CHAPTER II

- Employment Opportunities for Computer Experts (Scenario)

- The Crux of Career Development and Career Planning in Computer Management
  1. Evolution in Computer Education
  2. Liberal Education and Industry-Institute Interaction
     2-A. Education in Pune City
  3. Employment (job opportunity) for the computer experts.
  4. Attitudinal changes in computer programmers (s/w engineers)
  6. Personality Development in the Computer Age
Employment Opportunities for Computer Experts (Scenario)

In this chapter I have taken into consideration the present status of the computer industry in India and its role of increasing career opportunities in the field of computer management. The scenario of employment opportunities for the aspiring graduates and undergraduates is quite encouraging. From the beginning of 21st Century sky would be the limit for the computer professionals and the graph indicating trends in employment opportunities has been rising and will continue to increase the supply of young graduates and undergraduates from the educational institutions irrespective of the faculty to which they belong, provided they have the necessary computer expertise.

The Crux of Career Development and Career Planning in Computer Management

1. Evolution in Computer Education

Education means a systematic instruction in a particular field with the aim to develop one's character and mental powers. On the groundwork, education stands on the edifice of a bright career. Knowledge of anything that the education tries to impart to the learners turns out to be the basis of future career. Education should be able to give practical gain, application skill in the real life for creating concrete positive changes in the standard of living. That is why the need is often felt towards proper planning of one's career, keeping in mind the needs of society as well as one's capacity and interest.

Today the kind of knowledge that formal education can impart to the students can be grouped under the five broad categories or faculties:-

1. Arts and Humanities
2. Sciences
3. Commerce and Management
4. Medical Sciences
5. Engineering Sciences and
6. Computer Application

“Science” is a systematized body of knowledge having certain, specific rules and regulation and principles in it. Science Education expects an analytical approach and aptitude while Arts is basically skill oriented.

An art has been defined as “a skill in performance, acquired by observations and experience.” Art is also described as the acquisition of skills by practice. Art is a branch of learning in which human skills, knowledge, imagination and practice have an important role to play in their development. The art and skill can be acquired and developed by the proper and careful study, constant practice, keen observation and factual experience. Hence singing, writing, acting etc. are
considered as arts. Art is the practical side of science. Art is difficult to learn from classroom study or books.

Science provides certain definite facts and accurate laws, theories, principles, techniques and methods which can be formulated and stated. Science accumulates and organizes the body of systematized knowledge. Commerce and Management are performing or applied arts based on knowledge and skills and particularly computer knowledge and skills. Arts in a way wield the qualities of both in application. This implies that only ones having the particular inherent, interest and inclination towards the specific field will be able to set up a successful career in each of these streams. Therefore, choice of faculty of career development and consequently proper planning of career becomes very important and crucial.

The main aim and purpose of education is always personality and maturity development of the student. The existing potentials already present can be further developed and matured. The implication is that if one chooses a particular faculty without having inherent interest in it, he is likely to be a failure e.g. if a student having inclination towards music, neglects his interest and chooses to study medical sciences instead, there are chances that he fails to develop a successful career as a skillful doctor.

On the other hand, when the student has inherent interest in his subject, he will be curious to overcome obsolete, bourgeois beliefs and find some innovative ways of progress and further development. This kind of experimentation and innovativeness is the key of success. There are many people who are trying to overcome the obstacles of education through various experimentations aiming towards personality development. They are trying to adopt new models and new techniques to bring about this change e.g. a senior scientist *Dr. V.G. Bhide authored an innovative project entitled “Young Scientist Movement”. Since 1993, the institute is trying to develop curiosity and interest among children for science and giving children impetus for more and more experimentations.

The general nature of this movement is as follows-

1. To create a dias for dialogue between student and scientists.
2. To provide guidance to children from senior scientists who are having the practical knowledge for problem-solving.

