

Training and Development in Indian Software Industry

Nisar Ahamad Nalband

*Assistant Professor, Dept. of Management,
College of Business Administration, King Saud University,
Riyadh, Saudi Arabia
malband@ksu.edu.sa*

(Received 1/1/1432H.; accepted for publication 26/5/1432H.)

Keywords: Training; Development; Indian; Software; Industry

Abstract. In the knowledge industry, concept of self for knowledge workers substantially revolves around the knowledge they have. Hence, for holding a positive concept of self and to experience growth, knowledge workers highly value learning. The level of knowledge and how recent it is tends to define their social standing in their professional group. It also defines their marketability and ability to work on the assignments and organizations of their choice. All these factors make it imperative for knowledge workers to learn on a continuous basis. So long a knowledge worker feels that he or she is learning on a given job, one would not be thinking of changing the job. Hence, to retain knowledge workers, knowledge organizations need to create superior systems of training and learning.

In India, software industry has become the vital industry not only in generating employment but also in contributing significantly to the GDP of the country. The struggle since 1970's made Indian entrepreneurs and Indians proud in the software industry. Software industry has brought many significant changes in HR practices: in this paper the researcher wishes to find out how best the training and development programs are in Indian software industry and their practices.

Abbreviations

CMM	:	Capability Maturity Model (Quality certification issued by Carnage Mellon University, Pittsburg, USA for software companies, like ISO certification for quality)
FY	:	Financial Year
HRD	:	Human Resource Development
HRM	:	Human Resource Management
IT	:	Information Technology
NASSCOM	:	National Associates for Software and Service Companies (It's a body to facilitate between corporate, government and foreign companies)
NASDAQ	:	National Association of Securities Dealers Automated Quotation
NYSE	:	New York Stock Exchange

Introduction

The world has become global, digital, herbal and spiritual. At the dawn of 21st century, the dominance of brainpower as the value and growth creator at the global level has been accepted globally.

Research, for example, indicates that in the late 1990s, the annual US investment in the intangible assets - R&D, business processes and software, brand enhancement, employee training, etc., was roughly \$1 TN almost equal to the \$1.2 TN investment of the manufacturing sector in physical assets. Further, intangible capital currently constitutes between one-and a half to two-third of corporate market value of enterprises. The shifting stands of time have underscored the importance of brainpower as the prime driver of value creation. Beginning from the indispensability of land at Adam Smith's time, the prime value-generating tool has traversed through physical assets to culminate in the value creation through intangible means (Raju, 2002).

Significance of the Study

In the knowledge industry, concept of self for knowledge workers substantially revolves around the knowledge they have. Hence, for holding a positive concept of self and to experience growth, knowledge workers highly value learning. The level of knowledge and how recent it is tends to define their social standing in their professional group. It also defines their marketability and ability to work on the assignments and organizations of their choice. All these factors make it imperative for knowledge workers to learn on a continuous basis. So long a knowledge worker feels that he or she is learning on a given job, one would not be thinking of changing the job. Hence, to retain knowledge workers, knowledge organizations need to create superior systems of training and learning.

Another interesting issue in context of IT knowledge workers is that their learning preference is for technical subjects related to their specialization and job related areas. Firstly, they are aware of what is latest in their technical field and hence experience an internal pressure to learn about it. Secondly, technical subjects and capabilities are more tangible and apparently more visible to potential employers. Finally, it seems that IT professionals prefer to learn learning those subjects, which are more logical and quantifiable (Agrawal, 1998).

In India, software industry has become the vital industry not only in generating employment but also in contributing significantly to the GDP of the country. The struggle since 1970's made Indian entrepreneurs and Indians proud in the software industry. Software industry has brought many significant changes in HR practices: in this paper the researcher wishes to find out how best the training and development programs are in Indian software industry and their practices and outcomes.

Factors contributing for the growth of Indian Software Industry

Low cost of quality programming professionals:

A well-trained Indian software engineer costs a fraction of a US engineer with the same skills. In India, an entry-level programmer's salary ranges from \$2,000- \$5,000 per year compared with \$50,000- \$60,000 in the US.

In India direct employment within the IT-BPO sector is expected to grow by 10.4 per cent to reach 2.5 million in 2010-11 with over 2,40,000 jobs being added during the year. The indirect employment attributed to the sector is estimated to be about 9.0 million in 2010-11 as compared to 8.2 million in

2009-10 (NASSCOM, 2011).

Advanced telecommunication set-up: High-speed dotcom links - there are about 500 in the country - connect Indian software companies to their customers worldwide.

Universal spread of the English language: All higher education in India is in English. India has the second-largest English speaking scientific manpower pool in the world behind the US.

Pragmatic governmental policies: The Indian government provides incentives for software companies geared towards exporting their software development abroad. These companies benefit from duty free hardware imports and tax holidays, among other things.

High growth of computer education: Indian institutions are producing over 55, 000 students a year.

Indian Institute of Information Technology (IIIT): One of the remarkable initiatives undertaken to increase the Information Technology workforce in India was during 1998. This was the setting up of the Indian Institute of Information Technology (IIIT).

IIIT-Hyderabad was the first IIIT involving Government-Industry partnership commencing its academic session in 1998. It may be recalled that it was in the 50s and 60s that the Government of India had set up five IITs in various parts of the country. Also, in the 60s, IIMs were set up in the country. All these institutes of formal education have already emerged as centers of excellence. The relevance of formal education in developing software/Information Technology professionals needs no elaboration. The emerging trend is to further increase the annual output of the IIITs.

Most of the IIITs have begun as a joint initiative between the government and industry. The aim of the IIIT is to give both computer software-engineering degrees as well as to conduct short-term courses. In other words, not only will the IIIT produce the B.Tech/M.Tech/PhD graduates, it will also train professionals as well as industry-sponsored candidates in courses ranging from six weeks to six months duration.

One of the unique concepts under implementation is to allow private sector companies to affiliate their own schools with the IIITs. IIIT Hyderabad, for instance has affiliated schools of IBM, Microsoft, Oracle, the annual output of engineering graduates

from the IITs may increase to 2000 engineering graduates and about 25,000 professionals trained in software education to professionals with other engineering and science degrees.

