Indian economy has relatively brought down discrimination based on gender in the field of employment and education.

Table No.4.3: **Gender composition**

Gender	Frequency	Percentage
Male	144	64
Female	81	36
Total	225	100

Table No. 4.3 shows the gender composition of respondents. Sixty-four percent of the respondents were men and 36 percent were women. Representation of men is nearly 2 times higher then that of women. Compared to other streams of technical education proportion of women pursuing IT education is much higher. The reasons are that IT-related jobs do not demand physical labour, and they resemble white-collar jobs. Nearly 30% of the IT professionals in core and auxiliary service of IT industry in India were women *(Data Quest, 2001).*

The above trend shows that IT industry has been liberally recruiting women in professional software jobs by denouncing patriarchal notions of women's intellectual potential.

4.4. Rural –Urban profile of the respondents

The rural and urban disparities in educational opportunities tend to be greater in India: Andhra Pradesh is not an exception to this. Table No.4.4 indicates that the representation *of* students from rural and urban background enrolled in IT education centers.

Table 4.4: Rural and Urban background of respondents

Place	Frequency	Percentage
Rural	76	34
Urban	149	66
Total	225	100

The data from Table No.4.4 reveals that 34% of the respondents hailed from rural villages; where as 66% of the respondents have urban background. Although the proportion of rural population in India is nearly 2/3rd of the total population, the proportion of the rural students is exactly opposite in the present study. The

majority of students benefiting from IT education opportunities belong to urban areas.

The advantages of the urbanites are becoming barriers for rural students. Latently, this has the effect of insulating the educational facilities from being accessed by the latter. With regard to finance, networks, and awareness of education urban people have a decisive edge over their rural counter parts, in addition to the problems arising from their migration to the cities to pursue education (Jayaram1990).

4.5. Marital profile of the respondents

Marriage is one of the basic institutions of the Indian society. The social significance attached to marriage by diverse social groups irrespective of their caste, class, religion and regions is immense. Several traditional practices associated with marriage are still in vogue. For example, arranged marriages where the parents of the girl look for a suitable boy and negotiate with the boy's parents for entering into a marital alliance.

Table No. 4.5: **Marital** status of respondents

Marital Status	Frequency	Percentage
Married	16	07
Unmarried	209	93
Total	225	**100**

Table No.4.5 showed that 7% of respondents were married, and 93% of the respondents were not married. Within the married category, the proportions of

married women were high when compared to that of married men. The numbers of married women were double that of married men.

There are significant reasons for the higher number of married women in IT courses. One of the reasons is to full fill the wishes of their spouses. To maintain a good quality of life, it is imperative to work along with men to meet the cost of living and to enhance their standard of living. An other category among married women is those who were waiting to join their spouses abroad. They are using the waiting time to acquire IT skills with idea of securing of employment after their arrival there.

So the hopes of getting employment opportunities in the country of destination seems to motivate the women to pursue IT education. Moreover the cost of acquiring IT skills is lesser in India than in the Western countries.

4.6. Profile of parental education

Literature on the influence of social background suggests that parent's education is one of the important variables that determine the social class position of persons. The higher the level of education of the parents the higher the social class position. Further, qualified parents tend to provide conducive environment to the children to acquire cultural capital, which generally influences one's performance in education and consequent employment.

To examine the extent of influence of the parental education on the student's education levels and aspirations the present study collected data on each respondent's father education. As father education level seems to play a more

decisive role in shaping children education in the Indian society, which is patriarchal in nature. Data could not get on the education qualifications of mothers.

The educational qualification of respondent's fathers has been categorized under the following heads:

(a) Primary education,

(b) Secondary education,

(c) Graduation and below (Inter and Degree),

(d) Post-graduation

(e) Post-graduation and above

The responses were presented in table No.4.6

Table No: 4.6. Educational qualifications of **respondents** father

Education	Frequency	Percentage
Primary	08	03.5
Secondary	26	11.5
Graduation	108	48
PG	***61***	30
Above PG	16	07
Total	225	100

It appears that relatively higher levels of education on the part of the father enabled the students gain access to IT education. Table No.4.6 shows that only 3.5% respondents reported that their fathers had primary education. 11.5% reported that their fathers had secondary education, nearly half (48%) of the number of student's father were graduates, 30% reported post graduation level, and 7% reported that their fathers had had above PG qualifications.

The data implies that most of the students' fathers were highly qualified with graduate and post graduates degrees. Based on the data pertaining to education

qualifications of fathers the study propose that father education significantly influences the student's access to IT educational opportunities which has become popular in recent times.

Students whose father attained post-graduation educational qualifications represent nearly 30% in our sample. It shows that highly educated parents attached a great deal of importance to IT education as a means of upward social mobility and consequently higher standard of living. The educated communities were the first to embrace new educational streams. Since careers related to IT acquired social prestige and higher monetary levels, the IT education which is the medium for jobs also got tremendous importance among all the social groups in general and the educated sections in particular.

Since the study did not get information pertaining to educational qualifications of respondent's mothers, the analysis has been done on the educational qualifications of the respondent's fathers.

4.7. Occupation wise distribution of respondents

Ones occupation is an important indicator related to education. The study hypothesizes that occupation of father of the students pursuing IT education and training is an important variable. In the present study the occupation's are classified broadly under four heads based on the respondent's answers on their father occupations.

(1) Agriculture includes the people who are directly or indirectly associated with crop cultivation.

(2) White collar and blue-collar occupations employed in both public and private sectors.

(3) Professionals consist of teaching community from teacher to university professor, lawyers, doctors, and engineers.

(4) Self-employed consists of business communities and practitioners of traditional occupation.

Table No: 4.7 Occupation of father

Occupation	Frequency	Percentage
Agriculture	32	14
White and blue collar occupations	114	51
Professional	28	12
Self-employed	51	23
Total	225	100

The table No.4.7 shows that 51% of the students reported that their father were belonged to either in white-collar or blue-collar occupations. Interestingly the self-employed individuals also attached a lot of importance to IT education. The data shows that the proportions of the students whose father's with self-employment are second to the students whose father's were engaged in either blue collar or white-collar occupations.

The students with professional parental background tend to have fair chances of gaining IT education opportunities, when compared to students of different occupational background. The awareness about upcoming streams, which have prospects of employment both at home and abroad are more familiar to the

professionals. Those who are engaged in agriculture may not have the same level of awareness about the career prospects of different streams of higher education.

4.8. Parental Income of respondents

Income is another important indicator of ones class position apart from one's education and occupation. All the three variables are constituent variables of the composite variables called social class. If we were to draw a path diagram, education and occupation precedes income.

Table No: 4.8 Income levels of respondents Father

Income group	Frequency	Percentage
Less than 5000	64	28
5001-10,000	78	35
10,001-15.000	53	24
15,001-20.000	22	10
20,001-25.000	08	03
Total	225	100

The table 4.8 shows that 28% respondents father's income is less than rupees 5000, 35% of respondents father's fall in the group of Rs 5000-10,000 per month, 24% in the income group of 10,000-15,000 per month, nearly 10% are fall under the income group of Rs 15,000-20,000, and only 3% of the respondents father income is more than 20,000 per month.

The above-mentioned data reveals that majority of the students pursuing IT education hails from household with an income of less than rupees 10,000 per month. Most of the student's fathers engaged relatively in low ranking occupations tend to be paid less compared to the white-collar jobs.

It was observed **that** students from lower income groups had cumulative difficulties at various levels. At the time of admission significant amount of money **has** to be paid at a time. Further, during course money has to be paid for test fee, course material, and stationary to name a few. As the amount of money paid is substantial, many students pay the fee in installments.

Nearly 60% of the respondents chose to pay the fee on installment basis. The number of respondents who paid the fee at a time at the time of admission was only 40%. A woman respondent who happened to be a daughter of a government civil engineer felt that the fee charged by the IT education and training centres was beyond the reach of even the middle classes. The above discussion indicates that IT education and training in Non-formal sectors is expensive and students pursuing IT education and training in present study have seemed to be realized.

4.9. Class wise distribution of respondents

Class disparities tend to provide differential access to social groups based on their positions in class structure. In the present study respondents were asked to classify their households based on the position of class to which their households belonged. The responses are presented in table no. 4.9.

Table No: 4.9. **Class status of respondents**

Class	**Frequency**	**Percentage**
Higher class	**11**	**05**
Middle class	199	**88**
Lower class	**15**	**07**
Total	225	100

According to Table No. 4.9 only 5% of respondents identified themselves **as higher class, 88% of respondents indicated that they** belong to middle class, and 7% **of respondents identified with lower class.**

It clearly indicates that the largest number of students hails from middle **class** when compared to both higher and lower classes. The quest for high quality of life both in material and non-material forms motivate middle class to choose IT education and training as means to realize their aspiration brought by the new cultural ethos. The lower level earnings hinder the possibility of taking IT education in the non-formal sectors required substantial funds.

4.10.Kinship network profile of the respondents

The data were collected to examine the role of kinship networks in motivating the students to pursue IT education. The responses of 225 respondents were classified broadly into two groups; one who have relatives working as software professionals, and two, those who did not have relatives working as software professionals. The table No.4.10 shows that 40% of respondents have relatives who were software engineers and 60% reported that they did not have relatives **working in IT industry both in** India and abroad.

Table No: 4.10 Relatives of respondents who are working as software engineers

Response	Frequency	Percentage
Yes	**91**	
No	134	**60**
Total	225	**100**

Most of the students who have relatives working as software professionals did indicate that their relatives motivated them to pursue IT courses. Relatives play

a crucial role in providing information about the appropriate IT courses, job prospects and other related information.

Here it is important to mention that Bourdieu (1997) concept of social capital. The basic argument is that wealth in the form of knowledge or ideas play a key role in shaping the society. It is extension of Marxist idea of economic capital, which highlights that possessors of this capital wield considerable power over others in gaining preferred occupational positions. Even in educational system the success and failure is predominantly dictated by the extent to which individuals possess social capital.

Summary: The analysis of the socio-economic profile of the students revealed that caste, class, father education, income background and social networks play an important role in influencing access to IT education. Most of the students enrolled for the IT course predominantly came from urban middle class background. In terms of caste the majority were drawn from upper caste, followed by backward communities.

The proportion of the students from scheduled castes was minimal and the proportion of the students from scheduled tribes was insignificant in the study. Although the findings are based on a sample it may generalize that this trend is noticeable in IT education and training in Andhra Pradesh as a whole.

