

Skill Development Training Programme: A New Horizon in Mass Training Programme for Enhancement of Employability

Kalyan Prasad Das, Pradeep Kumar Raut

Abstract- *The paper describes a case study on Skill Development Training Programme(SDP) which was conducted in the state of Odisha, India between Feb'2009 to Dec'2009. The paper discusses the different aspects of training in context of mass training programme like this. The training outcomes provide encouraging dimensions which can be considered while designing such training programme in future in any developing and developed area.*

Keywords: Skill development training, employability, e-literacy.

I. INTRODUCTION

Education plays a vital role in social, economic and political development of a country. Education can eliminate many social stigmas and vices through its impact on conscience building, knowledge creation and making the persons more informative. An educated mass in a country can contribute in sectors like healthcare, education, industry and also in social sectors. They can also contribute in enhancement of quality of life and living standard. The information communication technology (ICT) has totally transformed the world in the last 20 years in terms of information creation, employment generation, relationship building and social networking. It has reduced the distance not only between the nations, but also between the people.

A nation's economic well-being depends "on both the effective use of ICT for businesses and industrial processes and on the knowledge, competencies, and skills of current and new employees" (European Commission, 2004, p. 2). In many labor markets, particularly in more developed but also in less developed contexts, ICT-related occupations represent an important slice of economic activity (Lopez-Bassols, 2002; van Welsum & Vickery, 2005). Workers in a wide variety of field have had to adapt and incorporate ICT into their jobs (Green, 2009; Machin, 2001). Computer skills can also catalyze self-directed learning and participation with extended social networks (à la "the strength of weak ties") that promote employability (Granovetter, 1973). Though India is a developing country, its skilled IT manpower has positioned it as a global super power in information technologies.

As a result India has become a IT hub for IT companies, ITES companies like BPOs, KPOs. All most all big MNCs of the world have set up development centres or research centres in India. Indian IT companies like Infosys, TCS, Wipro etc has transformed them from national level companies into MNCs. Most of the ICTD literature that addresses ICT skills in the context of employment focuses on the IT sector—for example, the software industry—and the economic opportunities available through business process outsourcing, such as in India (Hong, forthcoming; Schwabe, 2009; Vigneswara, 2007).

The diffusion of ICTs across industrial sectors, along with changing business models, has induced "skill-biased organizational and technological change" (de Grip & Zwick, 2005; Green, 2009; Machin, 2001). These changes increase the complexity of skills required by today's workforce and threaten the position of low-skilled workers "when they do not succeed in adjusting their skills according to the shifts in the skills demanded in their job or sector of industry" (de Grip & Zwick, 2005, p. 6). Indian skilled IT manpower is in high demand in all countries. This was possible because of their innovative IT skills and knowledge of English language. Because of IT, the contribution of service sector in Indian GDP is increasing.

In addition to ICT competence, other skills are often required in today's labor market, including communication skills, teamwork, collaboration, critical thinking, decision making, and general social skills (Chapple, 2006; Green, 2001; Stasz, 2001). Other relevant literature on the relationship between ICT skills and employability focuses on the effect of computer skills on compensation and opportunities for upward mobility (Doms, Dunne, & Troske, 1997; Fan, Dey, & Peng, 2006; Green, Felstead, Gillie, & Zhou, 2007; Riley, 2007). Green et al. 2007, argue that the effect of ICT skills on productivity and wage differentials is greater for employees who have the ability to assess "the potential benefits to be gained from successful ICT use and able to persuade, influence, and educate others in the workplace" (p. 67). Benefits of ICT skills training are not limited to improved computer skills. Training often draws users into an environment where they develop nontechnical workplace skills (Sullivan et al., 2008). Now India is a country with 121 crore population. Proper planning and strategic human resource development is highly needed to convert this mass into a massive asset than Herculean liabilities. It is only possible by exploring and exploiting the emerging opportunities in the world economy.

Manuscript published on 30 September 2013.