Software technology parks: Software Technology Parks of India is an autonomous organization which provides infrastructure assistance and communication links. These centres get duty free import, income tax exemptions, dedicated high speed data communication links and single window government clearances. Most Indian software engineers operate out of Bangalore, India's Silicon Valley, which is home to Texas Instruments, IBM, Oracle, Novell, Fujitsu, and Digital Equipment. It is also headquarters to a number of Indian software companies such as Infosys Technologies, Wipro Infotech Group, Ashok Leyland Information Technology Limited and Sonata Software. Spurred on by the recognition received by Bangalore, other Indian cities are emerging as software development centers. Chennai, the capital of the south Indian state of Tamil Nadu, is home to about 60 software companies and Hyderabad, capital of Andhra Pradesh, offers many concessions to investors. The central government's liberalization policies are also set to continue and continued growth is predicted. The present cost advantage in terms of cheaper labor may gradually be eroded as salaries continue to increase. However, the sheer volume of skilled Indian IT professionals available will continue to represent the single most valuable advantage for Western countries which are plagued with IT skills shortages and high costs.

Post-independent India pursued a set of economic policies that generally curbed private sector activity, and made Indian industry fragmented and uncompetitive. The one exception to this has been the Indian software industry, which began to grow in the 1980s. The industry today has more than 2500 firms, all in the private sector. The leading Indian software firms are globally competitive, highly profitable, and are growing very rapidly. They are listed on the world's major stock exchanges, and boast of a large fraction of the world's leading companies as their customers nevertheless India software industry commanding only 2% of world market share, the Indian software industry is young it has to go a long way in this context Narayana Murthy, (2006) of Infosys rightly said "We are just toddling; hence we should stop terming ourselves as an IT superpower."

The Indian software industry: supply vs. demand

Approximately 70% of the cost structure of a software company is accounted for by personnel

short-term courses.

"Bridge programs" provide computer and related costs. India's initial entry into the software business has to do with its access to cheap talent. India produces more engineers and scientists than every other country in the world except the U.S. The key feature of the talent is that it is much more globally mobile than labor in general. Indians, especially programmers in particular, account for more than 40% of the H₁B visas (temporary work visas) issued by the U.S. to foreign talent. Further, the Indian Diaspora that has been established over a decade in the U.S., has played a key role in facilitating the flow of talent back-and-forth between India and the U.S. (Richard heeks, 1996).

Indian firms compete vigorously in the global software services market. Firms from countries like Russia, Ireland and the Philippines are prominently cited as direct competitors, for example. Software firms from advanced economies like the U.S. are also indirect competitors, in that clients may choose between generally more sophisticated services from these expensive advanced-economy firms and the less sophisticated but cheaper services from emerging economies.

The three types of demands for software services that existed in India are:

- Body Shopping
- Offshore Development Centers
- Blend of Body shopping and Off shoring

The impact of globalization has shrunk the world. At the lower end is the demand by foreign firms for on-site services. It is referred to as a body shopping in a derogatory sense. Such practices involve Indian programmers relocating to the host country, typically for a short period of time and significantly for lower wages than local programmers in the host country. Clients generally received the services of the programmer 'bodies' with much less by way of organizational knowledge from the software firms. One reason why many Indian software companies started this way had to do with their lack of access to appropriate hardware in India, in turn caused by regulatory (typically foreign exchange) restrictions.

The other type of demand was by foreign, primarily U.S. companies, for Offshore Development Centers. These were physical locations in India that companies dedicated to the needs of a particular advanced- multinational economy, where teams of Indian programmers and some personnel from the foreign company worked together for long time periods and with more intensive knowledge exchange. The third type of demand was a mixture

between body shopping and the offshore development centers.

Indian IT-BPO Performance

The Indian software and services exports including ITeS-BPO exports is estimated at US \$ 59 billion in 2010-11, as compared to US \$ 50 billion in 2009-10, an increase of 18.0 per cent. The IT services exports is estimated to be US \$ 33.5 billion in 2010-11 as compared to US \$ 27.3 billion in 2009-10, showing a growth of 22.7 per cent. BPO exports is estimated to grow from US \$ 12.4 billion in 2009-10 to US \$ 14.2 billion in 2010-11, a year-on year (Y-o-Y) growth of 14.5 per cent. IT services contributed 57 per cent of total IT-BPO exports in 2010-11, followed by BPO at 24 per cent and Software products/engineering services at 19 per cent as per the as per the Information technology annual report of 2010-11, Ministry of Communication and Information Technology, Government of India. (Ministry of Information Technology, govt. of India, 2011).

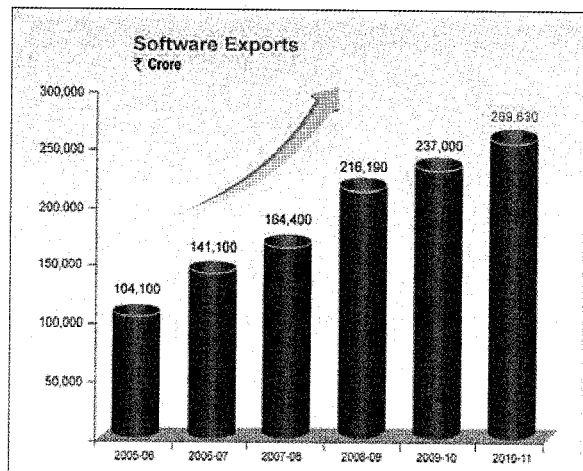
Three of the above companies shown in Table 1 i.e., Infosys, Mahindra Satyam, and Wipro- are also listed on the U.S. stock exchanges.

Table 1. Top 20 IT software and service exporters from india

Rank	Company	Annual sales Rs. Billions
1	Tata Consultancy Services	38.82
2	Infosys Technologies Limited	25.53
3	Wipro Technologies	22.56
4	Mahindra Satyam Computer Services Limited	17.03
5	HCL Technologies Ltd	13.19
6	IBM Global Services India Pvt. Ltd	7.64
7	Patni Computer Services	7.32
8	Silverline Technologies	6.03
9	Mahindra-British Telecom Limited	5.41
10	Pentsoft Technologies Ltd	4.59
11	HCL Perot Systems Ltd	4.49
12	Pentamedia Graphics Ltd	4.31
13	NIIT Limited	4.00
14	Mascot Systems Ltd	3.99
15	I-Flex Solutions Ltd	3.92
16	Digital Globalsoft Ltd	3.31
17	Mphasis BFL Group (Consolidated)	3.13
18	Mascon Global Limited	3.07
19	Orbitech	2.64
20	Mastek Limited	2.59

Source: Adapted from "NASSCOM: Strategic Review 2008: The IT Industry in India" (New Delhi, 2008). Available from the National Association of Software and Service Companies.