Chapter-V

Social Differentials and Access to IT Education

5.1. Introduction

Having provided the socio-economic profile of the respondents in the fourth chapter, the present chapter analyses the relation between the social origins and the access to IT education.

5.2. Fathers' educational qualification and caste

The educational backgrounds of the parents play a significant role in influencing access to education. Here an effort is made to understand the relation between the educational qualifications and the caste affiliations of the parents.

Table 5.1. Caste and Father educational qualifications

Caste	Primary	Secondary	Graduation	PG	PG+	Total
OC	02 (25)	18 (69)	70 (65)	34 (51)	07 (44)	131 (58.2)
BC	05 (62.5)	07 (30)	29 (27)	25 (37)	06 (37)	72 (32)
SC	01 (12.5)	01 (4)	08 (7)	08 (12)	03 (19)	
ST	-		01 (1)	-	-	01 (.5)
Total	08 4 (100)	26/2 (100)	108 48 (100)	61 30 (100)	16 7 (100)	225 (100)

Figures in the parenthesis are percentages
The highlighted numbers indicates the percentage of the total

Table No.5.1 shows the distribution of respondents fathers education qualifications in terms of their caste background. In chapter 4 we have seen that majority of the students' fathers had higher educational background. Table 5.1 shows that majority of the students belong to upper caste and their fathers were highly educated. Out of 131 students belonging to upper caste, 104 reported that

their fathers educational level is bachelors degree and above. In the case of backward caste students the majority reported that their fathers education is bachelors degree. In the case of SC students, the majority reported that their fathers' educational level was bachelors and above. It shows that the SC students had taken advantage of protective discrimination to achieve higher levels of education. In the case of the single ST student his father had bachelor degree level education. It indicates that irrespective of caste background, the students hail from highly educated households.

To understand the pertinent role of parental educational impact, here we quote the statement of two women students whose parents' qualifications vary significantly. The contrast becomes evident, one woman student whose father is a B.Tech graduate and happened to be CEO of one private firm felt that " *IT education is essential for the development of women to lead independent life. My father right from the beginning used to discuss about the IT industry development, IT jobs and the potential of it".* This has motivated her to go for IT education.

On the other hand another student from rural background whose father had primary education felt that " *I have joined the IT education by the advice of a counselor of the IT education centre. I am doing a basic course in this IT centre, it is very difficult to understand the jargon and operation of this programmes".*

The above two cases show the contrast in the awareness of students about IT education. Lareau (1997) claims that the impact of family background on children's education is most effective and explains that social class is a major predictor of educational and occupational achievement. Educational institutions

play a crucial role in the process of social reproduction, and sort out students into **social categories that** award credentials **and** opportunities for mobility (Collins, 1979).

5.3. Occupation and Income

Parental occupation is considered to be another important indicator to assess the social class position and consequent access to IT education. In Chapter IV we classified occupation of the respondents' fathers into four categories namely; agriculture, white and blue collar works, Professionals, and Self-employed.

Table No.5.2 Income level and Parental Occupation

Income	Agriculture	White and Blue collar jobs	Professional	Self employment	Total
>5000	20 (63)	16 (14)		28 (55)	64 (28)
5001-10000	07 (22)	55 (48)	04 (14)	12 (23)	78 (35)
10001-15,000	03 (9)	36 (32)	08 (29)	06 (12)	53 (23)
15,001-20,000	02 (6)	06 (5)	11 (39)	03 (6)	22
20,001-25,000		01 (1)	05 (18)	02 (4)	08 (04)
Total	32 *14* (100)	11451 (100)	28 *12* (100)	51 *23* (100)	225 (100)

Figures in the parenthesis are percentages

*The highlighted numbers indicates the percentage of the total

Table No.5.2 presents the occupation and income background of the respondent's parents. The data shows a significant relation between the occupation and consequent income level. It indicates that white **and** blue-collar jobs, self-employed and professionals occupational groups are in **the** majority (86%) and the rest belong to the agriculture background. This trend shows that proportionately

more students from non-agricultural occupational households pursue IT education and training in non-formal sector. Only 14% of the respondents hail from households engaged in agriculture.

In terms of the income levels the majority (63 %) of the respondents hail from the households with income less than 10,000 per month category. The relationship between occupation and income shows that income of the households that depend on agriculture, white and blue collar work and self-employed is less compared to income of households involved in professional occupations.

It was also found that there is a relation between the selection of the IT courses on one hand occupation and income of the family on the other. One student from a business household mentioned, "*I will apply my computer skills in running the family business".* Another student who is doing long-term course also expressed similar view; "*I will computerize my family business operations and take care of those activities".*

5.4. **Gender and Caste**

Caste background of women shows significant variation. The proportion of women in the upper caste category is nearly half that of the men. The proportion of dalit women is more than that of dalit males. This trend gives an impression that women's participation in IT education is growing day-by-day across all caste groups, especially those living in cities.

Table No: 5.3. Gender and Caste

Caste	Male	Female	Total
OC	84 (58)	47 (58)	131 (58.2)
BC	48 (33)	24 (30)	72 (32)
SC	12 (09)	09 (11)	21 (9.3)
ST	-	01 **0)**	01 (•5)
Total	144 *64* (100)	81 *36* (100)	225 (100)

Figures in the parenthesis is percentage

The highlighted numbers indicates the percentage of the total

Table No.5.3 shows the gender and its distribution among different caste groups. Gender tends to be socially constructed rather than biologically given. The percentage of male and female respondents in the sample is 64% and 36% respectively.

The less representation of both men and women of the downtrodden castes compared to upper castes could be attributed to their socio economic backwardness. Due to continuous dependence on traditional occupations which are manual and unskilled and their concentration in the rural areas and lack of cultural and social capital i.e. lack of awareness about educational system, lack of education on the part of parents and economic dependence seem to perpetuate the existing inequalities.

The proportion of women hailing from the urban centres is significantly high compared to women from rural areas. It is found that even among the scheduled castes and backward castes only the urban women are benefiting from **the** government programmes to promote education in general **and** IT education in particular among the Scheduled Castes and Scheduled tribes.

Another reason for the insignificant number of rural women in IT education is due to the concentration of IT training centres in cities and towns. Present study found only one rural dalit woman in IT education.

5.5. Caste and Rural-Urban origins

Table No.5.4 shows the distribution of respondents in terms of rural and urban background according to their caste affiliation. Data indicates that majority of the respondents across all caste groups hail from urban centres.

Table No: **5.4 Rural-Urban** and Caste

Caste	Rural	Urban	Total
OC	38 (50)	93 (63)	131 (58.2)
BC	33 (43)	39 (26)	72 (32)
SC	05	16 (11)	21 **(9.3)**
ST	--	01	01 (.5)
Total	***16 34*** (100)	149 66 (100)	225 (100)

Figures in the parenthesis are percentages

*The highlighted numbers indicates the percentage of the total

It clearly demonstrates that members belonging to different caste groups living in cities and towns seem to take advantage of IT education. However, one significant feature is that there are a significant proportion of students belonging to upper castes and backward castes hailing from rural areas. One may say that awareness about employment potential of Information Technology has been realized by upper caste and backward caste living in rural and urban areas. In the case of dalits and tribals awareness is confined to only urban areas. It implies that

some measures are required to make IT education accessible to groups living in rural areas in general and among rural dalits and tribes in particular.

In Andhra Pradesh the government agencies such as Backward Caste Corporation and Scheduled Caste Corporation created a conducive environment providing financial assistance to downtrodden communities.

The rural dalits are lagging behind in acquiring IT education opportunities. It is also observed that due to lack of awareness about the governmental agencies like Scheduled Caste Corporation and social welfare society schemes meant for dalits they are getting limited opportunities.

One more reason for the less proportion of students with rural background is due to lack of formal education or lower level of education to their parents. It could not create awareness about the significant relation between the educational streams and their implications for employment whereas in urban areas it is not the case. Among the students pursuing IT education those belonging to upper castes and urban sections are proportionately more.

Although the dalit and backward caste students from the rural background qualify in the entrance examination for IT education conducted by the SC and BC corporations the inability to meet the travel expenses every day limits their access to IT education. One SC student hailing from a village near Gudivada of Krishna district said, *"in our batch 15 students were selected for coaching, among them there are5 women students, who have to travel for 40 km up and down (every day), after 5 days of coaching only one of them is attending classes, remaining students stopped attending the coaching"*.

One BC student hailing from a village mentioned that " *everyday I am traveling for 60 km to attend the computer education classes, the journey is terrible, and taking lot of time for travel only. It is difficult for us (rural students) to extract maximum benefits from this opportunity provided by government".*

Yogendra Singh (1988) while talking about the transformation of Indian society mentioned that unequal changes in rural and urban areas are responsible for continuation of educational inequality. As a whole the opportunities for education are neither equal nor open to all. Even the educational institutions are ranked hierarchically with respect to the quality and standard of education.

Jayaram (1990) observed that it is a common phenomenon that most of the prestigious educational institutions with very good equipment tend to be biased in favor of students from urban areas, though the urban population is smaller in comparison with the rural communities.

Further he adds, the advantages of the urbanites are becoming the barrier for rural students. Latently, this has the effect of insulating the educational facilities from being absorbed by the latter. With regard to finance and networks, urban people have a decisive edge over their rural counter parts, in addition to the problems arising from their migration to the cities to pursue education.

5.6. Gender and Religion

Religion is a universally recognized phenomenon, and **all** most **all societies** ranging from simple to complex societies practices and follow religion in their day-to-day lives. The primary concern of religion is to **provide a** code of conduct to

individuals or social groups through its basic tenets and preachings. As a part of the code of conduct religion assigns roles to men and women. Some of religions reinforce the patriarchal relations and thus assign a secondary place to women.

The data in table 5.5 indicates that the proportion of respondents of Hindu religion is 81%, Muslims represents 16% and remaining 4% are Christians. Although the proportion has similarity with the national religious affiliations, when it comes to the case of gender the proportion of women is significantly less compared to the men cutting across their religions.