*Correspondence Author(s)

Kalyan Prasad Das, AVP-HR, Blue Cross Technologies (P) Ltd., Bhubaneswar, Odisha, India

Dr. Pradeep Kumar Raut, Odisha Administrative Services, Govt. of Odisha, Bhubaneswar, Odisha, India

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an [open access](http://creativecommons.org/licenses/by-nc-nd/4.0/) article under the CC-BY-NC-ND license <http://creativecommons.org/licenses/by-nc-nd/4.0/>

As the information technology is a promising sector, so care should be taken to harvest more possibilities in terms of employment generation, entrepreneurship development through the use of IT. Now the literacy rate among the people is not sufficient, rather the e-literacy rate will decide their future employability, as IT is integrated in each and every domain of the economy.

The concept of employability emphasizes an individual's skills and skill development (Brown et al., 2003; Fugate et al., 2004; Houston, 2005). Employability is commonly defined as the combination of factors and processes that enable people to progress toward employment, to remain employed, and/or to advance in the workplace (Brown, Hesketh, & Williams, 2003; Fugate, Kinicki, & Ashforth, 2004; Houston, 2005).

Employability represents a conceptual and policy shift away from collective workforce approaches, such as full employment, and toward individual employee assets (Berntson, Sverke, & Marklund, 2003).

II. DIGITAL DIVIDE

Any sort of inequality is hindrance to growth and development. In this 21st century inclusive growth is the buzzword. The main objective of any nation, developing nation in particular is to bridge the gap between have's and have n'ts. Then only a nation can move in the direction of inclusive growth.

The term inequality indicates the inequality in any sector and in any area like distribution of wealth, information, education, social benefits, political privilege etc. In the context of IT we can say that the inequality exists in knowledge and access to IT.

This digital divide indicates the gap that exists between the IT literate people having access to internet and computer on one hand and citizens in rural/ semi urban India where besides IT Literacy, even Literacy is a major challenge on the other hand are.

To develop e-literacy and technical skills, governments in many states have already initiated various schemes to deal with the digital divide.

Government of Orissa, recognizing the immense potential of public-private partnerships, is undertaking progressive initiatives for the development of the state through collaborations with private sectors. Development involves the creation of umpteen job opportunities for the people and making life enjoyable for them. Many IT SEZ which are going to be established in the state will provide many job opportunities to the IT skilled persons. There is a great necessity to increase the employability of people to capture the emerging opportunities in the IT and ITES Sector. Considering the above context the Govt. of Odisha recognized the immense potential of IT and undertook the initiative to organize a mass training programme for 62,000 unemployed youth in the state covering all districts even to the blocks level.

Public private partnership (PPP) MODE

PPP mode is an emerging concept through which government will capitalize on the exposure and resourcefulness of private parties and on the other hand the private parties will get access to govt projects and get the profit through the revenue sharing mode. The PPP mode helps the govt to overcome the constraints like resources, professional management, expertise, project execution etc. In this project, the govt has delegated the responsibility to implement the training program to OeSL (An SPV of OCAC

and IL&FS). The different stake holders for this project were-OCAC (Odisha Computer Application Centre, the Designated Technical Directorate of Information Technology Department, Government of Odisha), the Director, employment Mission, Planning and co-ordination Department, Dept. of higher education, Dept. of information Technology, Govt. of Odisha. The project cost was 17.5 crore.

III. TRAINING NEED ASSESSMENT

Training needs analysis influences the development, application and evaluation of training (McGehee and Thayer, 1961; Agnaia, 1996; Gray and Hall, 1997; Al-Khayyat, 1998; Legare, 1999; Dickenson and Blundell, 2000; Holton, 2000; Selmer, 2000). The training project was a mass project targeting the unemployed youth starting from matric (10th standard pass on wards). So there was no training need analysis by one to one interaction with the potential trainees. Rather the training project was customized as per the report of NASSCOM which says that only 25% of Indian graduates are employable. Though the training project never targeted the graduates, because the eligibility to participate in the training project was secondary education (10th standard pass), but still care had been taken to imbibe the need of employability in the minds of the potential trainees from very early stage like secondary education level. Therefore the training content was on basic IT skill and soft skill.

