

Impact Evaluation of

"Establishment of Computer Labs & Initiate ICT Training in District level Educational Institutes Project "



Conducted by

Evaluation Sector Implementation Monitoring and Evaluation Division Ministry of Planning July, 2014

Impact Evaluation of "Establishment of Computer Labs & Initiate ICT Training in District level Educational Institutes Project "

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FOREWORD

The Evaluation Sector, Implementation Monitoring and Evaluation (IMED), Ministry of Planning has been assigned to evaluate "Establishment of Computer Labs & Initiate ICT Training in District level Educational Institutes Project" implemented by BCC, ICT Division, Ministry of Post, Telecommunication and Information Technology from June 2007 - July 2011. The Evaluation Sector, IMED has conducted the impact evaluation on this project through its own in-house officers along with assistance from a hired Consultant. The evaluation findings have showed that Computer lab based training at the institutes have upgraded the skill of teachers in training and so the students in their aspiration of higher studies in computer.

I take the pleasure to appreciate Ms. Salma Mahmud, DG (Evaluation Sector) and her colleagues for their untiring efforts to coordinate the activities towards completion of this evaluation study. I would also like to appreciate the members of Technical and Steering Committees for their supports and guidance. Thanks are also due to Mr. Md. Habib Ullah Majumder, Secretary (Rtd), the Consultant of the study for his exhaustive exercise to complete the report in time.

I hope the lessons learnt from this evaluation exercise, would be great help to the BCC, ICT Division, Ministry of Post, Telecommunication and Information Technology and the concerned policy planners of the GOB for making Computer Lab- based ICT training more affordable, accessible to the all the students for overall employment opportunities of the students and socio-economic development of the country as well.

(Suraiya Begum ndc) Secretary, IMED Ministry of Planning

PREFACE

The Evaluation Sector of Implementation Monitoring and Evaluation Division, Ministry of Planning has evaluated "Establishment of Computer Labs & Initiate ICT Training in District level Educational Institutes Project" implemented by Bangladesh Computer Council (BCC), ICT Division, Ministry of Post, Telecommunications and Information Technology from June 2007 - July 2011 with an investment cost of BDT 2487.00 lac. During implementation of this project teachers were involved in teaching computer studies, physics, chemistry and mathematics received special training on computer education and students at secondary and higher secondary levels were trained on computer skills and knowledge. All these training programs were to enhance the computer literacy of students and to inspire them to study computer science in their future career development and to enhance their employment opportunities both home and abroad.

The evaluation study finds that Computer lab based training had reasonably improved the computer proficiency and skill, of teachers and the students and has created impetus for computer studies.

I would like to thank the consultant Mr. Md. Habib Ullah Majumder for his sincere and exhaustive works. The concerned officials of the evaluation team, field interviewers also deserve appreciation for their efforts to complete the report in time. I would like to express my heart-felt gratitude to Secretary, IMED for her guidance, suggestions and continuous supports for the timely completion of the assignment. Thanks are also due to members of Technical and Steering Committee, and participants of the workshop for their suggestions and observations.

I hope that the recommendations in the evaluation study would be useful for the BCC and concerned Ministry for rendering more effective policy options for improving the management of computer labs and more effective learning for the students both at secondary and higher secondary institutes of the country.

Salma Mahmud Director General Evaluation Sector, IMED Ministry of Planning

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List of Acronyms

BCC	Bangladesh Computer Council
CS	Comparative Statement
ES	Evaluation Sector
ED	Executive Director
FGD	Focus Group Discussion
GB	Gigabyte
GOB	Government of Bangladesh
ICT Division	Information Communication Technology Division
IGA	Income Generating Activities
IMED	Implementation Monitoring and Evaluation Division
IPS	Interruptible Power Supply
КВ	Kilobyte
MG	Megabyte
MOPTIT	Ministry of Post, Telecommunication and Information and Technology
NGO	Non-Government Organization
PC	Planning Commission
PCR	Project Completion Report
PD	Project Director
RAM	Random Access Memory
ROM	Read Only Memory
SC meeting	Steering Committee Meeting
SPSS	Statistical Package for Social Sciences
TC meeting	Technical Committee Meeting
TOR	Terms of Reference
UPS	Uninterrupted Power Supply