The main aim of such movements is to encourage creativity and scientific attitude among junior students. They create a positive attitude in career development with a positive response. This positive attitude requires not only thinking and planning but also a lot of proficiency. Consequently, in management the task at hand is completed successfully in least amount of time, labour and

* Former Vice-chancellor, Pune University and a scientist.
monetary expenditure and with the utmost satisfaction level. For attaining the goal of multifaceted personality development mastery over one's subject and maturity attained through experienced mind as well as with practical knowledge and planned workable system are required. Career can have positive sea-change if one follows a planned line of action in a disciplined manner. Creativity and use of modern technology and application of one's own working capacity in resource utilization are the crux-factors.

An important aspect of personality development is increasing proficiency. Career development is not only for meeting a monetary need or a family-need but also a social-need. Therefore, career development and planning should be socially oriented for the benefit of the society. Achieving only paper qualification (degrees) should not be the aim of education. A successful career development is one which seeks to undertake search for unsolved social problems. This needs experiments to that effect for concrete solutions. If one can contribute in such unique manner the society can be described as "well educated".

The present times are showing newer and newer changes in day-to-day life. The innumerable technological changes require subsequent changing curriculum in all the professional educational branches. Naturally, these new changes in professional curricula bring about changes in career options. Different educational institutes then try to bring in as much diversity as possible in the courses they offer in order to cater to the needs of changing educational scenario. Thus, multi-dimensional educational institutions give priority to students who exhibit their proficiency and intellectual capacities through their scores in competitive entrance examinations like CAT/GMAT/GRF/TOEFL/XAT, etc for entering in the computer field. The educational systems have started showing dynamic changes as per requirements of this competitive world. In the highly competitive circumstances, formal educational qualification over and above the practical application of knowledge and mastery over skills for problem solving have become imminent.

A dynamic and prosperous career is the need of the hour. Theoretical knowledge is no longer sufficient and relevant. The newly evolved educational system should also provide on-the-job training for getting a first hand working experience and with a touch of practicability. For this purpose, various seminars workshops, conferences can help aspiring students to realize the challenges in reality with the help of updated knowledge.

What has brought in a complete revolution in this competitive world is fast changing technology of computers. Within a few decades of its introduction, computer has become a part and parcel of today's world because of the highly dynamic research in this field. Survival in the competitive world of computer needs new education for career planning. Constant and consistent efforts, constant updating of knowledge are crucial for a good prosperous career.
Communication skill and command over language facilitate application of knowledge for problem-solving in business administration and other social problem areas. Globalization has increased tremendously the importance of communication skills and command over expression. An educational system should be so oriented as to equip the careers in computer field right from the stage of school education. Imparting of multi-disciplinary knowledge is another expectation and the need of the hour.

Today's educational system and educational policy lay stress not on generalization but on specialization. Only through specialization one can occupy a unique and important position in industry and society e.g. a social status that a specialist doctor enjoys is definitely different from that of a general physician.

Thus, specialization in any field today is considered more valuable and relevant. The students should reap the benefits of new curriculum and new opportunities opened thereby. *The target audience is transforming its behavior. Only 8.4% of the audience spends their time on internet, T.V. and reading the newspaper. The remaining spends their available time on the computer, 70% T.V. ads are avoided by the audience which give more scope for the online advertisements. Interactivity is too high for online ads whereas traditional ads are more indirect and assumptions-based. In case of online communication and marketing it is two-way communication. The global audience spends lesser money than spent by an India based audience.

Institutions like Career Forum, Indsearch prepare students for MBA Entrance and help students acquire P.G.Degree & Diploma qualifications, in Computer Management (MCM, MMM, MPM & P.G.D.B.M.) and produce strong IT Professional and passioned knowledge driven managers. Organizations like TCS (Tata Consultancy Services) help them explore the Global prospective of an IT career. TCS offers them a dynamic team environment fulfilling professional and personal job requirements in the following skill categories with specific eligibility criteria.