IV. OBJECTIVES OF THE TRAINING PROGRAM

- To create awareness on the urgency and importance of employability issue among the unemployed youth.
- To create interest among the unemployed youth towards information technology and associated job prospects.
- To create awareness among the unemployed youth on the importance of soft skill and its role not only in recruitment and selection process but also on lifelong people management skill.
- To create employability among these youth to be absorbed in low end IT jobs available in the job market and also in various govt projects.
- To create e-literacy among the targeted group, so that they can actively participate in National e Governance programme. This is very important for success of this programme because e-literacy will help the programme to trickle down to the grass root level benefitting the masses.
- To create e-literate champions among the unemployed youth, who can become change agents in implementation of any e-governance project in grass root level.
- To minimize the gap of digital division between e-literate and not e-literate.
- To certify the unemployed youth who successfully complete the training programme. This govt certification will help them as a proof of IT skill and soft skill while searching for jobs.



TRAINING DESIGN

Training design refers to the degree to which the training has been designed and delivered in such a way that provides trainees the ability to transfer learning back to the job (Holton, 2000). Proper training design is very much important for success of the training programme. So great care had been taken for designing the training programme. Assessments of employee and organizational needs as well as business strategies should be conducted and then used in selecting training methods and participants (Goldstein, 1991). Training programs that are consistent with employee and organizational goals and needs and fit with the business strategy will meet with greater success than those that are not (Wexley & Latham, 1991). As a result of the financial investments organizations make in training, it is important to provide results that training efforts are being fully realized (Casio, 2000; Dowling & Welch, 2005). In the plan development and implementation stage where the training characteristics are established and put into practice (Buckley and Caple, 1991; Goldstein, 1993; Foot and Hook, 1996; Bee and Bee, 1997; Frazis et al., 1998, 2000).

Content: The training programme consisted of basic IT skill and soft skill

Duration: 80 hours spreaded over one month duration.

60 hours=IT skill

20 hours=Soft skill

Batch Size: 30

Venue: 208 training centre throughout Odisha

Payment –The training centres received payment per hour per batch basis.

Project duration: 8 months with five phases of training.

Resource Persons/Trainers: IT resource persons-the selected training centres engaged their IT faculty and also recruited from a pool of candidates who were screened through the assessment test conducted by national level skill assessment agency Merittrac, India with sufficient grades.

Evaluation: The different aspects of training evaluation were done by Merittrac by which is a national level skill assessment company.

Content Development: The content for the SDP had been designed with much introspection and expert advice considering the mass training programme and the eligibility conditions. For the development of the IT content, a high level committee was made by taking members of OCAC, IIIT and NIC, India. the content was developed considering the target trainees. Great care had been taken regarding the use of simplest language, application oriented approach, basic IT skill coverage and inclusion of some trouble shooting tools and hardwares. Besides the IT skill book, another IT work book was also designed to focus on practice for the candidates. Similarly the soft skill content and also the book was designed and supplied by IL & FS ets .which had taken the responsibility to conduct the soft skill part of the training in all the designated training centres. The soft skill book included basic knowledge of soft skill with practice sessions and also included all required pictorial representation.

Training Kit

The training kit included the following items

- 1-water proof bag
- 2- Book on IT skill
- 3- IT work book
- 4-soft skill book
- 5- Two note book
- 6- Pen.

PROCUREMENT OF TRAINING KIT

In order to bring transparency and to maintain the quality level all the required training material were procured through the open bidding process.

To streamline the supply by the vendors, strict clause like penalty etc were included in the tender for delay in supply, quality issues.

AWARENESS CAMPAIGN

In order to create awareness among the target unemployed youth, following awareness methods were deployed-

1. Advertisement in local and national news papers
2. distribution of leaflets
3. awareness campaign by respective training centres in their own locality
4. Hoarding in public places.

SELECTION OF TRAINING CENTRES

Open tender was invited from training centres with adequate infrastructure and resource persons to participate in the bidding process.

Some basic requirement for training centres were-

1. class room to accommodate 30 students in a batch
2. 15 no of computers
3. Computer lab to accommodate 30 students with twin sharing basis
4. a projector
5. Certified IT trainers
6. power back up
7. Internet connectivity

After the first phase of training, it was observed that many remote and rural areas were deprived of the training, so second round of tender was done to invite the rural training centres to conduct 20 batch size training.