Indian companies are clearly not as large as some of the largest US software firms such as CSC, and EDS in terms of revenues or manpower. However, in terms of profitability, Indian firms are significantly better than their US counterparts. The stock market valuations of Indian companies, despite their smaller



Adopted from Information technology annual report of 2010-11, Ministry of Communication and Information Technology, Government of India. The above figures on Y-axis are in INR. (http://www.mit.gov.in/sites/upload_files/dit/files/annualreport2010-11.pdf Accessed on 20/04/2011)

Fig. 1. Software Exports from India

size, are often larger than the market capital of the US firms. Given the cheap talent and the initial absence of reputation, Indian firms started out at the low end providing primarily body shopping services. They gradually built reputations for reliability and high quality of services and began to provide more value added services. By 2002, offshore services, the more value added part of the Indian software firms' offerings, had risen to 51% of export revenues from 5% in 1991-92. The US accounted for 66% of the total exports of the industry and UK accounted for the second largest share of exports, at 14%. 185 of the Fortune 500 US companies were customers of the Indian software services industry. (NASSCOM, 2002).

The highest ratings on the predominant quality scale developed for software at Carnegie-Mellon University were located in India. Companies like General Electric, Citicorp and IBM had their only CMM-certified operations in India rather than in the U.S. It may be that quality concerns are greater when a firm is located in an environment with a reputation for poor governance and poor quality products. Perhaps U.S. firms do not find it necessary to seek certification of this sort (Tarun Khanna and Krishna Palepu, 2003).

The Indian software industry, on average, appears to follow better corporate governance practices relative to the rest of the Indian industry, consistent with the hypothesis that globalization puts pressure on companies to improve their governance to global standards. Some data from Credit Lyonnais Securities

Analysis (CLSA) supports this assessment of the current state of Indian corporate governance. The data are from a set of questions regarding corporate governance administered to 482 companies in 24 emerging markets in 2001 (Khanna, Tarun and Palepu, Krishna, 2003).

The companies are generally the ones of greater interest to foreign investors, typically characterized by some subset of the following characteristics large size, greater equity float, and foreign listings. The software firms are, on average, more exposed to global competition than other Indian firms. To ratify this assertion, Software firms are more likely to be traded on a U.S. stock exchange and on the London Stock Exchange and more likely to be listed on the NYSE Software firms Garner a higher percentage of their revenues through exports, and are more likely to employ foreign talent in senior managerial positions and are somewhat more likely to employ a Big 5 accounting firm.¹³ In summary, the Indian software industry appears to be an exception to the generally mediocre performance of the Indian industry in terms of size, growth, and exports to advanced economies. The ownership structure of the industry is very diverse. Among the top firms in the industry are group affiliated firms, de novo start-ups, and multinational companies. There are many privately owned companies, including the largest company in the industry. There are also widely traded companies, some even on international stock exchanges.

Review of Literature

A review of the literature indicates that most of the studies have focused on understanding the prevalent Personnel and Human Resource Development (HRD) practices across organizations through surveys (Anandram, 1987); (Basu, 1985); (Gautami, 1988); (Patro, 1989); (Rao and Abraham, 1986); (Rudrabasavaraj, 1969). A large number of success stories of HRD have been documented as case studies (Dayal, 1989); (Pareek and Nairal, 1992); (Rao and Periera, 1986); (Silviera, 1990). Some of the other surveys on HR practices are sector specific, for example, public enterprises (Philip, *et al.*, 1989); (Sharma and Bhaskar, 1991); co-operatives (Goel and Goel, 1979); banks (P. Subba Rao, 1988; 1997 and 1986) and (T.V.Rao).

Assessment of effectiveness of HRD has received little attention from the research community. Some authors have attempted replication of the studies done in the USA (Gopalji, 1988); (Bolar, 1970) assessed the effectiveness of personnel policy implementation

in a large number of organizations by using a questionnaire. The data was collected from HR respondents and the line managers. The study revealed differences in the manner in which the policies were implemented across organizations. Some reference to assessment of effectiveness is made indirectly in a study on job satisfaction (Walton R.F., 1985).

Though research has been done on HRD/HRM, a considerable study has yet to be made on the historical background, HRD aspects of Indian software Industry. As such the Indian software Industry is young, the literature on Indian software industry consists mainly in the form of Books, Annual Reports, NASSCOM and other web based reports. The IT and Management journals also publish articles on the subject. A great amount of research work has to be carried on in the country.

The analyses of the above literature on HRD reveal that the scope of almost all the paper is narrow, limiting to a particular aspect HRD or a company and further there is no attempt made by any researcher with a focus on training and development aspects in Indian software industry. No doubt the much literature available about the technical trainings imparted to the software professionals in fact the HRD aspect is missing they are not worth of discussing in this research paper because of its unique technical nature for example Java training, .net training etc., Thus, there is obviously a need for an intensive study of HRD in software companies The present paper focuses on training and development aspects of Indian software industry. As such, a comprehensive and integrated outlook based on an empirical study on human resource development and in specific training and development in software companies is the gap in the existing literature on the subject.

HRD has become very popular in software industry. The software companies are basically packed with (knowledge workers) human resources. It is felt that human resources alone make all the difference in the profitability and survival of software companies. Though the Indian software industry is young and has faced ups and downs, it has emerged as one of the largest recruiters of knowledgeable human resources. There are no detailed research studies particularly in the area of HRD in Indian software industry. An analysis of the available literature on HRD reveals that the scope of almost all the studies is limited to a few aspects and more over deals with personal experiences of software professionals/authors or / and technical aspects of software rather than findings of an empirical study. Against this background it is felt that there is a need

for the study on training and development in software companies. This study attempts to present a comprehensive and integrated research to fill the gap in the existing literature on the subject.

Objectives

The objectives of the study are:

1. To study the training and development system in software companies;
2. To enquire into the practices of training and development in the software companies;
3. To offer appropriate suggestions, wherever necessary, to improve the practices in order to minimize negative outcomes and maximize the positive outcomes.

Methodology

The primary and secondary data are collected for the study. The primary data is collected by conducting interviews and discussions, with employees and management respondents in two separate schedules structured for the purpose. A few appropriate statistical techniques were employed for analyzing the data. The statistical analysis and data are supplemented by the information collected through interviews and personal observation so as to derive effective and meaningful conclusions.