Executive Summary

1. Background Information:

The project entitled "Establishment of Computer Labs & Initiate ICT Training in District level Educational Institutes Project " was implemented by BCC, ICT Division, Ministry of Post, Telecommunication and Information Technology from June 2007 - July 2011 with an investment cost of BDT 2487.00 lac. Initially, 128 computer labs had been established in 64 districts and were facilitated with 16 computers and accessories. But due to release of some funds, additional 64 computer labs were established with each lab consisting of 7 computers along with related accessories. 1088 teachers had received special training on computer education for 40 days. 12800 students at SSC & HSC levels were imparted training on ICT based knowledge. The Evaluation Sector, IMED has been assigned to conduct the impact evaluation on this project through its own in-house officers along with assistance from a Consultant hired for four months for completion of this report.

2. Methodology:

25% of the districts (out of 64 districts), 16 were selected keeping in proportion to the population size of respective division as well as the location. For this study, 78 trained teachers, 384 trained students and 384 non- trained students interviewed. For assessing computer literacy- 78 teachers + 96 trained students + 96 non-trained students were given proficiency test on computer. Seven (7) FGD meetings with community and concerned stakeholders were conducted. 126 passed out students were interviewed to assess their benefits from computer learning in terms of their aspiration for higher studies in computer field, employability and income earning etc. 48 sampled computer labs were observed through a checklist to assess their present status.

3. Implementation Findings:

- i. **Status of PCs:** 10 out of 48 of the sampled institutes were found to have all the PCs well functioning but rest of the 38 institutes had minimum of 1 and maximum of 10 desk top PCs not functioning at the present.
- Status of laser printers: Out of 34 sampled institutes visited in the 1st phase 22 institutes were observed to have one single laser printer functioning out of two supplied laser printers for each institute. In the second phase, out of 14 visited institutes 2 computer labs had its laser printers non-functioning during the survey period.
- **iii. USB internet modem:** Most of the 48 sampled institutes were found to have one to three non-functioning internet modems.
- iv. In sum, out of 642 PCs supplied in the sampled 48 computer labs, almost 28.5% of PCs are at present not functioning, followed by 32.03% of the printers, 54.8% of USB modem and them are not functioning at present and in case of 328 UPS so far supplied only 32.3 % of UPS are non-functioning at present and all the projector/LCD monitors in sampled 48 computer labs are found functioning.

4. Findings on procurement issues:

- i. As for purchase of goods and services for ICT labs, all the prescribed rules and procedures were meticulously followed by BCC.
- ii. Selection of responsive suppliers/ vendors, work orders were duly done, VAT and other relevant taxes were deducted from the bills submitted to the concerned ministry and there was no time over run and cost overrun.

iii. There was no unnecessary delay in installation of PCs, accessories, laser printers, UPS & Voltage stabilizers, multimedia projectors, installation of AC and fans etc in the computer labs for all the selected institutes.

5. Survey Findings:

- i. Students were trained on average of 44.0 hours although they were supposed to be trained for 3 months- the reason was that some of the training programmes were customized as per need of the students and time constraints.
- ii. Of the trained students, (90.4%) and (83.1%) stated to have applied word processing skill in both English and Bangla but it was not evidenced from their performance in proficiency tests.
- iii. One third of the trained students stated about their capability to use MS-Excel, PowerPoint, internet, online admission skill etc.
- iv. One third of the students also felt that maintenance and repairs of hardware and upgradation of software were not done in time.
- v. As many as 40% of the students stated that they were not allowed to use internet especially at the school level.
- vi. However, majority of the students had positive notion about teachers' skill, motivation and care about training the students.
- vii. **Weaknesses:** Students opined lack of adequate no. of PCs, lack of permanent lab teachers, lack of fund for repair and maintenance of PCs and accessories, lack of duration of training and practice and refresher courses etc as major weaknesses of the ICT related activities.
- viii. **Suggestions:** Students suggested for more than 2 teachers for computer studies, refreshers training, recruitment of skilled and permanent lab assistant, adequate fund for timely repair, replacement and upgradation of PCs, installation of WIFI /broadband etc.
- ix. **Teachers' proficiency:** 70.5% to 96% of the trained teachers could apply their computer skill in their day to day assignment except for programming and database management.
- x. Suggestions offered by teachers, Head of the institutions and BCC officials at the institutions: The suggestions offered were : generation of regular and adequate fund for upgradation, repairs and replacement of PCs and accessories, recruitment of permanent lab assistant, accountability of assistant programmers to the head of the institutes, number of PCs to be in proportions of the students of the institutions, supervisory and technical supports from all concerned, introduction of high speed broadband, refreshers courses, installation of IPS etc need to be ensured for sustainability and improved management of computer labs.