Table No: 5.5. Religion and Gender

Gender	Hindu	Muslim	Christian	Total
Male	109 (60)	29 (85)	06 (75)	144 (64)
Female	74 (40)	05 (15)	02 (25)	81 (36)
Total	183 81 (100)	34/5 (100)	08 4 (100)	225 (100)

Figures in the parenthesis are percentages
The highlighted numbers indicates the percentage

Among the Hindu respondents 60% are men and 40% are women. One of the fundamental reasons for significantly high proportion of the Hindu women in IT education could be attributed to the change in mind set or attitudes of the parents towards girls education and career corresponding to changing socio-economic structure in India as part of globalization and economic reforms. Further, parents and girls seem to realize that a professionally qualified woman is more likely to have better chances of getting married to professional men.

The increasing emigration of Indian software professionals to the western countries has transformed the pattern of preferences in the selection of brides and bridegrooms. Particularly the IT professional jobs transformed the preference and priorities in selection of mates.

One woman respondent approvingly quoted Azim Premji, chairman WIPRO (a leading software company) " every mother in India wants to see her son or daughter as software engineer" and felt that Information Technology is one of the important means for women to lead independent life. Chances of getting better marital alliances would improve if the girl acquires qualifications in computers-related courses.

The proportion of Muslim women who enrolled in IT courses is very less when compared to that of Hindu women. One of the Muslim women respondents mentioned about her parent's reservations in continuing her studies: " due to the religious norms my parents are not interested to send me to the institute but because of my brother's support I am continuing".

She also felt that now a days most of the Muslims are slowly adopting to the changing cultural patterns and hope they will change further in future. As a result of change in perceptions about education some of the Muslim households are sending their male children to IT education with the hope of getting immediate employment. The proportion of Christian students compared to the other two religious groups is very less.

The process of globalization also led to shrinking of employment opportunities in public sector and employment that has been generated in private

sector tend to be contract jobs without any job security. One more change brought about by this process is the rise of service-based jobs where the women get priority in recruitment.

Indira and Nagaraju (1997) pointed out that access to educational opportunities is determined by the gender of particular individual. Although the expansion of women number in education system is evident but the severe social, economic and cultural constraints act against the utilization of educational opportunities by all women. Further, they also note that while women face some sufferings, the disadvantaged sections such as rural women, women of scheduled castes and tribes and women from orthodox and conservative families bear severe discrimination. The above observation shows the discriminatory attitudes of family members and society against women in everyday life.

5.7. Caste and Place of Schooling

In table 5.6 out of the total sample 30% of the respondents are educated in rural areas and 70% educated in urban areas. The similar trend is observed at secondary education standard. There is a similarity found among all caste groups at primary and secondary education levels. Although the upper castes students proportion is more, still the variation is relative not absolute. It is observed that there is a significant shift towards urban settings at intermediate and bachelors degree level.

Table No.5.6 shows that most of the students in the present study have been studying in urban settings. The data demonstrates that almost 85% of the students at intermediate level and 92% at degree level studied in city based colleges.

Table No: 5.6 **Caste and place of study at different stages**

Caste	Primary Education		Secondary Education		Intermediate		Degree		
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	NA
OC	35	96	35	96	12	119	06	92	33
BC	29	43	29	43	21	51	08	48	15
SC	04	17	04	17	02	19	00	17	04
ST		01	-	01	00	01	00	01	00
Total	68 (30)	157 (70)	68 (30)	157 (70)	35 (16)	189 (84)	14 (8)	159 (92)	52 (23)

NA: Not applicable

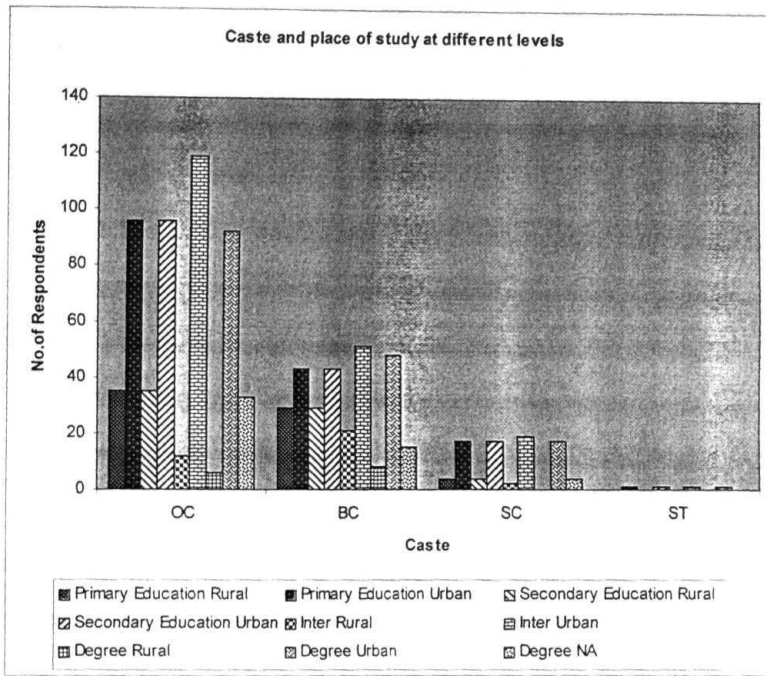
Figures in the parenthesis are percentages

One of the reasons for this trend is the location of reputed colleges run either by state or private management in cities and towns. Infrastructure and maintenance of the city-based educational institutions are relatively better than educational institutions in small towns and rural areas.

With the improvements in transport facility well-to-do rural households are sending their children to the near by towns and cities by state transport buses or charted buses of the school. Some households send their children to residential schools based in cites. Another arrangement is the rural household moving to a near by town and staying in rented houses to educate their children in English medium schools which are considered to be better than the government run schools. A similar kind of trend is also observed among the backward classes.

It is noticed that the middle class is emerging in rural areas particularly among the upper castes. Going to the urban areas for intermediate degree education is more pronounced among all the sections cutting across their caste and class origins.

Chart No. 5.1



Shah and Shah (1998) highlight how the class and caste variations differentiate access to educational opportunities. The upper class students starting from the school education pay very high fees to study in private schools. From there they prefer to do professional education in medicine, engineering or other professional courses and then they move to management and technological institutes for postgraduate education. This class prefers English medium educational institutes at all levels; most of them prefer to go abroad for jobs.

The middle class children join schools that charge moderate fees. Most of the children from these sections tend to pursue bachelors degree in arts, commerce, science, law, agriculture etc. Some groups in the middle class prefer to go for medicine, engineering and other professional courses and very few join in diploma courses. Majority of the members of this section goes to regional medium, and some of them go to English medium.

A limited number of children from lower class further join in diploma courses like polytechnic or some short-term technical certificate level courses or join degree courses in arts, commerce, science, and very few go for professional colleges like medical, engineering (Shah and Shah, 1998). This trend signifies that these (underprivileged) sections always want the state to remain a major provider of higher education. The students of upper-caste seem to be gradually shifting towards private and foreign training institutions.

The study observed that irrespective of the caste background most of the students at intermediate (10+2) and bachelors degree level were educated in city-based colleges.

Table No: 5.7 Medium of instruction n different stages of education

	Primary education				Secondary education				Intermediate				Degree			
Caste	T	E	U	H	T	E	U	H	T	E	H	U	T	E	H	NA
OC	50		02	01	47	81	02	01	25	104	01	01	14	83	01	33
BC	35	37		-	34	38	-	-	25	46	-	-	14	43	-	
SC	13	08	-	-	13	08	-	-	09	12	-	-	05	12	-	04
ST	-	01	-	-	-	01	-	-	-	01	-	-	-	01	-	-
Total	98 43	125 **55**	02 1.5	01 0.5	99 **42.5**	129 56	02 1	01 0.5	59 ***26***	164 73	01 ***0.5***	01 ***0,5***	33 ***14***	139 ***62***	01 **0.5**	52 ***23***

T: Telugu, E: English, U: Urdu, H: Hindi

NA: Not applicable

The highlighted numbers indicates the percentage.

The present study shows that there is a gradual shift towards English from the regional language as medium of instruction as students move to higher levels of education.

According to the data 43% of the respondents' medium of instruction was Telugu and 55% of them had English medium education. The Urdu and Hindi students' proportion is nominal at primary education level. 41% of the respondents had Telugu and 57% had English medium background at secondary education level. The proportion of Urdu and Hindi medium students is insignificant. A degree of variation was observed regarding the medium of instruction at intermediate degree level.

The data indicates that 26% of the respondents medium of instruction was Telugu, where as 73% had English medium at Intermediate level. At the undergraduate level the proportion of respondents who had English medium is more compared to those who studied in regional language. Almost 80% of the students had English and only 20% of students had Telugu as a medium of instruction.

There is a significant relationship between caste and the medium of instruction. It was observed that among all caste groups those who studied in English medium are higher than those who studied in regional language. The trend indicates that most of the students irrespective of their background are shifting their priority towards English medium. This trend is much more pronounced at intermediate and bachelors degree level.

Availability of study materials in English language, parent's support to the students' education and perceptions that English as an international language are sources of inspiration for joining in English medium educational institutions. The proportion of scheduled caste students who had Telugu medium at different stages is higher than those of other castes groups. However, among dalits proportionately more students at intermediate and bachelors degree level pursue education in English medium.

D'Souza (1980) pointed that it is exclusively the children of urban upper strata who avail public school education are benefiting from the English medium education. As a whole, the public schools and English medium education helps the students of upper strata to extent their parent's privileges and stabilize their status at the higher level.

As discussed earlier in the literature review chapter, Krishna Kumar (1997) clearly mentioned that language plays an important role in understanding the concepts and the intended and unintended meanings associated with it. The upper caste and middle class due to their socialization in primary stages of education continue their college education and university education in English medium with out any difficulty.

But the lower caste and lower class or the working class students, because of their non-academic household background find it difficult to grasp the designed and structured curriculum of educational institutions. Since the medium of IT education is English it is very difficult for the students educated in the vernacular language to cope up with the new language in higher education.

According to a student who came to Vijayawada from **rural area, and** pursuing IT course felt that *" here the medium of instruction is English, due to which I am not able to understand the lessons properly, one more problem is the jargon of IT education which is very technical."*

Bernstein (1970) observed that the middle and higher-class family language codes are much similar to the language codes taught in the educational institutions. The working class language symbols are not similar to the textual language; because of this most of the working class students fail to do well in the examination system.

Class and Caste Interrelation

In the present study respondents were asked to identify the social class to which they belonged. Accordingly the students indicated their class background as per their perceptions about their household economic condition. The study found a close relation between caste status and their class status.