The secondary data is collected from various sources. Factual data were collected from the annual reports of sample companies; training departments, in-house magazines and other records of the companies. Companies' web sites and other related web sites were browsed.

Opinions of respondents were solicited on five point scale with scale values 5, 4, 3, 2 and 1, opinions which fall under scale 3 are not considered as the respondents want to be silent on those issues for presentation and calculation purposes.

Various statistical tools are used. Weighted averages calculated to find the training and development practices internally in individual organization, on the scale of +5 to +1. Coefficient of variance is calculated to check the consistency of the data, total of the C.V calculated for most of the tables as the opinions are varying from one aspect of the table to another and also to compare and rank the respondent companies in that particular aspect.

Sampling

Data for this study was collected based on the 'stratified convenient sampling' technique. Total IT

companies were segregated in to CMM level 1 through CMM level 5. The segregation is based on the satisfaction of specific key performance areas (KPA's) listed in the capability maturity model. From CMM level 5 groups, conveniently four companies are chosen. The total sample of companies is four. They are Wipro, Mahindra Satyam, Infotech and Polaris.

From each company fifty employees were chosen on convenient basis Hence the total size of sample under taken for this study is 200, which is not unwieldy.

Data Collection

Collection of data from respondents through opinion schedules

A primary data schedule / questionnaire is prepared/adopted from P.Subba Rao, "Human Resource Development in Banks" in order to gather the opinions of employees of the companies. From each company the data is collected from 50 respondents, which is based on convenient sampling. Secondary data is also collected, by referring to journals, magazines, newspapers and textbooks, Companies annual reports and Internet is used to collect secondary data from various web sites

Tools for Analysis

To analyze the data the following statistical tools are used.

The percentages, weighted averages, are used wherever necessary: mean, coefficient of variance and standard deviation are used according to the necessity and the compatibility. Tables bar diagrams; pie diagrams are used to represent the data, the bar diagrams and pie diagrams are drawn by taking total CV values of each company of a particular aspect (table). Scaling techniques are used to analyze the opinions of managers as well as employees

Scope of the Study

The training and development one of the primary area of human resources development is studied thoroughly to the maximum extent through the means of discussions, interviews, reports, accounts, observations etc.

Limitations of the Study

As companies are chosen based on CMM level 5 certification and the study is limited to Hyderabad

only, because Hyderabad's Hitch city has become the hub of software activities, almost all the star multinational software companies are present and thousands of software professional are working in Hyderabad. This made researcher to choose Hyderabad. Findings cannot be generalized to all Indian software companies as so many software companies are not at all certified. Further the study is limited to Hyderabad only, despite the presence of respondent companies across the globe. The data is collected through sampling; there may be deviation in generalizing the opinions of software professionals.

Training in Software Companies

Growth for knowledge workers requires that they should learn what is latest in their technical field as well; they have to acquire managerial capabilities. Knowledge workers in software organizations are expected to perform leadership roles much earlier in their careers as compared to conventional organizations. Usually, after 5-7 years in their career, they become project leaders. Helping the knowledge workers to be updated in their respective technical streams as well as facilitating them to acquire leadership capabilities, is a very challenging and exciting task for HR professionals in IT industry.

The software companies spend about 5 per cent of their manpower budget on training. Knowledge workers are expected to spend minimum days per year in a classroom setting to learn what is relevant for them.

The distinction in software companies is that the customers will sponsor some of the training programs. They have very strong education and research departments that keep scanning the environment about what is latest in the fields of interest to their organizations. They develop plans to help knowledge workers in their organizations to acquire those capabilities. Employees are also expected to identify what is current in their fields and suggest topics/subjects on which the training programs should be arranged in all the software companies training calendar is announced. The training courses are offered on technical subjects as well as on soft skills. These courses are on full time as well as part time basis. Also, the course duration varies from one day to as high as three and half months for fresher. A knowledge worker can either self sponsor oneself or nominate one's team-members for a program.

Wipro has adopted the concept of "competence-based-progression". They are in the process of identifying competencies required at different levels in the organization. It has identified seven capabilities required for leaders. These leadership capabilities are vision, high energy, self-confidence, ownership, commitment to excellence, aggressive commitment and building star performers and teams. Wipro has designed a five-day training program, "Wipro Leaders' Program" around those capabilities and all the managers are planned to be covered by the program. The Chairman himself / herself spends half-a-day in every training program addressing the participants and listening to their queries and suggestions.

The organizations spend considerable time and resources to upgrade the abilities of their trainers. They are encouraged to participate in world-class programs.

These organizations are also in the process of developing systems for accrediting external trainers who are associated with the organization on a continuous basis.

In a limited way, these organizations have started the process of creating learning organization. A person sponsored for an external program/seminar is expected to prepare a note about his or her learning and circulate it amongst his colleagues. Concerned groups discuss those learning, and specific plans are made to implement learning relevant for the organization.