<table>
<thead>
<tr>
<th>Skill Categories</th>
<th>Eligibility Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Web Technology</td>
<td>Java,V2</td>
</tr>
<tr>
<td>(b) Web Technologies (3-8 Years experience): Java,J2EE, JSP,Struts, Web logic, Websphere, Vignette</td>
<td>Experience: 2-8 years of IT experience with a reputed Software/Consulting Organization.</td>
</tr>
<tr>
<td>(c) Enterprise Application Integration (EAI): TIBCO, Tuxedo, Btrieve, Vitria, Webmethods</td>
<td>Qualifications:  • BE/ B Tech/ ME/M Tech/ MSc/ MCA/  • CA/ICWA/MBA</td>
</tr>
<tr>
<td>(d) Client Server</td>
<td>PGDIT (2 years full-time &amp; approved by AICTE)</td>
</tr>
<tr>
<td>(e) IBM Mainframes: * CICS, DB2, COBOL, IDMS,ADO,IMS DB/DC MF-COBOL - Microfocus COBOL with UNIX experience - SAS experienced resources.</td>
<td>Special consideration will be given to BSc? BCA/Diploma holders with 3 years of relevant functional/technical experience.</td>
</tr>
</tbody>
</table>

*Article on 'opportunities now a mouse click away' By Mr. V.Choudhary - TIMES ASCENT dated 2-1-2007
(2) **Liberal Education and Industry-Institute Interaction**

In the process of career planning and personality development, the perfect blend of formal and liberal education can enable aspiring students to become an outstanding human being. In India, technical education has an assured edge over liberal arts and philosophy. The discrepancies in the conventional orthodox educational approach have become visible. Effective implementation of liberal education not bound by rigid curricula is the need of the hour in life and in the field of business administration. Students should be free from the fear of examinations. However, an entirely liberal system of education without a distinguished curricular framework is not a complete (though practical) way of imparting knowledge to the youth. This implies that both the quantitative and qualitative aspects of manpower should be taken into consideration in human resource development policy formulation. Liberalisation of education should have the necessary flexibility to enable students to pursue their career choices in addition to academics, sports & cultural activities.

*In the IT sector only 20% of the manpower source is qualitatively eligible. In the technology sector only 25% graduates and 10% to 15% graduates in the non-technological sector are 'quality' products from among the 4 lakh graduates nourished by about 1400 engineering institutions. The number of students who can qualify themselves as 'world-class' talent is nearly 20 to 45 thousand. This is against the projected requirement of industrial sector as 21 lakh candidates required till the year 2010. Thus industries recruiting outstanding talent will face the dearth of 4 lakh talents every year. This points to the imminent need of preparing the students to become 'world class talent'. This need can be fulfilled by coordinated efforts based on an industry-institute interaction.*

International certifications are necessary to IT Career as wheels to a car. Such certifications give employees the confidence that they can have after undergoing the required training and expertise programmes. (e.g. industry-endorsed GNIIT programmes) Such comprehensive training programmes are extremely useful to the starters in the IT industry. These programmes resort to specializations in diverse fields such as S/W Engineering, systems engineering and net-working and information systems. Students enrolling for such a professional programme while getting college-education can be set up for a triple qualification. Thus, apart from academics, professional qualification + global certification will go a long way in improving career-prospects.

2 (A) Education in Pune City

The benefits and threats of education in India and abroad must be made known to the students in order to avoid subsequent disappointments resulting from an illusion that everything that is global is gold. This can provide ropes for safe-rope-walk abroad. Education in Pune city has infinite facets. The following are some of the expert opinions that reflect its ambience.

* The presence of around 4.5 lakh students among the 55.32 lakh people living in the city marks off a considerable section of its society and its culture. No wonder then, why education catapults Pune to a top cultural center, increasingly becoming cosmopolitan.

However, the large chunk of students is not crammed up in the city, but live in affordable accommodations, pursue their studies and finally blossom into global citizens free from anxiety as the city is also one of the safest. The city ranks second in the country in terms of number of educational institutes, with more than 100 private and government institutes thriving within an area of 138 sq km of high density. Interestingly, around half of them teach a plethora of management subjects specializing in traditional areas. Also, subjects like retail banking, environment, export-import, international business, planning, construction and project management which appeared in the city like rivulets a few years back, have now been evolved into full-fledged streams.