6. Impact Findings:

- i. **Teachers' proficiency in computer skills:** Majority of the teachers (80%) had obtained marks between 51-70% in both theoretical and practical applications which reasonably evidenced about the effectiveness of the training and rest of the 20% of the teachers obtained marks in between 71-90%.
- Proficiency of trained and non-trained students: Majority of the trained students 58.0% and 38.0% obtained marks in between (31-50 marks and 51-70 marks) respectively at school level. While majority of non-trained students (58.33%) obtained marks in between 20-30 and as few as 33.3% and 8.3 % of them obtained marks in between (31-50 marks and 51-70 marks respectively). Majority of the trained college students (72.7%) obtained marks in between 51-70 and even some of the college students (15.0%) have obtained marks in between 71-90.

- iii. Increased enrollment of students in computer studies/science: Students enrollment in computer studies both in school and college level increased over the project period from 2009 to 2011 which in the school level for male students were 22.2% in 2009, 36.51% in 2010 and 46.03% in 2011 while those of female students at school level were 20.6% in 2009, 41.2% in 2010 and 53.0% in 2011. While in case of college level, increase in admission in computer studies by male students were 16.5% in 2009, 27.1% in 2010 and 34.12% in 2011 while those of female students were 14.3% in 2009, 28.6 in 2010 and 36.7% in 2011 with respect to beginning year of computer based ICT activities.
- iv. **Increased aspiration for higher studies in computer science:** Of the 126 passed out students interviewed 30.0% of the students stated to be studying in diploma/B.Sc degree in computer science as per their earlier aspiration for higher studies in computer studies and 15.0% of the students have been studying subjects other than computer studies.
- v. Increased employability and income earning of the passed out students: 24.6% and 13.5% of the passed out students were found to be presently employed and earning on average of tk. 10560/- and tk. 3566/- from self employment which is fairly good amount of earning in context to present employment scenario of the country.

7. Strengths of the computer lab based training programme :

- i. Most of the respondents felt the necessity of this type of computer based training for the students and teachers was very timely and reasonable.
- ii. Students have got themselves involved in information world and feel more confident to have access to useful information, job market for students, career development etc.
- iii. Training programme has increased computer literacy of the teachers both in theoretical and practical and their skill in word processing in English and Bangla have helped them do their day to day assignment comfortably.
- iv. Exposure to computer training has created an aspiration in the students for higher studies in computer science.

8. Weaknesses of the computer lab based training programme:

- i. Due to lack of adequate funds- the process of repairs, maintenances and minor trouble shootings are delayed and sometimes remain unsolved for a prolonged period of time.
- ii. Computer teachers are often overloaded with academic classes/studies so they could not spare adequate and quality time for training students on practical application of computer.
- iii. Assistant programmer's too much involvement in district offices, education offices and also their frequent transfer to different offices by BCC to some extent hampered the smooth and regular functioning of computer lab and practical classes.
- iv. Volume of the contents of curriculum/course materials are too big to be effectively learnt and practiced within short span of training for both the teachers as well the students.

9. Recommendations:

- i. Post of specialized teachers/instructors and lab assistants should be created and be recruited on permanent basis by concerned ministry. So also number of computer teachers should be increased in proportion to the number of students in the institutes.
- ii. Post of Librarian in the schools and colleges may be upgraded into ICT based post with more practicable computer training and technical supports.