Table No 5.8: Class and Caste distribution of students

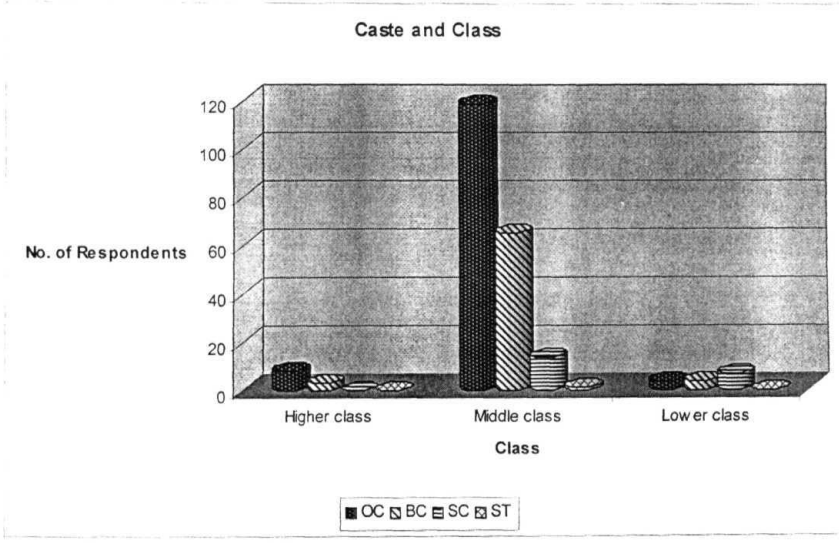
Caste	Higher class	Middle class	Lower Class	Total
OC	08 (73)	119 (60)	04 (26.5)	131 (58.2)
BC	03 (27)	65 (32.5)	04 (26.5)	72 (32)
SC	-	14 (7)	07 (47)	21 (9.3)
ST	**--**	**01** (0.5)	-	**01** (.5)
Total	11 5 (100)	199 *89* (100)	**156** (100)	**225** (100)

Figures in the parenthesis are percentages

T h e highlighted numbers indicates the percentage.

Regarding the relation between the caste and class, 73% of the higher-class respondents belong to upper castes and 27% of the higher-class respondents belong to backward castes, whereas no scheduled caste respondents placed himself/herself in this category. Within the middle class, 60% of the respondents hail from the upper castes, 29% of the respondents belong to backward castes and 7% belong to scheduled castes, and the representation of scheduled tribes is negligible.

Chart No. 5.2



The middle classes of among all the caste seem to attach a great deal of importance to IT education. The important motivational factors are relatively high salaries offered by the software companies.

The economic prospects literally lured the students cutting across the classes and castes. The middle class in all the caste groups is the vanguard of IT education.

Employment prospects outside India, particularly in America and Europe, seem to motivate the students to pursue IT education. Particularly employment opportunities abroad enhance one's prestige among their relatives, caste groups and the village community. Further the institution of marriage seems to be getting transformed from sacred to pragmatic contract. Both the bride's party and groom's party prefer an alliance with a boy or girl who has acquired IT education. Prospective brides favor grooms employed abroad. Most of the young women learn computer courses as an additional qualification with the view of enhancing their marriage prospects.

Brown (1997) while talking about the class stratification and access to education argues that the social elite has continued to leverage the benefits of private education through out 20th century and the same trend is continuing even today. The demand to equip their offspring with academic credentials has been gaining momentum day by day. The demand for academic credentials has been constantly growing among the middle classes.

Bourdieu and Passeron (1990) pointed that the combined transformation of the means of reproduction and of the accumulation of profit is the source of the intensified use of the education system by the ruling and middle classes.

In other words, the process of recruitment adopted by corporations and organizations necessarily demand the enhanced skill-set. This resulted in the growing demand for certification among the middle class in order to reproduce their social advantages.

The foregoing account states that in India the middle class cutting across the castes has begun to attach a great deal of importance to IT education. Most of the dalits in the study generally found in lower class got an opportunity to pursue IT education courses with the support of SC corporation. The same trend is also noticed among the students of backward caste hailing from rural villages and 27% of the upper castes respondents belong to the lower class.

Jayaram (1990) points out that the government policies gave very much importance to education with special emphasis on the education of women, Schedule Caste and Tribes. However, they are being neglected in the execution of the same programmes.

The education system tends to be organized in a cultural environment. According to this the lower class children experience many hurdles in coping with the education institutional requirements where as the children of higher and middle classes, under the sympathetic guidelines and supervision of parents get accommodated easily in the institutional setup (Shah and Shah 1998).

5.8. **Household Income and Caste**

The Nehruvian socialist mode of economic development assigned predominant role to state patronized industries, consequently a large chunk of people got employment opportunities in civil services, industry, both public and private sectors over a period of time, which resulted in the emergence of a strong salaried middle class in the Indian society. This whole process resulted in the

accumulation of considerable power, both economic and cultural by the middle class.

Table No. 5.9 Monthly income of Households and Caste

Caste	<5000	5001-10000	10001-15,000	15,001-20,000	20,000-25,000	Total
OC	31 (48)	47 (60)	32 (60)	16 (73)	05 (63)	131 (58.2)
BC	24 (38)	22 (28)	19 (36)	05 (23)	02 (25)	72 (32)
SC	09 (14)	08 (10)	02 (04)	01 (04)	01 (12)	21 (9.3)
ST		01 (02)	-	--		01 (.5)
Total	*64 28* 100	78 *35* 100	53 25 100	22 *10* 100	08 4 100	225 (100)

Figures in the parenthesis are percentages

The highlighted numbers indicates the percentage

Table No.5.9 shows that maximum number of respondents reported that their father's income was between 5000-10,000, followed by the students whose fathers have less than 5000 income per month. The majority of the respondents (63%) belonged to households with monthly income between Rs 5000/- and 15,000/- per month.

The **trends suggest** that **the middle** and **upper middle-income** groups have been showing keen interest in **learning IT education than other educational streams.**

Although students from the middle-income households number is high, they are not with out problems. According to one of the students: *"I am a student enrolled in a long-term course; I paid Rs58,000 towards the fee for the course. To meet the required money my mother took loans from the banks, it is extremely*

difficult for my family members to arrange money, but with the hope of getting job I am continuing the present IT course ".

One women student, a daughter of a doctor felt that *"IT education centers are charging high fees even for the small and simple courses, which is very difficult even for the middle class family to bear the amount".*

According to Sachidananda (1997) the higher income groups have better educational access than the middle and lower income groups, even the occupational opportunities. Preferential access to students from private educational institutions becomes a potent factor in continuation of differences.

The above trends give a picture that IT education tends to be inclusive for particular groups than for other groups. Relatively the higher income households are gaining access and simultaneously the lower income groups are excluded from the IT education.

The foregoing analysis clearly indicates that social differentials play a predominant role in determining the degree of access to social groups whose social origin varies significantly from one another. The indicators of social background such as caste, monthly income, rural and urban background, educational qualifications of the household, occupational background and gender play an important role in facilitating access to particular social groups by simultaneously denying the same opportunities to other social groups who are socially, economically and culturally marginalized within the society.

Chapter - VI

Perceptions and Anxieties of the Students

The present chapter provides a systematic analysis of the student's perceptions about their experiences regarding admission to IT courses, medium of language, fee structure, and access to computers. This chapter also illustrates the perceptions and attitudes of the students about the courses and the problems they have undergone in the process of learning. It also deals with the changing attitudes of the students about IT education in the contemporary context of IT slowdown.

6.1. Admission process in IT education

IT education and training centres adopt a three-fold method in the process of admissions. Firstly, through entrance or screening test conducted by the centres; secondly, through payment; and thirdly, through sponsorships by the government agencies.

Table No: 6.1. Admission criterion in IT education centres

Admission	Frequency	Percentage
Entrance	61	27
Payment	143	64
Sponsorships	21	09
Total	225	100

Table 6.1 presents that 27% of the students got admission based on the performance in the test conducted by the centres in addition to the payment of required fee. Nearly 64% of respondents got admission after the payment of

required amount charged by the IT education centres. Over 9% of the respondents got admission through sponsorships.

The most popular method of admission is through payment. It is the most prevalent method practiced by all the IT education training centres. This method strictly adheres to the individual's paying capacity. Those who can pay the required fee demanded by the IT education and training centres for the different courses would get admission without appearing for a written test. The third method of admission is sponsorship method where the government bodies finance IT education of the socially and economically backward students.

Apart from the above methods, an informal method of admission was also noticed. It depends upon the understanding and the personal relationship between the management and the admission seekers. In such instances many of the factors including the fee structure can get modified varying from case to case.

The above data clearly shows that the most prevalent method of admission is through payment followed by the admission and sponsorships. The entrance test systematically eliminates the students who are not familiar with the mode of entrance examination based on technical knowledge.

Payment method only serves the students who have very good economic background and it totally excludes the lower classes. According to some of the students of middle class background, in the process of mobilizing funds for education the parents had to sacrifice several things. The state government's initiative in the direction of sponsoring IT education to the socially and economically backward sections is a welcome measure. However, it seems to serve

only a limited number of students because the proportion of the sponsorships available is less compared to the percentage of graduates hailing from these sections at the state level.

To maintain standards in IT education, the reputed vendors conduct a preliminary test to assess the student's ability and analytical understanding. It was very much popular until the year 2000. The slow down has been having significant implications for IT education and training centres in India including Andhra Pradesh. The major outcome of the slowdown was the decline in number of aspirants. IT education vendors responded to this by waiving the requirements like admission test.

6.2. Sources of Information on IT education

The modern means of communications play a crucial role in creating awareness on diverse themes and issues related to social, political, cultural, technological, and educational spheres. The spread of media by incorporating advanced technology virtually converted the entire world into a small village and it became popular as a global village.

The initiatives of the central and some state governments resulted in making new policies and programme to promote IT, which got due space and importance in print and electronic media. It helped in changing the mind set and values towards IT and IT education.

We have seen that the IT education is predominantly dominated by the non-formal sector. In order to control and gain maximum advantage of the spurt of

interest in IT education, the main players spent enormous amount of money for advertisement. To some extent it works positively in projecting the importance of IT in day-to-day life and emphasizing the economic benefits and social glamour attached to the IT job. With the above backdrop study examined the source of information.