Nevertheless, these qualifications do not fully represent city's educational culture. Student's scholars, researchers and advanced researchers have an array of avenues open for them like IT security and management, oriental studies, anthropology, bio-informatics, geo-informatics, cell science, classical music and dance, astronomy and what not! Modern concepts of credit system and trans-disciplinary approaches are taking Pune by storm. Educational outfits are offering specializations across disciplines of management, humanities, science and even the performing art.

Thanks to freedom from excessive bureaucratization of State-managed education today, a whiff of fresh wind blows over Pune's educational scenario. Although there is a jet-set pace in vocationalisation of even management training here, city's educational environment is not bereft of that ultimate quest for knowledge and well being manifested in its institutions for higher learning such as Deccan College, Bhandarkar Oriental Research Institute, Ved Bhavan, National Film Archives of India, Film and Television Institute of India, Inter University Centre for Astronomy and Astrophysics, National Chemical laboratories, National Institute of Banking Management, National Insurance Academy, National Institute of Construction Management and Research and National Defence Academy to name a few. Besides, the city's learning community is in a state of flux with new methods, delivery systems and emerging environments.

* Ref “career advices” by Preeti Tejanani Education Times p.3 dated 14th August 2006.
Globalization has had its impacts on India's heterogeneous culture. For instance, there is increasing revenue coming in from the presence of around 15,000 foreigners studying in the city at any given time.

A conscientious and enterprising management student living in the city for at least two years can definitely hope for a truly holistic growth. Student awareness about Indian Cultural values shows its impact that students are deep-rooted in Indian Values.

The following remarks stand in testimony of this remarkable development. “Education in the city has infinite facets. Reflected in the ambience”. (Sneha Johari)

“Students from the remotest cities are preferring management seats in the city to Bangalore or Hyderabad. The city produces an average of around 10,000 fresh graduates; a considerable part of which takes up post-graduate studies in marketing, IT and finance among others.” (Ratnakar Welling, Welling Institute of International Business)

“It has become an upcoming and extremely upwardly mobile part of the state where quality is improving day by day. Management education is definitely looking up with all these characteristics, as the number of management institutes is growing along with the demand.” (Yoqesh Lokhande - Career Forum)

“The city is different as compared to other cities because it gives students rich exposure to academicians who have an excellent track record along with considerable industry experience, which helps make students better professionals. No wonder then we have students from other countries coming to Pune for education as well as jobs.” (Sanjay D Chordia - Suryadatta Institutes)

“Indian education has been 80-90 per cent bookish and less practical. Today, we need to change that ratio and reverse it to 60 per cent practical and 40 per cent theoretical as the industries are growing rapidly. We must provide exposure to students to current industrial affairs and openings to prepare them so that they can face the world without hitches. We need to orient our approach in order to make management education even superior. Pune has added advantage over other cities in a lot many ways owing to its culture, approach and esteemed institutes”. (Anshul Sharma, Prestige College of Management)
A perfect blend of formal and liberal education can facilitate such an emergence of student personality (world-class talent) aspiring to make a prosperous career anywhere in the field of business administration.

The developments in this respect have been encouraging. In the *Report Prepared by 'Comscore Networks' (A Technology Research Institute in U.S.A.) it is mentioned that India has improved its status from 10th place to 9th place in the list of countries (USA, China, Japan, Germany) with highest number of internet users. The increase in the number of internet users is highest in India. The internet users belong to age-groups above 15 years. Their number during March to June 2006 has increased from 1.67 crores to 1.8 crore (7.8% increase). The internet facility used through cyber café, mobile phone and PDA phone is not included in this calculation. Microsoft is most popular among 50 crore users out of 71.30 crore users. Such developments would go a long way in providing career opportunities in general and in administration of business.

**Employment (job opportunity) for the computer experts.**

Computer programmers' job of writing, testing and maintaining detailed instructions to the computer (Programming of s/w) is ever changing and expanding because of the use of advanced technology and development of higher levels of theoretical expertise by computer scientists, computer engineers and computer system analysts. Technical innovations in programming, advancements in computer technologies and innovations of sophisticated new languages and tools go a long way to define and expand the role of computer programmer and elevation of his position and status in the administrative hierarchy of business enterprise. When new areas of specialization are discovered through research, job titles and descriptions vary continuously in the organization. Under the circumstances the job function (or the 'staff function as distinguished from the 'line' function) of programming has a wide range of responsibilities and varied educational background.