- iii. Computer Lab size and number of PCs should be increased in proportion to the increasing size of students.
- iv. More job oriented computer applications such as web design and development, desktop publishing, adobe Photoshop, illustrators, data processing packages etc. may be included in the curriculum in future programme.
- v. The job descriptions of assistant programmers should be more specifically defined so that they could render all essential technical supports and related services to their respective offices and institutes as when needed.
- vi. The Ministry of Education should be delegated to generate fund to maintain the computer lab and so eventually the educational institutes under the Education Ministry should be provided the ownership and responsibility to maintain and manage the overall functioning of computer labs.
- vii. Funds should be raised from the students during their enrollment in computer studies/science by the institutes to ensure expenses for regular maintenance, repairs of computer labs, replacement of accessories and minor trouble shooting etc.
- viii. Students learning and skill in computer should be evaluated on regular basis.
- ix. Students should be provided with easy and free access to use Lab for their practice.
- x. Compulsory education on computer studies should be made for the students of SSC and HSC levels
- xi. Incentives or proficiency certificates may be awarded to the students to boost up their learning zeal.
- xii. The non-trained students of the institutes may be included in the next phase of the project so that they may be more motivated to study computer sciences for their higher studies.
- xiii. Computer suppliers and vendors should be made to ensure warranty services on time and training on basic operation and maintenance of PCs and accessories to the computer teachers.
- xiv. Upazila administration should also be involved in providing both monitoring and support services to ensure proper functioning of computer labs.
- xv. Broad band connection should be installed in computer lab for more coverage of PCs and speedy internet access.
- xvi. Loss of training hours due to load shedding, irregular power supply etc may be minimized through installation of IPS.

10. Conclusion :

- i. Computer lab based training has reasonably added to the computer proficiency and skill development of teachers as well as the students.
- ii. The increased rate of admission of students in computer studies, employability, income of passed out students indicate a positive impact of the computer lab based ICT training programme.
- iii. Findings show that there are still a lot of opportunities to improve the quality of computer lab based training and make training more sustainable provided the weaknesses and lapses indentified during the evaluation are addressed wholeheartedly.

Chapter 1

Introduction

1.1 Project Background :

Introduction of computer science both at school and college has become a prime objective of the GOB to enhance the computer literacy of the the students and make them more skilled and employable both within and outside the country. It was thus very essential to have trained teachers and sufficient computers to start the computer subject. To promote and co-operate the education sector of the country a pilot project was initiated in 1994 by BCC and was implemented from 01-01-1995 to 30-06-1996. After successful completion of the pilot project, BCC implemented another similar project in the 2nd phase commencing from July 1998 to June 2000 and again after successful completion of the 2nd phase of the project, 3rd phase was implemented form July 2000 to June 2004. The main objective of that project was to promote and initiate expansion of computer education at grass root level.

The present phase of the project "Establishment of Computer Labs & Initiate ICT Training in District level Educational Institutes" was implemented by BCC, ICT Division, Ministry of Post, Telecommunication and Information Technology from June 2007 - July 2011 with an investment cost of BDT 2487.00 lac. Initially, as per DPP, 128 computer labs had been established in 64 districts. Each lab was facilitated with 16 computers. Due to release of some funds, additional 64 computer labs were established with each lab consisting of 7 computers along with related accessories in educational institutes at secondary and higher secondary level.

During this project, 1088 teachers involved in teaching computer studies, physics, chemistry and maths had received special training on computer education for 40 days. And also 12800 students at secondary and higher secondary levels were imparted training on computer skill and knowledge. All these trainings were promoted to enhance the computer literacy of students as well as to inspire them to study computer science in their future career development and help enhance their employability both within the country and abroad. The Evaluation Sector, IMED has been assigned to conduct the impact evaluation on this project through its own in-house officers along with assistance from a Consultant hired for four months for completion of this report.

1.2 Review of literature: The present Govt of Bangladesh has given utmost emphasis on computer/ICT eduction in the secondary and higher secondary institutions. Recently, one study-entitled "Prospects of Compulsory IT Education at Secondary Level: A Study in Selected Areas of Bangladesh" has been conducted by Bangladesh Academy for Rural Development (BARD), Kotbari, Comilla, July, 2012 by a group of researchers namely Dr. Jillur Rahaman Paul, Kazi Sonia Rahman and Abdullah Al Mamun. The study revealed that there prevailed a positive notion among the stakeholders about introducing compulsory IT education at secondary level. Study showed that students of VI to VIII grades were found to have satisfactory knowledge in ICT, They are found to have shown interest to take up computer studies for their future studies.

However, study also revealed that the students of computer studies had theoretical knowledge but as for practical application of that knowledge was not satisfactory. The study findings showed that the major drawbacks were inadequate fund for computer procurement, related accessories, inadequate practical exercise, lack of skilled teachers/instructors, lack of uninterrupted power supply, lack of well-equipped lab. This study has however, to some extent revealed present functional status of computer facilities and related training skill knowledge of teachers and students as well.