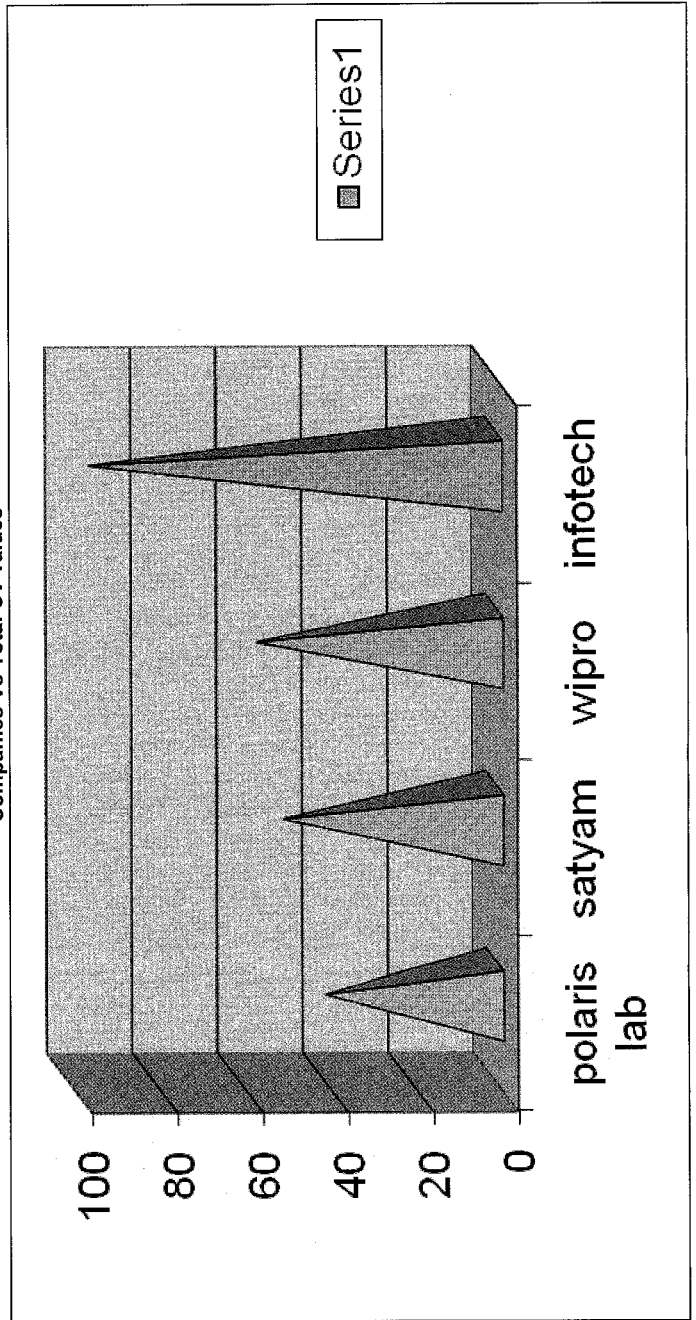
Organizations and individuals should develop and progress simultaneously for their survival and attainment of mutual goals. Modern management has to develop the organization through human resources development. Employee training is the important subsystem of human resource development. Employee training is a specialized function and is one of the fundamental techniques of human resources development.

Training and development practices in respondent software companies

Table 2 shows the opinions of employee respondents about the training facilities. It is observed from the table that majority of the employee respondents of all the four companies strongly felt that physical facilities and teaching aids provided in their training colleges are excellent. Adequate number of internal faculty and external faculty is provided during training period and In-company programs are handled by competent faculty.

Table 2. Opinions of employee respondents on the facilities of training colleges

SL. NO.	STATEMENTS	Wipro		Mahindra Satyam		Infotech		Polaris lab	
		X bar	C.V	X bar	C.V	X bar	C.V	X bar	C.V
1	Excellent physical facilities and teaching aids are provided during training.	4.26086957	1.5.8080953	3.92307692	23.36544174	3.90909091	25.4754678	3.909090909	25.47546779
2	Adequate number of internal faculty and external faculty is provided	4	24.3332132	4.19047619	15.82771395	3.61290323	34.9242986	4.130434783	0.001481184
3	In-company programs are handled by competent faculty	4.19047619	15.827714	4.28571429	10.54092553	3.60714286	35.0192855	4.125	14.5328228
	Total	12.4513458	55.9690224	12.3992674	49.73408123	11.129137	95.4190519	12.16452569	40.00977177



The opinions of employee respondents on the facilities of training reflect a positive note regarding the thrust given by companies towards training, as per the weighted averages it can be concluded that the physical facilities, which are provided, are very good in Wipro (weighted average 4.26) comparatively in Mahindra Satyam (Weighted average 3.92), Polaris and Infotech with the same weighted average 3.9. The respondent companies are conducting the training programs not just as a ritual but to accomplish the real objectives of training and developing the human resources. The weighted averages of, Wipro, Mahindra Satyam and Polaris shows that all the three companies are providing adequate number of competent faculty for their training programs. The weighted average in this regard is above 4 in the above three companies. Whereas the weighted average of Infotech is 3.6. The weighted averages shows that the Mahindra Satyam (weighted average 4.28) has got competent internal faculty to handle training programs, comparatively the internal faculty is good in Wipro (weighted average 4.19) followed by Polaris (weighted average 4.12) and Infotech (weighted average 3.6)

The C.V values shows that Polaris Lab stands ahead of all the rest of the companies with least variance, Mahindra Satyam and Wipro stand in the next position, Infotech stands in the last position with regard to over all facilities provided during training.

Induction training

Indian IT industry is growing very fast. Almost all the companies have been adding about fifteen to twenty per cent of their existing manpower strength as additional manpower every year. These companies have attrition in the range of 1-15 per cent per year. It implies that at any time, these organizations have about 30-35 per cent of their manpower, which is new to them. The new entrants need to be helped in acquiring organization specific software skills. In addition, these new entrants should also be helped to learn beliefs, values and the culture of the organization.

Induction training is the first exposure to an organization for a new entrant. The nature of experience may define whether a new entrant would prefer to continue to work in the organization or not. All the respondent companies take induction training very seriously. They perceive it as an opportunity to create bond between new entrants and the organization. Table 3 depicts the opinions of the employee respondents about their company's induction training programs. Majority of the

employee respondents opined that their induction training programs provides an excellent opportunity for new comers to learn comprehensively about the company and is periodically evaluated and improved. Retaining the employees is one of the major tasks for HRD department in software industry, to retain the employees there should be a practice, which lead to building of bond between employees and the company, this is happening in a good way through induction program in Wipro and Polaris with weighted average 4.33 and in Mahindra Satyam with weighted average 4.25, whereas comparatively, in Infotech it is not that good (weighted average 3.75). A good induction program should be periodically evaluated and improved. The periodic evaluation and updation in induction program is observed in Wipro with weighted average 4.25 comparatively in Mahindra Satyam with weighted average 4.23, Polaris with weighted average 4.12 and Infotech with weighted average 3.18. In the analysis it is found that in Infotech 6 out of 35 opined negatively about the effectiveness of induction training program to its new employees and 10 out of 35 opined that the induction training program is not evaluated periodically, there is no whisper about the negative opinions about the above two aspects in Wipro Mahindra Satyam and Polaris.

Polaris occupies the first rank in the opinions of employee respondents on the effectiveness of induction programs. It can be observed from the C.V. values that the employees of Polaris are very happy with the induction program they have; compared to that of Wipro, Mahindra Satyam and Infotech.