ASSESSMENT OF TRAINERS

The trainers were assessed on the following skill by the skill assessment agency Merittrac-

1. Domain Knowledge
2. Lab Skills
3. teaching skill
4. communication skills

Besides the soft skill trainers were assessed through presentation and interview conducted by an expert team consisting of eminent psychologists, human resource professionals and soft skill experts.

MASTER TRAINER PROGRAMME

All the selected IT and soft skill trainers attended a two day orientation programme on teaching methodology, student interaction, doubt clearing lab demonstration, class management, individual student attention, student participation which was conducted by experts known as master trainers. This train the trainers programme was highly influenced the participants and it received high acclamation.

ASSESSMENT OF TRAINEES

The pre- training assessment and post training assessment are two vital part of any training programme, as it gives an idea regarding the impact of the training programme.



In order to avoid biasness and to bring professionalism in the training evaluation process, open tender was invited from national level skill assessment organizations. Finally through rigorous scrutiny and threadbare discussion and decision of a high power committee Meritrac was appointed as the skill assessment agency for this purpose.

It had been assigned the task of conducting the pre-training and post-training assessment of the trainees. Besides the assessment of the trainees, It had been given the task of assessment of trainers engaged for both IT skill and soft skill.

Programme Management Unit: PMU

A PMU was set up for monitoring and controlling the whole training project. The whole project was supervised by project director and the project co-coordinator.

The PMU consisted of following personnel like-

1. Training Head
2. Training co-ordinators
3. Zonal co-ordinators-To monitor the training programme on zonal basis. Each zone included three /four districts.
4. Reserve co-coordinators
5. Training facilitators-Tell callers, Office boys, facility officers, store in charge.
6. District Training co-coordinators.

They were monitoring and coordinating the training programme at the district level.

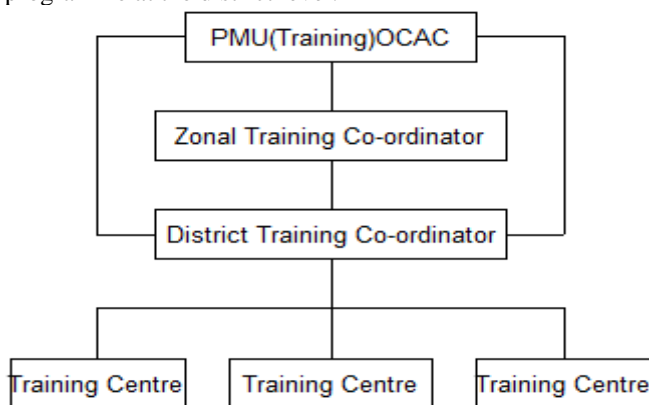


Fig1. Flow chart of Training Programme.

PMU was responsible in activities like

1. inspection of the training centres after the bidding process for finalization of centres
2. procurement and distribution of training kit.
3. Coordination with Meritrac for conducting the trainer and trainees assessment test
4. Conduct of master training programme
5. Surprise visit to check the quality of training
6. Monitoring the training through the Training Monitoring software(TMS)
7. Printing and Distribution of certificates

INTEGRATION OF IT IN MONITORING AND CONTROLLING MEASURES: TMS

In order to execute such a behemoth training programme,a Training Monitoring Software(TMS) was developed.TMS had following features like

1. On line application
2. Centre Choice
3. centre Allocation
4. On line attendance
5. training kit distribution status
6. On line feed back
7. Centre details

8. Trainers Details

9. Assessment information

10.Trainees Database

TMS had streamlined and smoothened the whole monitoring process.