Table No: 6.2. Source of Information about IT education centres

Source	Frequency	Percentage
Media	80	36
Peer Group & Relatives	100	44
Part of curriculum	45	20
Total	225	100

Table No. 6.2 clearly demonstrates the sources of information through which the respondents came to know about the IT education courses. According to it, nearly 36% of the respondents felt that media was the source of information about the IT education. One student from rural background mentioned that the regional newspaper was the source of information in acquiring information about sponsorships in IT education for socially and economically backward students. It shows that media play an important role in creating awareness among the rural communities in addition to the urban dwellers.

The peer group impact and the influence of relatives are more significant than the effect of media. The data revealed that nearly half of the respondents' sources were their friends and relatives. It shows that the informal networks play a crucial role in dissemination of information. Twenty percent of the respondents reported that they were familiar with IT courses since it was part of curriculum in their studies.

6.3. Medium of instruction

Sociologists and educational planners view language as one of the important means in transmitting the knowledge and imparting education. Academicians differ on the issue of medium of instruction. The elite of Indian society supports the English language as a medium of instruction as it acquired importance all over the world in diverse fields.

In the wake of globalization, English language acquired even more significance. Some of the scholars differ on continuing English language as medium of instruction on the grounds that it is a foreign language. They argue that familiarity and convenience of local language for communication both in written and oral form is the ideal and it should be promoted.

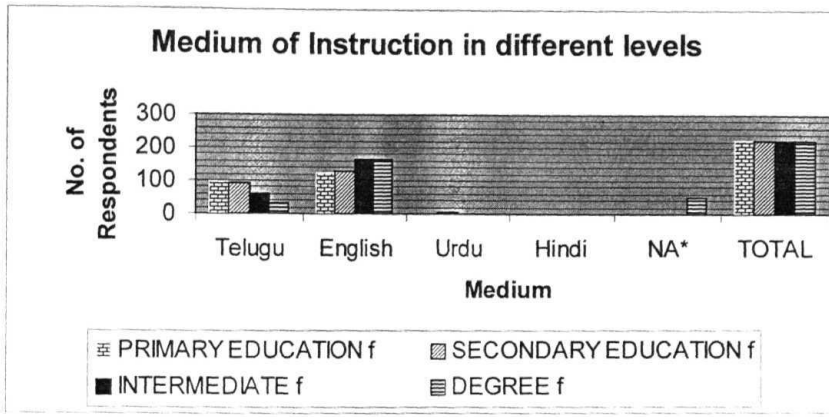
Table No: 6.3 Medium of Instruction

Language	Primary Education		Secondary Education		Intermediate		Bachelor's Degree	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Telugu	97	43.1	93	41.3	59	26.2	33	14.7
English	125	55.6	128	56.9	164	72.9	164	61.8
Urdu	02	0.9	03	1.3	01	0.4	01	0.4
Hindi	01	0.4	01	0.4	01	0.4	01	0.4
NA*	-	-	-	-	-	-	52	23.1
Total	225	100	225	100	225	100	225	100

* Not applicable

In the present study data on the medium of instruction of students at various levels of their education was collected. Table No. 6.3 show the medium of language at primary, Secondary, Intermediate and Graduation levels. The largest number of respondents had English as the medium of language right from their primary school to college education.

Graph No. 6.1



f – Frequency , NA- Not Applicable

There was a steady increase in number of respondents who had English as a medium of instruction from school to college education. Up to secondary level 56.9% were educated in English medium, whereas 72.9% respondents were educated in English medium at intermediate level and nearly 80% respondents were taught in English medium at bachelor's degree level.

Over time, there has been an increasing tendency of sending children to primary level schools that emphasize English as a medium of instruction even in small towns and villages. It is perceived that education in English medium helps in acquiring upward social mobility.

The data shows that majority of the students pursuing IT education have had English as a medium of instruction followed by those who were educated in Telugu medium. The proportion of students who had Hindi and Urdu as medium of instruction at various levels is insignificant compared to those who **got** education in the English and Telugu medium.

6.4. **Selections** of **the courses**

The criterion in selecting IT education centres varies from individual to individual. Respondents are classified into four categories: first, reputation of the centres, second, quality of teaching, third, physical proximity to home, and fourth, range of courses offered.

Table No: 6. 4: Criterion in selecting IT centre

Criteria	Frequency	Percentage
Reputation	100	44.5
Good Teaching	**83**	37
Nearer to home	**25**	**11**
Diverse courses	17	7.5
Total	225	100

Table No.6.4 shows that 44.5% of students had selected the IT education centres on the basis of reputation and brand name of the vendor to which a particular centre is affiliated; followed by good teaching with 37%; 11% of respondents mentioned proximity of the IT centre. It appears that prospective students collect information about quality of teaching from their friends and relatives.

The data shows that a large chunk of student community considers the brand name of the IT education and training centres as a significant criterion due to three reasons: one, the brand name enhances job prospects because of its reputation in the industry; two, standards maintained by these centres regarding infrastructure, study material, courseware and methodology; and three, placement cell provide an opportunity to some of the students in getting jobs in IT training centres.

Some of the students mentioned that they had chosen the centre after enquiring about the quality of teaching of the IT education centres. One respondent felt that students take note of the faculty's depth of domain knowledge in a particular course. If they are satisfied with the teachers potential then only they will join for that particular course. Some of the women students mentioned that proximity of the IT education centre to their residence was an important criterion in joining the near by IT centre.

Table No: 6.5. Option of Courses

Course	Frequency	Percentage
Short-term	121	54
Long-term	104	46
Total	225	100

Table No. 6.5 shows the data pertaining to student's preferences over long term and short-term courses. The study reveals that 54% of respondents opted for short-term courses, 46% of respondents opted for long-term courses. The preference of courses either for short term or long term tends to change according to the student's basic disciplinary background.

A systematic analysis has been done to understand the disciplinary background of the students who opted for long term and short-term courses. The data revealed that students who had IT courses as part of their curriculum in engineering and computer applications seem to prefer short-term courses to add what is already offered by the curriculum and to enhance their prospects in the job market.

According to a group of students, the rationale behind their choice of short-term courses was to get an edge over others while competing for jobs. As the software application tools keep changing, they have to keep abreast of the changes and

acquire skills in application tools currently in demand. Short-term courses tend to emphasize to tool-based learning. An additional advantage of the short-term courses lies in lower fee which enables even some of the lower class students to pursue the courses.

Students who opted for long-term courses were predominantly from basic disciplinary streams like BA, B.Com, B.SC and Post-Graduates. Most of the students revealed that the rationale in choosing the long-term courses was to build career in IT industry and IT enabled service industries. But the IT centres charge a significant amount for each long-term course. The minimum amount for a long-term course is 25,000/- and it goes beyond Rs 68,000/-.

The majority of the students felt that the centres charge high fees. However, the perception that the training has the potential to secure employment and consequent economic benefits and social prestige motivate the students to join for long-term courses. The central and state government policies led to significant decline of employment opportunities in public sector. The process of liberalization and privatization, lack of job prospects for traditional disciplinary studies and demand for highly qualified personnel with computer skills, compelled students to opt for long-term courses.

6.5. *Expectation from IT education*

The study views that changing preference pattern is a response to structural changes brought by globalization all over the world and liberalization policies initiated in India since the 1990s. This process shifted the balance of employment opportunities towards service oriented jobs which are primarily meant to sustain

information societies of the west in general and USA in particular. The high level of demand for those trained in software tools in the wake of the Y2K problem and the dot.com companies gave a boost for tool-based diploma courses. The non-formal sector capitalized on that demand even as the growth witnessed a slow down in the later years.

Table: 6.6 Expectations from the IT centres

Expectations	Frequency	Percentage
Good jobs	87	39
Acquiring knowledge	117	52
To go abroad	21	09
Total	225	100

Table No.6.6 indicates **the expectations** of **the** students from **their IT** education and training. The students **who** were **in** the age group of 18-25 years **had** a **lot** of expectations. 39% of respondents felt that they were expecting jobs from their training. More than 50% of the **respondents** felt that they wanted to acquire IT knowledge and 9% expressed **that they wanted to go abroad.**

The above data **indicates that students still attach a lot of significance to a career related to IT industry and IT enabled service industries. The students were anxious about the courses they were pursuing and the money they had been spending for acquiring skills to get a placement in the industry. Majority of students expressed their anxieties in the wake of retrenchments in IT industry. However, still students seem to have a strong belief in the employment potential of Information Technology.**

Table No. 6.7 Income Levels and problems in IT education centres

Income	Yes	No	Total
>5000	50 (34)	14 (18)	64 (28)
5001-10000	48 (32)	30 (39)	78 (35)
10001-15,000	51 (34)	02 (3)	53 (23)
15,001-20,000		22 (29)	22 (10)
20,001-25,000		08 (11)	08 (04)
Total	149 ***66*** (100)	76 *34* (100)	225 *100* (100)

Figures in the parenthesis is percentage.

The highlighted numbers indicates the percentage.

Table No. 6.7 analyses the perceptions of students towards the nature of courses. Almost 66% of the respondents stated that they have been facing different kinds of problems including medium of instruction, high technicality of the subjects and infrastructure problems, to name a few.

The students who were faced with these problems did not belong to a single homogeneous category. They hail from diverse social backgrounds. 34% of the students hail from the lower income group, 66% from middle income groups. Most of the lower income category students reported that they have experienced various types of problems in IT education and training centres. The problems tend to vary across the different income categories.

The focus group interviews with respondents revealed that the technical nature of the subject itself often became a problem to the students at large. Particularly students from non-science background found that the courses were

extremely difficult due to their technicality. Students with science and technology background generally didn't find it difficult since their curriculum familiarizes them to the IT courses.

The medium of instruction is one of the major problems faced by the students. It was observed that the students who were faced with problems related to English language belong to rural areas. The continuation of local language as medium into higher education had only intensified their problems in addition to the technical nature of the courses.

This phenomenon is more prevalent among IT education and training centres in the Rayalaseema region considered as a backward region in Andhra Pradesh. According to the management of one of the training centres, most of the students from Rayalaseema region find it difficult to cope with English language. However, in general, the difficulty was noticed among students from rural areas across all the regions of Andhra Pradesh.

The students of lower and middle-income category, due to their Telugu language medium were unable to cope with English as a medium of instruction. However, it was also noticed that over a period of time the students of this background overcome these problems. One more problem was the poor infrastructure in IT education and training centres.