Table 4 presents the opinions of employee respondents regarding the help they receive for their development. A good training system should have a scope for interaction of new employees with their senior staff. In the analysis it is found that, in Wipro and Polaris (weighted average 4.18) senior staff members taking interest in their juniors during induction program, comparatively in Polaris (weighted average 3.87) and Infotech (weighted average 3.62). It is observed from the table that there is good cooperation between employees of respondent companies before and after training programs in general. In specific, majority felt that senior staff take interest and spend time with new staff during induction training, but one employee each in Wipro and Mahindra Satyam, 2 employees in Polaris and significantly seven employees in Infotech opined negatively.

All most the same opinion expressed by the employee respondents regarding the improvement of technical skills and knowledge due to training. After

Table 3. Opinions of employee respondents on the effectiveness of induction programme

SL. NO.	STATEMENTS	Wipro		Satyam		Infotech		polaris lab	
		X bar	C.V	X bar	C.V	X bar	C.V	X bar	C.V
1	Induction training provides an excellent opportunity for newcomers to learn comprehensively about our company.	4.333333333	10.8785659	4.28571429	10.54092553	3.75	31.9722102	4.333333333	10.87856586
2	Induction training is periodically evaluated and improved	4.25	10.1885342	4.23809524	10.04974372	3.18181818	41.9912527	4.125	8.017428215
	Total	8.583333333	21.0671	8.52380952	20.59066925	6.93181818	73.9634629	8.458333333	18.89599408

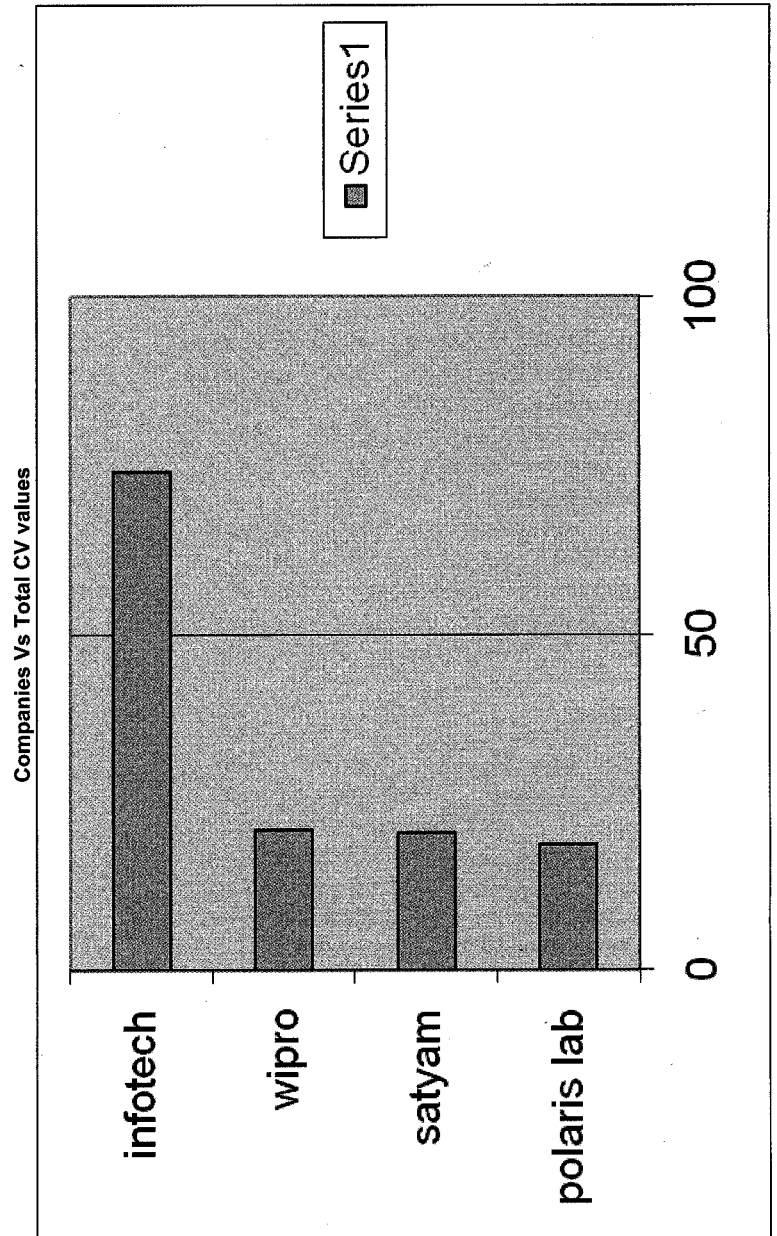
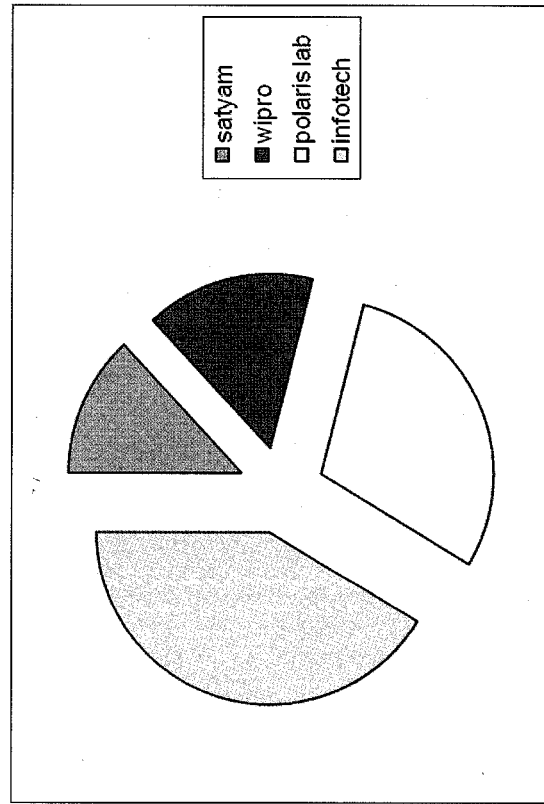


Table 4. On training – after training; availability of cooperation – opinions of employee respondents

SL. NO.	STATEMENTS	Wipro		Satyam		Infotech		Polaris lab	
		X bar	C.V	X bar	C.V	X bar	C.V	X bar	C.V
1	Senior staff take interest and spend time with new staff during induction training	4.1875	17.3417165	4.1818182	15.5248444	3.625	33.6096357	3.875	25.6040495
2	Employees are very well helped to improve technical skills and knowledge is improved due to training	4.13333333	17.3714994	4.22222222	14.8864586	3.93333333	29.3078245	4	15.8113883
3	Employee's managerial skills and knowledge are improved after executive development	4.21052632	9.68245837	4.32	10.7980591	3.38095238	37.0505533	3.736842105	25.81732786
4	Employees values are in tune with the organizational requirements after training	4.23076923	9.95859195	4.23076923	9.95859195	3.35	34.3931899	3.8125	24.91587566
5	Managers utilize the benefit from the training	4.11111111	7.64439763	4.105263158	0.00155968	3.89473684	27.4959324	3.888888889	24.07471364
	Total	20.87324	61.9986638	21.06007279	51.1695137	18.1840226	161.857136	19.31323099	116.2233504



scope for enhancement of skills and knowledge. Majority of the employee respondents opined that they acquired technical skills and improved managerial knowledge through Training and Development Programs.