Application of TQM Concepts in the Training Programme:

ROLES AND RESPONSIBILITIES OF STAKEHOLDERS

Department of IT

Over all supervision of the programme

PMU , OCAC

- Recruitment of required manpower for implementation of the training programme (i.e. district training co-ordinator, central training co-ordinator, consultants and training advisors)
- Identification of Training Locations and getting approval from respective colleges to use their infrastructure by training providers through government of Orissa.
- Publication of tender for conducting training programme from reputed IT training institutes.
- Selection of vendors.
- Release of advertisement about the training programme in local and national news paper.
- Receiving the candidates list sent by district training co-ordinator from respective districts.
- Preparation of course content and hands outs, training materials, training kits.
- Final short listing of candidates by PMU.
- Sending the candidates list to training providers in respective districts.
- Sending the candidates list to training providers in respective districts.
- Preparation of training guideline for agencies.
- Defining roles and responsibilities of PMU (training), district training co-ordinator, training providers, trainers, training centers.
- Procurement & distribution of training kits.
- Providing detail training guideline to training providers.
- Orientation/ Training of Trainers.
- Orientation and training of training co-ordinator.
- Monitoring and supervising the training programme.
- Conduct assessment test for trainers.
- Conduct the evaluation exam.
- Issue of certificate.
- Conduct job fair.

District training co-coordinator

- Receiving of application form in the given format from participants along with required documents at district collector office.
- Scrutinizing and short listing of candidates list.
- Regular visit by to training centers of that district.(covering all training centers on day to day basis.
- Taking feed back from participants
- Checking the class timing, class duration, faculty attendance, participants attendance & quality of training
- Checking the progress of the training.
- Sending daily report to PMU (training) OCAC.

Training providers (Joint Venture/ Service Providers)



- To impart the training according to the given course syllabus.
- To check the learning of the participants and give individual attention.
- To conduct tests (pre test and post test)
- To prepare a daily report regarding no of participants, faculties, attendance sheet, part of subject completed and send it to PMU, OCAC.
- To provide necessary reports and information to PMU, OCAC and district training coordinators.

Training centers

- To provide required space to training providers.

The success of training depends on the correct implementation of all steps of the process: previous analysis of training needs, development and implementation of an adequate training plan and evaluation (Pineda, 1995; Go'mez-Meji'a et al., 1996; Sole' and Mirabet, 1997).

IMPACT ANALYSIS:

After the training programme there was huge request from the public for continuation of such training programme.

More number of girls participated in the SDP.

Many candidates got employment after the training in low end IT jobs.

TRAINING OUTCOMES:

- 62,000 unemployed youth were trained in basic IT skill and soft skill
- The SDP had created large pool of IT literate youth who could be employed by IT/ITES companies in low end IT jobs
- The pool of trainees could be engaged in various e-governance projects implemented by the government.
- The SDP had created a wave among the unemployed youth which could be judged from the over all response and massive number of applicants.
- The SDP had created certified IT and soft skill trainers who could be engaged in any future related training project
- The SDP had created interest among the youth to further their career in IT
- Many trainees in rural and semi urban areas had taken up entrepreneurship to start small IT Kiosk.
- The acceptance level for e-governance project was higher in trained unemployed youths and other unemployed youth.
- SDP had created recognized and certified training centres whose services could be utilized in future projects.
- Creation of a database of trained unemployed youth who could be readily absorbed by potential companies.

IMPLICATION

- Such type of massive training programme can be conducted for the developing and underdeveloped country to minimize the digital divide.
- This project can be taken as a bench mark to enhance e-literacy among the masses.
- It will help the govt in implementation of e-governance projects
- This type of project can contribute towards the employment generation in the field of IT and ITES.

ANNEXTURE-1-Brief IT Content

Introduction to Computer:What is Computer, Features of Computers, and Components of a computer system, input devices, and peripheral devices.

Introduction to O.S.:What is OS, Functions of OS, Types of OS, Examples of OS, Components of OS, and Booting. What is DOS, Commands, Concept of File, File Name, and Operating Commands, Creating & Managing files / directory.

MS Office:Windows Components – (Taskbar, Desktop Area, Icons and Shortcuts), Basic Mouse Operations, Click & Drag, Copy & Paste, Cut & Paste

Introduction to MS-Word: What is Word Processing, Advantages of Word Processing, working with MS word, Features of word processing: Saving & retrieving of documents, Cut, Copy & Paste feature, Use of Undo & Redo, Inserting Bullets, Understanding Fonts, Alignment Text. Formatting Paragraphs: Line Spacing, Giving borders & Shading, Page Formatting, Creating a table, Formatting a Table, Searching & replacing, Printing a document,

Introduction to MS-Excel: What is a Spreadsheet, Advantages of Microsoft Excel, Using of Microsoft Excel, Creating a new workbook, Editing Worksheet, Creating a Simple Worksheet, Formatting Worksheet.