Some of the students mentioned that the IT education centres are not maintaining and providing proper facilities and there was no conducive atmosphere to make students comfortable. The major infrastructure problems revealed by the

students were delay in supply of study material in time and lack of adequate number of computers for practice as mentioned earlier.

However, due to the negligence of the management of the institutes, students were not getting their material regularly. One student pursuing long-term course angrily said *"ours institute is not supplying study material properly and in time although they are charging huge amount of money from us".*

The respondents perceived that the IT education centres did not maintain required standards. In some centres there was no favourable setting for learning the computer skills. Agnihotri (1989) while talking about the school environment and morale of the students found that better the educational environment of the school, higher was the morale of the students. The basic factors of good educational environment like adequate place, proper use of curriculum, policy matter, trained staff and better human relations give impetus to student morale.

6.6. Access to Computers

The lab practice in IT education plays an important role in shaping the students ability. According to this, students who have very good practical knowledge in addition to the theoretical base will have an edge over the other while competing for the employment opportunities. It was observed that although the practice of IT programmes and learning the new packages is an important task, some of the training centres failed to provide adequate number of computers.

Table: 6.8. Caste and Access to computers

Caste	Highly satisfactory	Satisfactory	Cannot say	Unsatisfactory	Total
OC	21 (50)	95 (66)	14 (58)	01 (6)	131 (58.2)
BC	20 (48)	44 (31)	06 (25)	02 (13)	72 (32)
SC	01 (2)	04 (3)	03 (13)	13 (81)	21 (9.3)
ST	--	--	01 (4)	--	01 (0.5)
Total	42 19 (100)	145 64 (100)	24 11 (100)	167 (100)	225 (100)

Figures in the parenthesis is percentage.
The highlighted numbers indicates the percentage.

The present study tried to explore the student's attitudes on access to computers in their respective IT education centres. Table No.6.8 demonstrates that out of the total sample 19% of the students are highly satisfied with the computer facility, 64% respondents were satisfied and 15% were unsatisfied with the lab facility apart from 11 % who did not expressed their views.

The data shows that majority of the students cutting across all caste groups satisfied with facilities. However, the scheduled castes students were not satisfied and expressed that they did not get access to computers. According to the dalit students, due to lack of proper understanding between the government agencies providing financial assistance and the heads of the IT education centres delayed payment of fee which some times restricted the access to computers to these sections in Vijayawada city. It is proposed that although the government is interested to sponsor the dalits and backward caste students, due to the

mismanagement of the officials and the respective training centres IT opportunities to these sections are being limited.

6.7. Experiences and expectations in the era of slowdown:

As mentioned in chapter three, the growth rate of IT industry is commendable both in qualitative and quantitative terms over the last two decades in India. The phenomenal growth in IT industry generated massive employment opportunities both in India and abroad with high salaries. It was the trend until the year 2000.

But the post-2000 period witnessed the slowdown and the September 11th attacks on the World Trade Centre (WTC) in New York affected the growth of IT industry and consequently employment potential.

Here a comparative analysis is made of the aspirations of the students at the time of their admissions and their perceptions after the slowdown. The students who were included in the study were at various levels in pursuing their courses when they were interviewed in slow down period of 2001.

Table: 6.9 Income level and Realization of expectations

Income	Yes	No	Total
>5000	42 (24)	22 (47)	64 (28)
5001-10000	60 (34)	18 (38)	78 (35)
10001-15,000	47 (26)	07 (15)	53 (23)
15,001-20,000	22 (12)		22 (10)
20,001-25,000	08 (04)		08 (04)
Total	178 79 (100)	47 21 (100)	225 (100)

Here an analysis has been made by comparing the level of income and their prospects of realizing their aspiration. 79% of the students expressed positive

attitude about realizing their expectations on getting employment opportunities in IT sector, going abroad, and earning high salaries. The principal motive of the students was to get a good job as soon they completed their education within a short span of time. On the other hand 21% of the students are not confident about realizing their expectations.

In terms of income background the data shows that majority across all the income groups were positive about realizing their expectations. However, as the data indicates, the attitude of the lower income groups significantly varies from that of the middle and higher income groups. It is observed that the confidence levels of the middle and higher income groups are higher when compared to the lower income households.

The media coverage on the retrenchment in IT industry abroad significantly affected the morale of the students who were pursuing IT. The students were doubtful about their prospects. Some students mentioned "we are totally upset by the recent developments in the IT industry; only God should save us". It is not only upsetting the students but also their parents who were quite certain about the prospects of their children.

Pimpley (1997) noted that the parents of school going children tend to have higher occupational expectations about their children. Further, the awareness of the social categories determines the educational aspirations for the social mobility. According to one respondent from a lower income household, "our parents' dreams are shattered with the ongoing developments in the IT industry over the last two

years". However, most of the students felt that they were hopeful of a career in software industry.

6.8. Income levels and preferences of the streams:

In order to find out students preferences of academic streams, respondents were asked to indicate which of the streams they prefer to pursue. The responses to this question would reveal their preferences in the context of growing emphasis on applied and technological sciences.

As the data collected during the slowdown, this analysis would reveal whether the students were still interested in pursuing IT education. Table No.6.10 shows the students preferences towards cluster of educational streams. The analysis is based on the income of the parental household of the respondents.

Table No: 6.10. Income origins and Preferences of courses

Income	Fine arts	Biological sciences	Physical sciences	Social Sciences	Commerce courses	IT courses	Total
>5000	4 (25)	6 (23)	20 (54)	12 (57)	20 (57)	02 (2)	64 (28)
5001-10000	6 (38)	15 (58)	10 (27)	05 (24)	12 (34)	30 (33)	78 (35)
10001-15,000	5 (31)	03 (12)	05 (14)	03 (14)	03 (9)	34 (38)	53 (23)
15,001-20,000	1 (6)	01 (4)	02 (5)	01 (5)	-	17 (19)	22 (10)
20,001-**25,000**		01 (4)				07 (8)	08 (04)
Total	**16** 7 **(100)**	26/2 (100)	***3116*** (100)	**21** ***9*** (100)	35 ***15*** (100)	**90** *40* **(100)**	225 ***100*** (100)

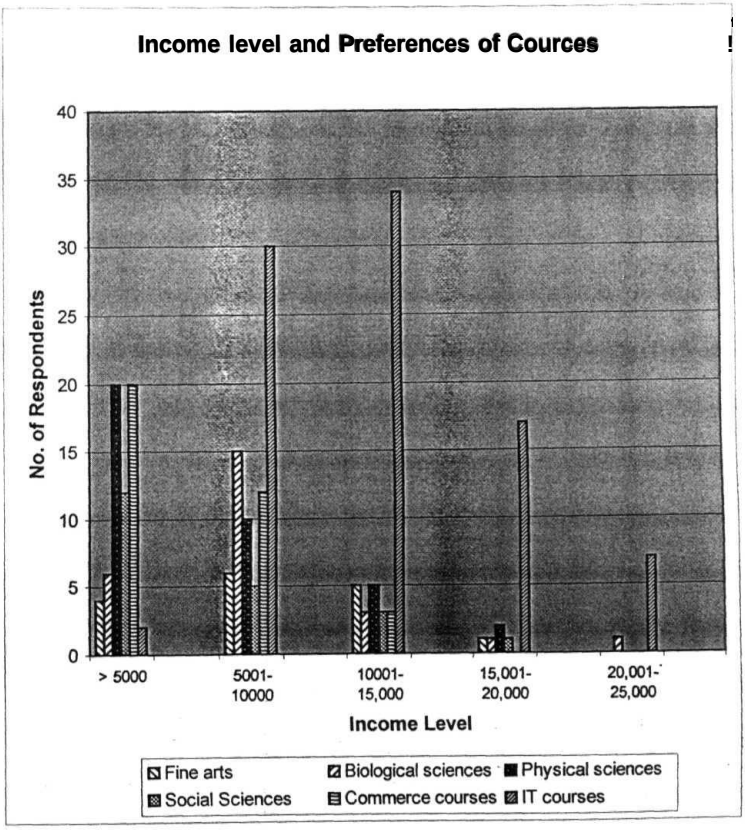
Figures in the parenthesis is percentage
* The highlighted numbers indicates the percentage of the total.

The preferences of student's range from fundamental sciences to the advanced study streams like IT courses. Table No.6.10 indicates that out **of** 225

respondents only 7% opted for fine arts, on the other hand 40% of the students opted for the IT related streams, 16% opted for physical sciences followed by 15% for commerce streams and 12% for biological streams. The respondents who opted for social sciences are 9% only.

In contrast, higher and middle income group students tended to choose applied courses such as IT courses in addition to the basic sciences, whereas the lower income students tend to opt for social sciences courses.

Chart.6.3



The pattern of shift in preference of students from the basic science streams to IT streams should be understood within the context of ongoing economic reforms that gave boost to IT industry and IT-enabled services. As discussed in the third chapter, IT industry has been generating significant employment opportunities compared to any other organized industry in India. As a result, most of the students tended to shift preferences from traditional educational streams to the courses which have better employment prospects.

This shows that the middle class seems to evolve appropriate strategies with the changing economic situation. The study also observed that the middle-income groups have attached high level of significance to IT education compared to the lower and higher income groups. It can be seen in the parent's enthusiasm and interest to spend substantial amount of money towards fees and other expenditure of their offspring's education.

According to Tharu (1998), the caste disparities become evident in significant ways in the process of enrollment of students of disadvantaged castes. Most of these sections were predominantly taking admission into liberal arts and commerce courses at under graduation and continue into PG and further courses. Very limited number of students were enrolled for science and technology courses.

Due to commercialization of education in India over the last one decade the number of students opting for basic science streams has dropped to less than 19% from the 32% and created fear among the scientific community about the future of research and development in fundamental science (Ambrose Pinto, 2000). One of the reasons for preferences towards social sciences and humanities among the

lower class students is that these streams are considered to be **less** expensive; **secondly** access to these courses is **much** easier compared **to the** professional courses.

6.9. Summary

The perceptions and attitudes of the students show that majority of them believed in the potential of IT industry in generating employment opportunities. However, the recession in the world economy and slowdown in the IT industry changed the attitudes of the students considerably. The ongoing process of slowdown created some sort of anxieties among the students who were pursuing IT courses.

The next chapter summates the conclusions of the study and makes some recommendations to the planners in seeking to render the space of the IT education more democratic and egalitarian.