Another study on "Status and Role of ICT in Educational Institution to Build Digital Society in Bangladesh : Perspective of a Divisional City, Khulna" conducted by Anupam Kumar Bairagi and S. A. Ahsan Rajon (Discipline of Computer Science and Engineering, Khulna University, Bangladesh) and Tuhin Roy (Discipline of Sociology, Khulna University, Bangladesh)

This study investigated current status of ICT in educational institutions and educational organization related activities and provided recommendations to build a digital society in Bangladesh in the near future. The history of the use of ICTs in education is relatively short. Before 1979, computers existed primarily in tertiary level educational institutions. Then, in the eighties, microcomputers began to be distributed to schools, and teachers began to grapple with the question of how to use computing for education rather than simply educating about computing. Starting from the mid-nineties, the use of ICTs in schools rapidly expanded in developed nations through curriculum support, networking, the professional development of teachers and software improvements. A growing number of researchers and educators began to develop applications that used hypertext, multimedia and networking to build cognitive and constructive learning environments aimed at improving learning. However, these applications were initially found to be ineffective in attaining better results as compared to learning outcomes achieved through traditional pedagogies and assessed against traditional metrics. This finding may be largely influenced by teachers' and learners' lack of familiarity with ICTs as well as the inappropriateness of the traditional metrics in and of themselves. In recent years, bandwidth has greatly increased and users' familiarity with the Web and ICTs in general has evolved, contributing to an evolution of the Web. Policy based on the prevailing ideas about ICTs has also been a major driver shaping the adoption of ICTs in education. That is why it has become very important to adopt the technology for the betterment of the education system. ICT is a term used to describe a range of equipment (hardware: personal computers, scanners and digital cameras) and computer programs (software: database programs and multimedia programs), and the telecommunications infrastructures (phones, faxes, modems, video conferencing equipment and web cameras) that allow us to access, retrieve, store, organize, manipulate, present, send material and communicate locally, nationally and globally through digital media. ICT are a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information.

1.3 Project Summary/Profile:

i.	Name of the Project	:	"Establishment of Computer Labs & Initiate ICT					
			Training in District level Educational Institutes					
			Project "	Project "				
ii.	Sponsoring	:	ICT Division, Ministry of Post,					
	Ministry/Division		Telecommunication ar	nd li	nformation	n Tech	nology	
			(MOPTIT)					
iii.	Executing Agency	:	Bangladesh Computer Council (BCC)					
iv.	Location of the Project	:	192 Educational Institutions in 64 Districts. *					
v. Es	stimated Cost (in Lac taka):	C	Original La		test Revise	ed		
Tota	al	Т	Tk. 2487.00 T		Γk. 2487.00			
Taka (GOB)		Т	Tk. 2487.00		⁻ k. 2487.00			
vi. Implementation Period		C	Date of Commencement		Date of Completion			
Original		0	01-07-2007		30-06-2010			
1 st Revised		0	01-07-2007 31-12		31-12-20	31-12-2010		

* Although the project targeted to establish 128 computer labs in 128 secondary and higher secondary institutes but due to surplus fund, additional 64 computer labs were also established within the phase of this project amounting the total number to 192 labs.

1.4. Major components of the project:

- i. Establishment of 192 computer labs in secondary and higher secondary schools of 64 districts.
- ii. Special computer training to 1088 teachers and 12800 students.
- iii. Development of Training curriculum for computer studies for SSC and HSC level.
- iv. Development of two multimedia based courseware and distribution to the selected Institutes
- v. 192 labs facilitated with internet connectivity.

1.5 Objectives of the Project:

- i. To establish full fledged computer labs in educational institutions, 192 computer labs will be established in selected institutions from 64 districts for the expansion of computer education/training.
- ii. To provide special training to 1088 teachers of the selected educational institutions on computer studies.
- iii. To provide teachers and students ICT training for the expansions of ICT literacy.
- iv. To develop suitable training curriculum for computer studies for SSC & HSC level.
- v. To develop suitable course/training materials and multimedia based courseware in DVD media for computer studies in SSC & HSC level.
- vi. To establish local cyber centre through providing internet connectivity in the selected institutions
- vii. To promote and inspire computer education in SSC & HSC level by providing computer facilities.