Introduction to MS power point: prepare slides etc Internet: Internet Concepts, Internet Browsing, Doing email, creating user ID, Changing password, Composing and sending email. Attaching files with e mail, connecting to Internet, Types of Connections, About WWW, About URL.

Basic knowledge of hardware and troubleshooting: basics of computer hardware's and peripherals, use, maintenance.

ANNEXTURE-2-Details of soft skill content

- Communication skill (verbal and non-verbal)
- Body language (posture, eye contact, facial expression etc.)
- Personal appearance and dress
- Writing curriculum vitae
- Writing letters,memos,record keeping
- Preparing for the interview
- Skills set for an interview
- Do's and don't do's in an interview
- Techniques of interview
- Group discussion
- Public Speaking
- Interpersonal Skills

ANNEXTURE-3-Result Analysis

Analysis of result

Total no of candidates scheduled: 56926

Total no of candidates appeared: 51336

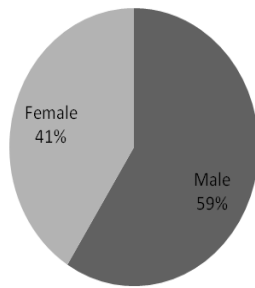
A	3919	7.6	8614	19.5
B	16964	33	15393	34.8
C	23486	45.8	14301	32.4
D	6967	13.6	5868	13.3
Total	51336	-	44176	-

The above data is up to fourth phase of training for 57030 no of candidates..In the fifth phase 4970 no. of candidates were scheduled for the test and 4648 appeared for the assessment.

Skill Development Training Programme: A New Horizon in Mass Training Programme for Enhancement of Employability

1	Angul	2190	1414	776	299	116	1327	448	375
2	Balasore	3060	2009	1051	417	83	2182	378	411
3	Bargarh	1766	1095	671	281	107	450	928	171
4	Bhadrak	1620	951	669	170	1	1106	343	346
5	Bolangir	2280	1544	736	676	217	600	787	500
6	Boudh	810	601	209	213	41	213	343	181
7	Cuttack	4980	2966	2014	772	105	3297	806	538
8	Deogarh	840	477	363	135	118	214	373	89
9	Dhenkanal	2550	1294	1256	221	35	1708	586	139
10	Gajapati	600	413	187	79	175	216	130	91
11	Ganjam	2887	1783	1104	219	34	1989	645	125
12	Jagatsinghpur	2128	1097	1031	317	17	1364	430	450
13	Jajpur	4110	2259	1851	418	102	2688	902	835
14	Jharsuguda	1050	515	535	124	119	700	107	31
15	Kalahandi	2250	1583	667	454	165	668	963	314
16	Kandhamal	990	556	434	130	288	403	169	190
17	Kendrapara	2370	1028	1342	260	4	1459	647	589
18	Keonjhar	1920	1182	738	289	302	851	478	363
19	Khurda	6240	4022	2218	679	219	4448	894	326
20	Koraput	2160	1177	983	343	189	1369	259	241
21	Malkangiri	740	434	306	278	124	278	60	116
22	Mayurbhanj	1710	965	745	168	393	699	450	372
23	Nabarangpur	659	394	265	109	121	351	78	113
24	Nayagarh	2280	1474	806	158	26	1042	1054	383
25	Nuapada	1320	1081	239	348	224	217	531	679
26	Puri	2730	1496	1234	261	5	2080	384	417
27	Rayagada	990	621	369	159	158	517	156	78
28	Sambalpur	930	557	373	152	150	448	180	57
29	Subarnapur	480	351	129	114	18	125	223	77
30	Sundargarh	3360	1417	1943	407	1046	1570	337	533
Total		62000	36756	25244	8650	4702	34579	14069	9130

Male / Female Ratio

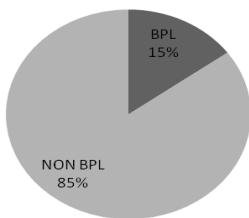


Statistical Analysis of the Student data base
Distribution on the basis of Gender