Chapter-VII

Conclusions

Information Technology (IT) deals with how we use information, how we compute, and how we communicate. IT has a wide range of applications throughout the sciences, engineering, education, the economy, the polity, and culture. The unfolding of the potential of Information Technology is being witnessed by the advanced nations. Recently the developing countries also started recognising the potential of Information Technology and have been evolving policies for the development in diverse spheres of life.

As reviewed in the chapter one and chapter three, the virtual penetration of IT into all the sectors such as military, economy, polity, industry, culture, media, health care, transport, entertainment and education has created conditions for major changes in the developed nations and transformed them into information societies.

To sustain the information society, it is necessary to develop software, hardware, and high skilled human resources. The wider application and rapid penetration of IT in diverse sectors have led to the phenomenal growth of IT industry and IT enabled services with the US Silicon Valley as the hub which is connected by significant number of countries including a developing country like India. Indian cites such as Bangalore, Chennai, Hyderabad, Mumbai and Delhi occupied a place on the global map in the production of IT software and IT enabled services.

The multifaceted developments in the IT industry has led to the severe shortage of software professionals in the developed countries in general and USA in particular.

In order to sustain the IT based economies, most of the developed nations including America liberalized the immigration norms to attract the highly qualified professionals across the world.

These policies led to the flow of IT professionals from diverse countries to America and other developed nations. India with its large scientific human resources responded quickly to seize the opportunities unleashed by the global IT industry. Consequently thousands of personnel trained in a variety of applications in software and IT related areas have started migrating to America, Europe and some of the Asian countries like Singapore, Thailand and Malaysia.

There are multiple factors responsible for the flow of IT professionals to the developed countries: relatively high salaries, high standard of living, and the social prestige and perks associated with the Information Technology jobs. As a result, in India members of diverse social groups have begun to attach a great deal of significance to IT education. The social and economic significance attached to the IT jobs led to the proliferation of thousands of IT education centres ranging from international to local level. Over a period of time IT education emerged as an important segment in IT industry in India.

The trend towards a credential society based on demand for diplomas started since 1980s in India and accentuated by the 1990s with the rise of IT industry all over the world in general and America in particular. The demand for certificate or degree in IT related courses to improve the credentials ultimately led to a huge growth in IT education industry.

Although IT education centres have been flourishing in different regions and pockets, the issue of accessibility to different social groups which differ in terms of socio-economic background have assumed importance. It is quite essential to explore this unexplored area to get better understanding of the issues. The present study is an attempt to address these concerns.

M.S.A Rao (1985) while examining access of educational opportunities to different social groups observed that as part of its functions, education system follows the method of differentiation, and selection. In the process, the education system tends to select students from particular socio-economic strata. Individuals who belong to particular socio-economic background exploit educational facilities of higher quality than others.

In principle, the modern education is open to all individuals irrespective of caste, class, gender, race, and region. However, social factors have been playing a significant role in influencing the access to educational opportunities in general and professional courses such medicine and engineering degrees in particular. Still half of the number of children does not have access to primary education, and less than 7% have access to higher education and only 2% of the students have access to science and technology education in India (Chitnis, 2000).

In this context it is quite important to explore some of the issues of equality of opportunity in the context of growing demand for IT education.

The objectives of the present study were: firstly to study organization of IT education and its implications for accessibility; secondly to understand the socio-economic profile of the students pursuing IT education; thirdly, to understand the

relation between the socio-economic background and access to IT education; and finally, to analyze the perceptions, experiences and anxieties of the students about IT education.

The study hypothesised that the prevalent systems of social stratification influences the extent to which access to IT education is distributed. It thus assumed that the access to the space of IT education is unequally distributed - arising from structured social inequalities such as caste, class, religion, gender, region, and rural and urban distinctions.

The hypotheses of the study are that: there is variability in degree of access to Information Technology education among various social groups; and the variability in the degree of access to Information Technology Education is influenced by position of the social groups in the stratification system (caste, class, and gender).

To explore the above objectives Andhra Pradesh was selected as a study area. Four cities in Andhra Pradesh were selected for conducting the fieldwork. The rationale behind selection of these cities was to cover the three regions of Andhra Pradesh namely coastal region, Telangana and Rayalaseema apart from Hyderabad. One city from each region was selected. The cities are Vijayawada (Costal region), Warangal (Telangana), Tirupathi (Rayalaseema) and Hyderabad (the capital city of A.P and an important city of IT).

The sample of the present study is drawn from the students pursuing IT courses in training centers managed by IT education vendors in the non-formal sector. Four centers from each city (in other words, 16 centres) were selected and

15 students from each centre were selected for the study. It was difficult to get the list of all the students pursuing various short-term and long-term courses. It was decided to include students who agreed to participate in the study. In other words, the study adopted a purposive sampling method.

The techniques of questionnaire, interview guides, and focus group discussions were used to collect the data. Statistical Package for Social Sciences (SPSS) was used for statistical analysis of the data. In order to understand the organization patterns of IT education across different parts of India, data on the list of IT centers published by the Data Quest (May, 2001), an IT magazine, was used.

The data on the distribution of IT education and training centres revealed that the highest proportion of IT education centers are located in southern regions, and that the eastern pockets of India are lagging behind in attracting IT education centers. The northeastern regions were virtually excluded by the IT education and training organizations. This trend indicates that IT education is confined to only some regions of India.

Within Andhra Pradesh most of the centres are located in Hyderabad, followed by the coastal region, Telangana and Rayalaseema regions. The study shows that the distribution of IT education and training in India and Andhra Pradesh is skewed in nature. Most of the training centres were located in cities only. The concentration pattern of centres indicates that it is the economically potential regions and IT centered cities that are able to get more number of training centres than other cities.

Data pertaining to the socio-economic profile of the students enrolled in IT education centres, admission patterns, and attitudes on the ongoing developments in IT industry and its impact on IT education, were collected from the students.

The study shows that most of the students enrolled in IT education centres primarily hail from the urban settings. There are multiple reasons for higher proportion of the urban students in IT education: first the concentration of IT education centres in urban areas; second, access to modern means of communications seem to provide awareness about the importance of IT education and prospects of employment opportunities in big cities.

The study finds that the number of students who hail from rural areas is comparatively less. The socio-economic profile of the students reveals that nearly 60% of the student belongs to upper caste background, 30% backward caste, followed by scheduled castes with 9%, and the proportion of the tribal students is negligible. The data clearly indicated that the historical social inequalities have been continuing to influence access to IT education by absorbing only a small percentage of the lower caste groups such as backward castes and scheduled castes into the mainstream system. Although the government agencies such Scheduled Castes Corporation and Backward Castes Corporation provide financial support to these sections, the rural dalits and backward castes are unable to take advantage of financial support due to lack of awareness and lack of optimum educational qualification.

The city-based dalit and backward middle class tend to have greater access to IT education because of their access to resources as well as information about the

government policies and schemes. The proportion of rural students of the upper castes is less when compared to the upper caste students who hail from urban settings.

Students from tribal communities are negligible due to lower economic status and lack of education and lack of awareness about IT education. Thus, they are excluded from IT education to a greater degree. Moreover, urbanization of Scheduled Tribes is relatively low compared to SC groups. Thus, the presence of STs in cities is insignificant.

The study also examined the gender composition of the respondents. It was found that 64% are male and 34% are female. There are multiple factors responsible for the significant proportion of women in IT education. First the concept of career women is gaining importance in the present day Indian society. The mode of selection of the life partner significantly changed over the last two decades particularly since 1990s. Prospective bridegrooms prefer working women. In addition to the above factors, the resemblance of IT jobs as white-collar jobs encourages women to join IT courses. Although IT education attracted a significant number of women students, still the proportion of the female students is less compared to male students.

The proportional representation of the male and the female students significantly varied according to their rural and urban background. It was found that the majority of the female students belong to urban settings, with a very low proportion coming from the rural areas.

The reasons for the low proportion of female students compared to that of male students are multiple: lack accessibility in the rural settings, difficulties in traveling to towns and cities, high fee of the courses. The traditional patriarchal hegemony also restrains female students from pursuing education in general and IT education in particular in the cities and towns. The traditional religious values particularly in case of Muslim women restricted their entry into IT education centers.

The assumption regarding the father's educational qualifications, occupation and income was that these influence children's educational attainment to a greater degree than those of the mother's in the Indian society. The results showed that the father's level of education has significant impact on the access to IT courses. The students whose father's educational qualifications are above bachelors degree account for more than 75%.

The group discussions that were held with the students revealed that there is a great divide between the rural and urban students. It also demonstrated that the urban students whose fathers' educational qualification is higher compared to those of rural students have more awareness about the selection of the educational streams, and about the latest developments on IT industry. This awareness gives an edge over rural students and children of uneducated parents.

The occupational patterns of the respondents' parents shows a greater proportion of students are children of those employed as white and blue collar workers both in the private and public sectors and those who were self-employed.

The educated groups who are employed in diverse institutions and organizations recognized the potential of Information technology and consequently they use the IT education as a tool to improve the socio-economic conditions and esteem by leveraging the potential economic benefits from IT industry and IT-enabled industry jobs.

The quest for social mobility acts as a motivation to join in the IT courses. The possibility of foreign employment, perks and job flexibility also worked as motivating factors for moving towards IT courses.

The level of monthly income of the household has a significant role in determining the degree of accessibility. The study found that respondents whose fathers' earnings fall in the under the category of 5000-15,000 per month constitute the majority (60%). The trend indicates that the middle-income groups attach a lot of significance to IT education compared to other categories, i.e. lower and higher income groups.

The proportion of the students belonging to the middle class is significantly higher compared to other classes. The reason for the low proportion of the higher class in the IT education centres in the study could be understood in their economic potential to bear the high fee and preference to join for IT courses in premier and more expensive institutions rather than IT education centers of the kind included in the study. Many prefer to go to advanced countries to pursue higher education. Since the cost of the IT education at these centres appear to be affordable to middle classes, these sections started making use of the education and training services of the IT centres.

However, a significant proportion of the students expressed that the fees are high and that they find it very difficult to pay. The parents of the students resort to various sources such as loans, credit etc. to meet the costs.

Language is one of the significant factors, which influence accessibility. The study found two kinds of respondents: first category is the students who have pursued studies in a regional language, and the second category is students who continued studies in English medium.