In other words, job responsibility can be shouldered by potential computer programmer, belonging to any faculty of education viz. arts, commerce, science, management, engineering, medicine, humanities etc. Because of the growing number of jobs in the software industry a lot of demand has been created for getting into computer science courses viz. BSc Computer or B.E. (Computer) or MCA. New courses have also been introduced in information technology. Logically a person possessing a degree in computer science may feel that he is eligible for getting a job in Software. However, unless a 'degree holder' is knowledgeable in respect of the software that the company (employer) is looking for job opportunity in software is not available. Also, apart from the knowledge of the software needed by the employer, computer programmer has to develop the occupational skill by

*Vide - Management INC An article by Subroto Roy Educational Times dated 18-7-2006.*
getting occupied continuously at the computer operations with increasing complications and problems, which must be solved on the spot (e.g. Virus problems) sitting at the computer and doing by oneself the computer operation. This is the only key to get a lucrative software job. Provided the potential employees have the necessary expertise and the occupational skill acquired by gaining on the job experience, really there is no limit for job opportunities irrespective of the fact whether a software jobseeker is holding a degree certificate of a Faculty of a University or is a school drop out. The level of formal education, (secondary, higher secondary, college level, and university level education) is not necessarily linked (or is almost delinked) with availability of software job in modern times.

Important characteristic of software market in India is that it is not 'research' oriented. A large R & D lab focusing and conducting research in developing software and new languages is rarely developed in India, either by employers or by educational institutions. Software market in India is service driven implying that Indian Software develops to meet the requirements from foreign clients and the number of software requirements depends on ever increasing number of business applications in order to improve the 'Software job opportunity', position, in addition to the knowledge of basics of software languages (C, C++ and JAVA), knowledge of the design aspect of computers fulfill enough of the 'latest skill' demand in the job advertisement in the software market. This requires continuous efforts to update computer knowledge and acquire proficiency in computer application skills according to software industry requirements. A computer degree holder can launch himself into the trends of software markets relatively easily-(as indicated below)

**Trends in the potential demand for Computer Programmes received (2000-2005) for undergrads, MBA's and other grads.**

**Avg. No. of offers received for undergraduates**

![Graph showing trends in offers for undergraduates](image.png)

(17)
Commentary: As the above trends in the average number of offers to undergraduates, MBA's and other grades indicated during the period from 2000 to 2005
1) Demand for undergraduates decline from the year 2000 to 2005 and shows a steady rising trend till the end of 2005
2) Demand for other graduates and MBA's showed a decline during 2000 to 2002 but showed a consistently rising trend from the year 2002 to 2005.
(4) **Attitudinal changes in computer programmers (s/w engineers)**

In response to the above fluctuations in demand for software engineers (Computer programmers) their attitudinal changes indicate that:

(a) Candidates are applying to fewer employers and their priority in selection (preference) is for bigger and established employers.

(b) The candidate expects higher salaries and their mobility from low paid jobs to high paid jobs is high. The mobility is both horizontal and vertical.

(c) The employment decisions are made much earlier in the recruitment cycle. The increasingly competitive recruiting arena is marked by confident candidates. In view of higher number of hires (contractual employment) and renewed focus by recruiters on candidates with high potential on the campus tactics (interview), considering the trends during 2000 to 2005, the recruitment process via business schools will need to compete aggressively to land top students in 2005-2006. The top student talent can be explored and exploited not necessarily from MBA degree holders but also from undergrads and even from school drop outs. (School drop-outs)

The various areas and avenues (direction and opportunity) open for the recruitment of the undergraduates and school drop outs after completion of their primary and higher secondary educations are multifarious in the urban and rural areas.