Male	Female	Total
36756	25244	62000

Distribution on the basis of socio-economic condition-
BPL/NON-BPL

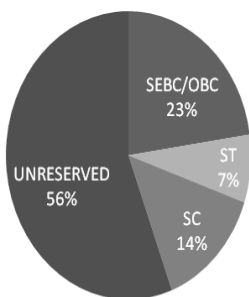
BPL Status



NON BPL	52870
BPL	9130
Total	62000

Distribution on the basis of Caste

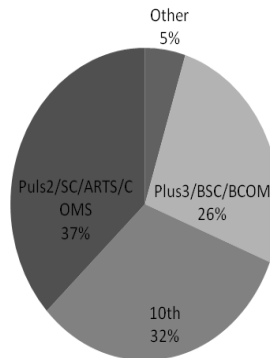
Category with distribution of Trainees



Unreserved	34579
SC	8650
ST	4702
SEBC/OBC	14069
Total	62000

Distribution on the basis of Qualification

Qualification wise distribution on Trainees



10 th	19892
Plus 2/SC/ARTS/COMS	22948
Plus 3/BSC/BA/BCOM	16140
Other	3020
Total	62000

REFERENCES

1. Al-Khayyat, R. (1998) , 'Training and Development Needs Assessment: A Practical Model for Partner Institutes', Journal of European Industrial Training, 22(1),18–28.
2. Bee, F. and Bee, R. (1997), Training Needs Analysis and Evaluation.London: Institute of Personnel and Development.
3. Berntson, E., Sverke, M., & Marklund, S. (2003). Predicting perceived employability: Human capital or labour market opportunities? Economic and Industrial Democracy, 27(2), 223–244.
4. Brown, P., Hesketh, A., & Williams, S. (2003, June). Employability in a knowledge-driven economy.Journal of Education and Work, 16(2), 107–126.
5. Brown, P., Hesketh, A., & Williams, S. (2003, June).Employability in a knowledge-driven economy.Journal of Education and Work, 16(2), 107–126.
6. Buckley, R. and Caple, J. (1991) La formacio'n: Teon'a and pra'tica. Madrid: Di'az de Santos.
7. Casio, W.F. (2000). Costing Human Resources: The Financial Impact of Behavior in Organizations, (4th Ed), (Cincinnati, OH: South-Western).
8. Chapple, K. (2006). Networks to Nerdistan: The role of labor market intermediaries in the entry-level IT labor market. International Journal of Urban and Regional Research, 30(3), 548–563.
9. de Grip, A., & Zwick, T. (2005). The employability of low-skilled workers in the knowledge economy. Unpublished manuscript, Maastricht, the Netherlands. Retrieved from http://rlab.lse.ac.uk/lower/final_papers/grip.pdf 2005
10. Dickenson, P. and Blundell, B. (2000) 'Transferring Quality Management Experience to the Russian Aerospace Industry', Total Quality Management, 11(3): 319–27.
11. Doms, M., Dunne, T., & Troske, K. R. (1997, February).Workers, wages, and technology. The Quarterly Journal of Economics, 112(1), 253–290.
12. Dowling, P.J., and Welch, D.E. (2005), International Human Resource Management: Managing People in a Multinational Context. (4th Ed), (Mason, O.H: Thomson South-Western).
13. European Commission. (2004). E-skills for Europe: 2010 and beyond. Brussels: European Commission, Enterprise and Industry Directorate General. Retrieved from <http://ec.europa.eu/enterprise/ict/policy/doc/e-skills-forum-2004-09-fsr.pdf>