Twenty percent employee respondents of Infotech opined that the Employees values would not be in tune with the organizational requirements after training, though the majority of Infotech and all other company's employees opined positively.

If an organization has only training program it will not meet with the object of practicing HRD, it also should have managerial development program. In analysis it is found that there is a good system of managerial development in the respondent companies and the system is helping employees in acquiring managerial skills and knowledge, in this aspect Mahindra Satyam stand first with weighted average 4.32, followed by Wipro weighted average 4.21, Polaris 3.73 and Infotech 3.38.

The positive aspect of the HRD can be seen in training only when employee values are tuned with the organizational requirements, after training. This positive aspect can be seen in Wipro and Mahindra Satyam with weighted average 4.23, comparatively it is less in Polaris with weighted average 3.81 and in Infotech with weighted average 3.35.

The main object of the training program is to gain the benefits out of the training by providing sufficient freedom to the employees to utilize the knowledge gained. This object helps the managers to utilize the benefit from the training and consequently improves the performance of the employees after training. It is observed that 51% employee respondents of Wipro and Mahindra Satyam and 45% employee respondents of Infotech and Polaris in majority informed that the above object of training fulfilled. The fulfillment of the above object can be seen in all the four respondent companies, when comparison is made with regard to this it is found that Mahindra Satyam and Wipro are almost at the same level with weighted average 4.1 followed by Polaris and Infotech with weighted average 3.8

By considering the varied opinions of the employee respondents, on the aspect of, availability of co-operation on the training and after the raining from their superior's C.V. calculated. As per the C.V. values in this regard Mahindra Satyam stood first, followed by Wipro, Polaris and Infotech.

Conclusion

Change changes the change if you do not adopt the change. This is true in the globally competing

companies. Change is obviously for the organizational development. Proper training and development programs will prevent from becoming obsolete, this need to be recognized by the companies like Infotech mainly compared to other companies. As far as outcomes of training and development are concerned now a days the organizations are not able to promise long term employment but at least they can provide / strengthen / upgrade the employability skills of the individual employees if this is done properly by the respondent companies it will be a positive outcome to the individual employee, to the organization and finally to the society / country. In this study it is found that "no doubt the respondent companies are focusing on training and development but when we compare at inter corporate level there are gaps" those were discussed in detail in analysis part in detail. Infotech need to take much care in all the aspects of training and development, Polaris too should focus and overcome the barriers regarding co-operation of senior staff during and after the training to their juniors.

Finally it need to be mentioned that there is a great scope for researchers' to carry on research with regard to effectiveness of training and development programs in software industry by considering the financial aspects because at the end of the day.. business is business is business.

References

- P.V.L. Raju.** "Creative Thinking: The New Corporate Mantra," *HRM Review*, May. ICFAI Press, Hyderabad. 2002.
- Narendra, M. Agrawal.** *Managing Knowledge Workers: Benchmarking Indian IT Organizations*, IIM (B) working paper. 1998.
http://www.mit.gov.in/sites/upload_files/dit/files/annualreport2010-11.pdf (Accessed on 20/04/2011)
- Narayan, Murthy.** Chief Mentor Infosys said in his address on 'Key challenges and strategies to off shoring: the political perspective' at 'Nasscom 2004 - India Leadership Forum' in Mumbai on Thursday.
<http://us.rediff.com/money/2003/feb/13nass.htm>. (Accessed on 05.01.2006)
- Hecks, Richard,** "India's Software Industry: State Policy, Liberalisation and Industrial Development," Sage Publications, New Delhi
http://www.mit.gov.in/sites/upload_files/dit/files/annualreport2010-11.pdf (Accessed on 20/04/2011)
- Adapted from "NASSCOM Newslines, November 2002" (2002). Available from the National Association of Software and Service Companies. <http://www.nasscom.org>.
- Tarun Khanna and Krishna Palepu** "Design or Serendipity? : The Rise of India Software Industry," Harvard Business School working paper June 16. (2003).
- Khanna, Tarun and Palepu, Krishna** (2003), *Product and Labor Market Globalization & Convergence of Corporate Governance: Evidence from Infosys and the Indian Software Industry*. Harvard Business School, Boston Working Paper No. 02-040, September 2001. (2003).