The present study examined the medium of language at different stages, i.e. from primary education to bachelor's degree of the respondents. It was found there is a gradual shift from education in regional medium to English medium. The students who had education in Telugu medium were faced with acute problem with English language. Further, the jargon and the technical aspects of IT subjects seem to cause problems. More number of students who mentioned language as a problem belonged to the scheduled castes and the lower classes.

The process of language socialization significantly varies from the caste to caste and class to class. The upper castes particularly who belong to urban settings and the middle class in general socialize their children according the norms and values of the educational institutions. The language which is used in day-to-day conversation is compatible with ethos of the educational system.

The study also examined the role of kinship networks of the students who are associated with software industry. It was found that most of the students who had relatives employed in software industry hail from upper castes and middle class background.

It was noticed that the level confidence is greater among the students who had relatives associated with software industry than those are did not have kinship networks associated with software industry. The former section of students seems to have a hope that they will be accommodated in some companies through their kinship networks. But the students who did not have such kinship networks seemed to have less confidence although they possess similar qualifications.

The present study also examined the class background. The majority of the students pursuing IT training are drawn from middle class. It also examined the relation between caste and class. It was found that most of the middle class students also belong to upper caste background followed by the backward castes.

The interviews and groups discussions led us to observe that most of the middle class students attached a great deal of significance to IT education and training compared to the other social classes. The quest for occupational and social mobility constantly motivates them. The social prestige and esteem that IT professional employment acquires is attached a greater value by the middle class population.

The study finds that the young generation belonging to the scheduled castes, backward castes, the rural background, and women students are lagging behind in gaining access to IT education and training. It means that IT education is not equally leveraged by all, and only particular sections of the society who already have had the better social and economic positions became successful in gaining access. The hypothesis proposed is supported by the data.

Contribution of the study to the Sociological literature

The study revealed that the emphasis on tool-based learning, as opposed to concept-based learning promoted by the IT education vendors has implications for gaining competence and consequent **prospects of** employment. The tool-based learning, that was promoted during the 1990s by the IT education vendors proved to be inadequate for long-term employment. Those who got short-term diplomas were the worst affected by the slowdown in the IT industry. The overemphasis on tool-based education will give undue importance for credentialism.

The present study is a modest contribution to the specialty of sociology of education with a particular reference to IT education. The study could focus properly by employing central concepts in sociology of education. The study showed linkages between market forces and education and the global market tends to shape the education system in the developing countries. The promotion of IT industry and IT education in India seems to be a response to global demand rather than internal requirements. Concepts like credentialism are very useful to understand the situation in India where there is an over supply of graduates. The differential access to education in general and IT education in particular remains a significant sociological question that needs further exploration. The concept of information society is a sociological problematic in the Indian context.

Recommendations

Based on the findings of the present empirical study, it recommends some of the strategies to strengthen the government policies pertaining to IT education to include the underprivileged sections.

First, the pattern of distribution of IT education is skewed in nature. Most of the IT education centres are located in the urban centres, whereas the rural areas are excluded. Here the state has to evolve special programmes for the rural areas to include the majority of the aspirants of IT education.

Second, the state has to design special policies for the dalits, scheduled tribes and women to enhance their economic potential and upward social mobility.

Third, with the growing presence of private sector in almost all the fields the private sector has to take social responsibility in making IT education accessible to all sections.

Fourth, special emphasis should be laid on concept-based training rather than the tool based training, which will help those with IT education and training in gaining overall competence and ability to withstand market fluctuations in the demand for software application tools.

Further **research**

The future research needs to focus on the perceptions and attitudes of the IT education enterprises to understand the detailed organizational aspects and also their view of social responsibility.

There is a need to study the students' placement after completing their courses from the IT education centres.

The comparative studies are needed to understand the organisation of IT education both in public and private sector.

The implications of the skewed pattern of distribution of IT education in the country for balanced regional development.

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Appendix –

This is an interview -schedule for collection data for Ph.D program on the topic:

Social Differential and Access: A Study of private Information Technology Education and Training centres in Andhra Pradesh

Information provided will be used only for research purpose.
Strict confidentiality will be maintained.

G. Nagaraju, Research Scholar

Date: Place:

1. Personal profile

Name	
Age	
Sex	Male/Female
Caste	
Religion	
Place of birth	Rural / Urban
Place of residence	Rural / Urban
Marital status	Married/Unmarried

(2) Please give the details pertaining to your education:

Standard	Name of the Institution	Place Rural/Urban	Medium of Instruction	Division
Primary				
Secondary				
10+2				
Degree				
Any other (specify)				

(3) Name of the institution in **which you are** admitted

(4) Name of the IT course you Enrolled

(5) How did you come to know about this IT course?

A. Media
B. Friends
C. Part of curriculum
D. Any other (please specify)

(6) What are the criteria for admission into the institution?

A. Through entrance test
B. Through payment
C. Any other (please specify)

(7) What is the criterion for the choosing this Institution?

(8) Who advised you in taking decision to join the IT Course?

A. Teachers
B. Parents
C. Relatives
D. Friends
E. Self
F. Any other (Please specify) (Tick whatever applicable)

(9) If none of the above, why did you join in IT Course?

(10) Duration of the course: (Specify the number of months / years)

(11) If it is a short-term course why did you choose to join the course? Please explain

(12) If it is a long-term course why did you choose? Please explain

(13) Are you attending any other IT course along with the present course Yes / No
If yes how does it help you?

(14) Do you experience any problems in understanding the course? Yes / No
If yes please elaborate the nature of problems
(For e.g. medium of instruction or too technical, etc.)

(15) What is your opinion regarding the IT courses **you are** attending?

a) Very satisfactory

b) Some what good
c) Not satisfactory
d) Very bad

(16) Do you have any college going brothers and/or sisters yes No
If yes please give the following details

Brother/sister	Standard	Optional subjects	Medium	Place of study

(17) Specify any of your brothers or sisters are pursuing or have passed any IT course Yes/No

A) If yes what is the course
B) Is it a full Time course or Part Time course?
C) Their present status (whether employed or student please specify)

(18) If your sisters are not pursuing any IT education why is it so?

(19) Do you have any brothers or sisters or relatives who are working as software professionals?

(20) Where they are working?

(21) What type of IT course/degrees would fetch good job opportunities?
Please rate different IT courses/ degrees that you know

Course	Rank of preference
M. Tech in computers	
B.tech	
MCA	
BCA	
DOE accredited courses 0, A, B, C	

(22) Do you think a degree certificate from an IT institute that is affiliated to reputed universities or technology institutes would fetch better job opportunities than a diploma/ degree from private organization Yes/No

(23) What is the present status of IT courses with regard to the current job market? Please tick against.

Courses	Job opportunities increased	Same as what it was	Worse than what it was	Can't say
Certificate				
Diploma				
Degree				

(24) Now there is a slow down in IT employment. Do you think the expectations with which you joined will be realized? Yes / No
If no, why?

(25) What is your expectation from IT institution in which you are enrolled?

(26) What is your experience at the IT institution in which you are enrolled?

(27) What are the motivational factors, which encouraged you to choose the IT course? Give ranks to the factors. Give the ranking to the following motivational factors according to it importance:

Motivational factors	Rank
High salaries	
High social esteem	
To go abroad	
Immediate employment opportunities	
Comfortable life	
An other (please specify and rank it)	

(28) Where do you plan to settle down and pursue your career ad an IT professional? What is the destination to you with regard to professional settlement?

a) India b) America
c) Europe d) any other specify

(29) Given the choice which of the following course you would select?

A. Biological sciences
B. Physical sciences
C. Social sciences
D. Commerce courses
E. Fine arts
F. IT courses

(30) Please mention the fees structure of the course:

A. One time payment
B. Installments
C) Any other (please specify)

(31) Which of the following social classes **would** you consider **your** family belongs to?
A. Higher class
B. Middle class
C. Lower class

(32) What is the source of support for your education?
a. Family income
b. Loans
c. Selling lands
d. Any other

(33) Did you / or your parents face any difficulties in mobilizing fees and other expenditure for IT education YES NO
If yes, mention the nature of difficulties

(34) Do you get adequate support and help from your family members in studies?

(35) Give the educational and occupational background of parents and relatives

S.No	Family members	Educational Qualifications	Occupation	Public/private sector	Monthly income
1	Father				
2	Mother				
3	Elder brother				
4	Elder sister				
5	Paternal uncle				
6	Maternal uncle				
7	Grand father				
8	Grand mother				
9	Others				

(36) Family Income: Please give Information about your family **Income** (approximately)

Source	Income
House Rent	
Income from land holdings	
Business	
Any other source (please specify)	

(37) Nature of housing: owned / Rented **(please** specify)
Type: **Tatched** / Tiled / Daba / storeyed

(38) Do all the members live in the same household at present: Yes / NO
If No indicate who are living out side and why?

(39) Whether your parents own land YES/ NO
If yes, what is the extent (acres) of land owned?
Irrigated land: acres:
Dry land: acres:

(40) Who cultivates the land?
A. Family
B. Lease
C. Any other (please specify)

(41) Social participation:
Positions held by members of the family in different bodies

Address for communication:

Tel: ___
E-Mail:

Thank you for kind cooperation

Appendix - II

Interview Schedule for IT Training Institutions

Date:

Place:

1.Name of the Organization

2. Year of establishment

3.Nature of the organization:

Sector	International	National	Regional
Public			
Private			
Any other			

4. Please specify the number of branches of your institutes in
   Andhra Pradesh——
   India——————
   Abroad——

5. Head of Branch/Institute:

6. Educational qualifications and Experience of the Head

7. Number of staff employed in the Institution their educational Qualifications:

POSITION	QUALIFICATION	EXPERIENCE	SALARY	GENDER	
				Male	Female

8. Courses offered by your institution (please specify)

9. Please specify Fee Structure for courses?

10. How many men and women your institute has trained so far?

11. According to you what are the motivational factors for women to enroll themselves into IT courses?

12. According to you what are the factors that are motivating students to join IT education?

13. While interacting with the students what are the future prospects (economical & social) of IT education do you normally emphasize?
(Please elaborate)

14. What are the general problems faced by the trainees during their training at the institution? (Please elaborate)

15. What are the remedial measures that you have adopted in reducing their problems?

16. What is the background of the majority of the students enrolled at your institute?

17. Do you think that number of applicants to IT courses at various levels has declined since the January 2001? Yes / No
If yes, why do you think it was declined?

Thank you sir/madam.