14. Fan, M., Dey, D., & Peng, G. (2006). How do computers and Internet affect employee compensation? Report submitted to Harry Bridges Center for Labor Studies, University of Washington, Seattle.
15. Foot, M. and Hook, C. (1996), *Introducing Human Resource Management*. Singapore: Longman.
16. Frazis, H., Gittleman, M. and Joyce, M. (2000) 'Correlates of Training: An Analysis Using Both Employer and Employee Characteristics', *Industrial & Labor Relations Review*, 53(3): 443–62.
17. Frazis, H., Gittleman, M., Horrigan, M. and Joyce, M. (1998) 'Results from the 1995 Survey of Employer-Provided Training', *Monthly Labor Review*, 121(6): 3–13.
18. Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions and applications. *Journal of Vocational Behavior*, 65, 14–38.
19. Go´mez-Mejí'a, L.R., Balkin, D.B. and Cardy, R.L. (1996) *Gestio´n de recursos humanos*. Madrid: Prentice Hall.
20. Goldstein I. L., "Training in work organizations. In M. D. Dunnette & L. M. Hough (Eds.)", *Handbook of industrial and organizational psychologists* Press, Palo Alto CA: Consulting Psychologists Press, 1991, 507-619.
21. Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78(6), 1360–1380.
22. Gray, G.R. and Hall, M.E. (1997) 'Training Practices in State Government Agencies', *Public Personnel Management*, 26(2): 187–203.
23. Green, F. (2009). Employee involvement, technology, and job tasks (NIESR Discussion Paper No. 326). London.
24. Green, F., Ashton, D., & Felstead, A. (2001). Estimating the determinants of supply of computing, problem solving, communication, social, and team working skills. *Oxford Economic Papers*, 3, 406–433.
25. Green, F., Felstead, A., Gillie, D., & Zhou, Y. (2007, July). Computers and pay. *National Institute Economic Review*, 201(1), 63–75.
26. Holton, E.F. (2000) 'Large-scale Performance-Driven Training Needs Assessment', *Public Personnel Management*, 29(2): 249–67.
27. Hong, Y. (forthcoming). Debunking a myth of job creation—A critical analysis of China's ICT development from an employment perspective.
28. Houston, D. (2005). Employability, skills mismatch and spatial mismatch in metropolitan labour markets. *Urban Studies*, 42(2), 221–243.
29. Legare, T.L. (1999) 'Defining Training Roles and Responsibilities at Partners Healthcare System', *National Productivity Review*, 19(1): 5–13.
30. Lopez-Bassols, V. (2002). ICT skills and employment. (Organisation for Economic Co-operation and Development STI Working Papers). Paris.
31. Machin, S. (2001). The changing nature of labour market demand in the new economy and skill biased technology change. *Oxford Bulletin of Economics and Statistics*, 63(1), 753–776.
32. McGehee, W., & Thayer, P.W. (1961). *Training in business and industry*. Newyork: Wiley publications.
33. Pineda, P. (1995) *Auditori'a de la formacio´n*. Barcelona: Gestio´n2000.
34. Riley, R. (2007, July). Introduction: Technology, jobs and skills. *National Institute Economic Review*, 201(1), 61–62.
35. Schware, R. (2009). Give for-prot rural business centres a chance to diversify into service-led employment and village BPOs. *Information Technologies & International Development: Special Issue on ICT and Employability*, 5(2), 77–80.
36. Selmer, J. (2000) 'A Quantitative Needs Assessment Technique for Cross-Cultural Work Adjustment Training', *Human Resource Development Quarterly*, 11(3): 269–82.
37. Sole´ Parellada, F. and Mirabet Vallhonestá, M. (1997) *Gui'a para la formacio´n en la empresa*. Madrid: Civitas.
38. Stasz, C. (2001). Assessing skills for work: Two perspectives. *Oxford Economic Papers*, 3, 385–405.
39. Sullivan, J., Gordon, A., & Vander Leest, T. (2008). Boys & Girls Clubs of America: Technology skills, youth development and the 21st-century workforce. Center for Information and Society Working Papers, University of Washington, Seattle.
40. Van Welsum, W., & Vickery, G. (2005). New perspectives of ICT skills and employment. (Organisations for Economic Co-operation and Development STI Working Papers). Paris.
41. Vigneswara, P. (2007). Exclusivity of the direct ICT employment: A case of Indian software. *Proceedings of the 2007 International Conference on Information and Communication Technologies and Development*, Bangalore, India.
42. Wexley K. N. & Latham G. P., "Developing and training human resources in organizations (2nd ed.)", New York: HarperCollins, 1991