- Anandram., K.S.** *Present status of HRD in India; Pune Industries*, Paper presented at the XVII, National Convention of the ISTD held at Bombay in January. 1987.
- Basu, M.K.** *Performance Appraisal in India*, Paper presented at the Centre for Organizational Development, Hyderabad. 1985.
- Gautam, V.** "Comparative Manpower Planning Practices - Select Indian Experiences," National Publishers, New Delhi. 1988.
- Patro, G.** (1989), "Human Resources Management," Discovery, New Delhi. (1989).
- Rao and Abraham,** "HRD Practices in Indian Industries; A Trend Report." *Management and Labour Studies*, Vol. 11, No. 2, (1986), 73-85.
- Rudrabasavaraj, M.N.** "Personnel Administration Practices in India," Mehatha National Institute of Co-operative Management, Poona. (1969).
- Dayal, I.** (1989), "HRD in Indian Organizations, Current Perspectives and Future Issues." *Vikalpa*, Vol. 14, No. 4, (1989), 9-15.
- Pareek and Nairal.** 'HRM: a Map, Model or Theory?'. In: P.Turnbul (Ed.), *Reassessing Human Resource Management*, London, Sage, (1992).
- Rao and Periera,** (ed.) "Recent Experiences in Human Resource Management," Oxford and IBH, New Delhi. (1986).
- Silviera, K.** "Introducing Human Resource Management." *Human Resource Management Journal*, Vol. 1, No. 1, (1990), 1-11.
- Philip et al.** (Eds.), "New Perspectives in Human Resource Management," Sage, London. (1989).
- Sharma and Bhaskar** (1991), "Motivation of Public Sector Managers: A Comparative Study." *Indian Journal of Industrial Relations*. Vol. 26, No. 4, (1991), 319-40
- Goel S.L. and Goel, F.D.** "Administration of Personnel in Co-operatives," Sterling, New Delhi. (1979).
- Subba Rao, P.** "Principles and Practices of Bank Management." Bombay: Himalaya Publications, 1988.
- Subba Rao, P.** 'Bank Branch Manager as a Counsellor', *State Bank of India Monthly Review*, XXV(10), (1986).
- Rao, T.V.** "The HRD Missionary," Oxford and IBH, New Delhi. (1990).
- Gopalji.** "Personnel Management through Costs and Ratios." New Delhi: Anmol, 1988.
- Bolar, M.** "Effectiveness of Personnel Policy Implementation." *Personnel Psychology*, Vol. 23, (1970), 463-80.
- Walton R.F.** "Towards a Strategy of Eliciting Employee Commitment Based on Policies of Mutuality" in R.E Walton and D.R.Lawrence (eds) *HRM, Trends and Challenges*. Boston: Harvard Business School Press, 1985.
- Narendra M. Agrawal.** *Managing Knowledge Workers: Benchmarking Indian IT Organizations*, IIM (B) working paper. (1998).

التدريب والتطوير في صناعة البرمجيات الهندية

د. نيسار أحمد نابند

قسم الإدارة - كلية إدارة الأعمال - جامعة الملك سعود

الرياض - المملكة العربية السعودية

nnalband@ksu.edu.sa

(قدم للنشر في ١/١/١٤٣٢هـ؛ وقبل للنشر في ٢٦/٥/١٤٣٢هـ)

الكلمات المفتاحية: التدريب - التطوير - الهند - صناعة البرمجيات

ملخص البحث. يمكن القول إن مفهوم الذات في صناعة المعرفة لدى العاملين الموجهين بالمعرفة يتمحور بصورة رئيسة حول المعرفة التي يمتلكونها، وبالتالي، فإن أولئك العاملين يضعون قيمة وأهمية كبيرة على عملية التعلم كوسيلة للحصول على مفهوم إيجابي للذات، والشعور بالنمو والتقدم. ذلك أن مستوى المعرفة التي يمتلكونها، ومدى قدرتهم على تحديثها يحددان معاً مكانتهم الاجتماعية ضمن مجموعتهم المهنية. كما أنهما يحددان مدى قدرتهم على العمل في المهام والمنظمات التي يختارونها. ولا شك أن جميع العوامل السابقة تؤكد مدى ضرورة وأهمية التركيز على عملية التعلم المستمر بالنسبة لكافة العاملين على اختلاف مستوياتهم. ويمكن القول هنا، بأن العامل الموجه بالمعرفة لن يميل للتفكير بترك عمله طالما أنه يشعر بأن عمله هذا يساعده في عملية التعلم. وبالتالي، وحتى تتمكن المنظمات من الاحتفاظ بالعاملين الموجهين بالمعرفة، فإنه يتوجب عليها العمل على بناء أنظمة متفوقة لتدريب وتنمية عاملها.

وفي الهند، أصبحت صناعة البرمجيات من الصناعات الحيوية، ليس فقط في مجال توليد فرص العمل الجديدة، بل والمساهمة أيضاً في تعزيز الناتج المحلي الإجمالي للبلاد. ذلك أن ما حققه رجال الأعمال منذ سبعينيات القرن الماضي في هذا المجال جعلهم يشعرون بالفخر، وقد شهدت هذه الصناعة الكثير من التغييرات الجوهرية في مجال ممارسات إدارة الموارد البشرية. وقد سعى الباحث من خلال الدراسة الحالية لإلقاء الضوء على أفضل الممارسات التي تمت في هذا المجال.

Measuring the Service Quality of Mobile Phone Companies in Saudi Arabia

Abdulrahman Al-Aali

*Professor of International Business and Marketing,
Director, Ph.D. Program in Business,
College of Business Administration, King Saud University,
Riyadh, Saudi Arabia*

Muhammad A. Khurshid

*Lecturer, College of Business Administration,
King Saud University, Riyadh, Saudi Arabia*

Najeeb M. Nasir

*Lecturer, College of Business Administration,
King Saud University, Riyadh, Saudi Arabia*

Hisham Al-Aali

*Director, Skyline International, LLC, USA,
Graduate Business Student at Shenandoah University, USA*

(Received 12/2/1432H.; accepted for publication 8/6/1432H.)

Keywords: Cellular phone, Service quality, Factor analysis, Saudi Arabia, SERVQUAL.

Abstract. The purpose of this study is to measure the service quality of mobile phone companies operating in a developing country, Saudi Arabia by using the SERVQUAL instrument. A questionnaire survey was conducted. Data was collected from business college students at a leading university in Saudi Arabia. Confirmatory factor analysis and MANOVA were applied to test the results.

The adapted SERVQUAL instrument is a helpful tool in measuring service quality. Results based upon factor analysis exhibited significant differences in customers' perceptions of the overall service quality of various companies. Two added dimensions of network quality and competitive advantage also showed significant results. There was a difference of perception between male and female subscribers concerning quality dimensions.

This research is a valuable contribution to existing literature on service quality in Saudi Arabia with special reference to mobile phone companies. This is a pioneering study that measures the quality of service in this area in Saudi Arabia. It also reveals clear differentiation in customers' preferences in almost all dimensions.

I. Introduction

In today's fast business environment, a firm cannot play a successful role without delivering high service quality. The interest in service quality has grown in recent years as it is a major factor in business competitiveness. The service sector has become the most important sector for many developed and developing countries and is a major contributor towards the GDP. Many studies have been carried out since 1980 to measure the service quality of an

organization or sector. Measurement of service quality has become more important due to the fact that it can identify the problems and the solutions leading to better performance, which can then increase market share of the company and its short and long-term profits.

The telecommunication sector is one of the most important sectors of an economy, and high quality service in the telecommunication industry can lead to growth and long-term development of any country. Mobile communication is emerging as the fastest