(5) **Economic system Adopted and Role of Government in employment generation**

Government’s monetary and fiscal policy plays a significant role in increasing the tempo of overall development process. Economic system based on any kind of 'ism' cannot be completely successful in achieving the desired goal of economic development along with equality, balance and social justice. The history of Socialism, Democratic Management and Marxism confirms this conclusion. For both the developed and underdeveloped few countries fendentalist, fascist capitalist and communist models of economic system here not been necessarily compatible for adopting a rational and realistic socio-economic policy by Government. The psychological set up of the people has fully changed for their participations in the overall process of economic enrichment and different experiments are made with them.

The objective of governmental policy is to make people knowledgeable in the field of quality education, industry, agriculture, social responsibility, basic infrastructure and generation of employment. Accordingly, monetary and fiscal policy formulation cannot be an exercise based on dreams but rather follow up of
the real situation. Increase or decrease in the Governmental revenue and expenditure should be according to changes in the aggregate levels of savings, investments and employment. In other words, the principle of 'functional finance' is the common base for economic policies of the Government irrespective of any system based on any 'ism' adopted.

(6) Personality Development in the Computer Age

There are two complementary aspects of the personality development viz. psychological and spiritual. Therefore the proverb goes - 'healthy mind in a healthy body.' Ultimately personality development for the students preparing for a lucrative career in computer age implies inculcating the under mentioned values for increasing adaptability to change for meeting calculated and unseen challenges in career development. The values which matter in material and spiritual life are - purity, truth, honesty, contentment, faith, respect, courage, humanity, tolerance, patience, simplicity and determination. The corrupt, degraded life makes it necessary that aspiring students should decide the best priority. The choice is reflected in the following choice made by the students in the grooming age.

(a) compromise with family life, leisure
(b) no compromise with health by indulging in irregularities.
(c) desire to excel by performance.
(d) desire to yield power by correction, to change things by being creative
(e) desire to lead a simple but meaningful life with maximum exposure and reputation in society.
(f) desire to be financially well-off
(g) zeal to rebel against unethical behavior which is the consequence of entertaining degraded values.

Such a change in mentality of students is needed in higher education in 'knowledge age' characterized by rise in the level of literacy in cities.

The Rs. 1,800 crore online advertising industry throws a huge experimental opportunity to the activity of enterprising aspirants. However, only 1% of advertising industry in India has been tapped so far. The future of this booming industry is bright. Career opportunity is now a mouse click away. Enterprising careerist can create their own advertising agency- be it client servicing, adcampaining, captioning leading to money - making. The start-up cost is less than the cost of any advertising agency and the target audience is the whole world and competition is fierce in this area. However, in addition to the opportunities after graduation, Indian students are more / interested in learning about the field than other students. The computer growth and efficiency in maths and science has
made students very curious to learn. There are more jobs for computer professionals than astronomy, physics or chemistry. A guaranteed promising career is the magnet that is pulling most of the Indian students. It is generally known that there are more Indian candidates than Americans. The field of computer science is growing so rapidly and the demand for computer professionals is growing too. The market is pushing for computer professionals and the opportunities are great. A graduate can start off with lucrative remuneration and that is the best news.

Global Careers, New Horizons

Training and Placement Cell in Tilak Maharashtra University Established in the year 1921. Tilak Maharashtra University is renowned for its traditional stream in education. A great visionary Lokmanya Bal Gangadhar Tilak was the inspiration and the stream of his thoughts "National Education for masses is the foundation of this university."

National education is the one, which contributes to the progress and development of the nation. New ways and means to achieve this should be sought.

Training and Placement Cell

The University has established a training and placement cell for students. The Department also looks after the industrial training, placement of the students and helps them in getting best career options.

The courses offered at the department provide global career options like: Operations, Sales and Marketing, Rooms Management, House Keeping, Food Production, Engineering (related to hotel), Food Technology, MIS Recreation and Entertainment (amusement parks, multiplex), Event Management etc. These careers have scope at Clubs, Hospitals, Universities and Schools, Cafeterias, Corporate dining rooms, Snack bars, Airlines, Cruise ships, Railways Catering etc. The list is unending. One must experience the serenity of the atmosphere of this legendary university.