1.6 Objectives of the current Assignment:

- i. To review the target and achievement (physical and financial) status of the project.
- ii. To investigate whether computer labs in selected schools are still being functional/ operational.
- iii. To assess whether the teachers who received training in computer studies are capable to impart such training.
- iv. To assess computer literacy and skills attained by SSC & HSC students.
- v. To examine whether the procurement process (Invitation of tenders, evaluation, approval procedures, contract award etc) of the packages (goods, works and services) under this project was followed as per PPR'08.
- vi. To identify the strengths and weaknesses with respect to overall management and performance of project activities.
- vii. To suggest measures for more sustainable performance and management of project activities.

1.7 Conceptual Framework:

The broad objective of this ICT based training programme was to enhance computer literacy of secondary and higher secondary students, training skill of teachers and provide impetus to the students for higher studies in computer and ICT. The computer lab based ICT training had helped to achieve goal of the project through installation of computer lab based ICT education in the secondary and higher educational institutions in 64 districts of the country. Impact goal of the project was measured through analyzing/assessing the indicators as following.

Input/project activities	Output indicators ->	Outcome indicators ->	Impact indicators	
→				
Construction of	No. Of teachers	Proficiency in the use	Aspiration of higher	
computer lab:	trained	of wordprocessing	studies in computer	
Installation of	No. Of students	Use skill of internet	Employability in	
computer	trained	Use of spreadsheet	computer/ICT	
Multimedia projector	No. Of training	analysis by MS-Excel	related activities.	
LCD Monitor/TV	manuals/DVD	Capability to use	Sustainability of	
monitor	supplied	powerpoint	project activities	
Installation of internet	Status of computer	presentation		
modems	related accessories.	Capability to maintain		
Conduct of training	Use status of internet	and trouble shoot		
Introduction of new	connectivity	problems related to		
pay scale for project		computer lab		
personnel.		Use of computer lab as		
		cyber cafe		

Chapter 2

Methodology of the Evaluation Study

2.1 Study Design: The major target respondents of this study are teachers/computer instructors and the students of secondary and higher secondary level had been trained and facilitated with computer labs to improve their literacy in computer applications. In this study some comparison in the performance of computer use was made with the trained up students with those of the students who had not received training from this project. As observed from the DPP, there are around 1080 teachers and 12800 students had received ICT based computer training from 192 computer labs established in 192 secondary and higher secondary education institutions in 64 districts of Bangladesh. So, for drawing a representative number of students of SSC and HSC from total number of trained up students - the formula below was applied to determine the sample size.

2.2 Sampling size determination:

The sample size was estimated using the following assumptions and statistical formula. In estimating sample size, 95% confidendce level and 5% precision level was used as applicable for similar social researches. 5% error was considered due to non-response.

In our case, the student population is finite (12800 nos.) and the sample size was determined using the following formula.

Z².p.q.l n =	N e²(N-:	1)+Z².p.q	(i)
Where	n	=	Sample size (to be determined)
	Ν	=	Population size
	р	=	Sample proportion,
	q	=	1-P
	Z	=	the value of standard variate at a given confidence level.
For P=0).5 <i>,</i> th	e value d	of n (sample size) was the maximum and the sample yielded at least the
desired	l preci	ision.	
For this	s study	v.	

ue)
ι

Putting these value in equation I,

n = $(1.96)^2 \times 0.5 \times 0.5 \times 12800$ (0.05)² x (12800-1) + (1.96)² x (0.5) (0.5)

= 373

Following the above mentioned formula- 373 was estimated sample size. However, 384 students was taken to keep in conformity with the number of districts and number of educational institutes in each of the selected district and was interviewed to evaluate the impact of ICT based training and similarly, 384 number of students of SSC and HSC from the sampled institutions who were not exposed to any ICT based training. The selection of sampled respondents was conducted through systematic random sampling procedure which was done from the list of students that available in the recorded/registered in the institutions. During data collection, both male and female students of SSC and HSC were proportionately selected as per their numbers. In total (384 trained + 384 non-trained students of secondary and higher secondary institutes were interviewed to make some comparable analysis with those of direct beneficiaries in terms of computer literacy and skill and their aspiration about future career.

2.3 Sampled/Study respondents: The major units of this study were:

- i. 1st unit of study were the students of secondary and higher secondary schools (students of class VI to class XII) who were imparted training on computer through the trained up teahers/computer instructors. And also the students of the same institutions who had not been to exposed to any computer related training.
- ii. 2nd unit of study were the teachers/computer instructors of the secondary and higher secondary schools who were imparted special computer training.
- iii. 3rd unit of study were the head teachers/principals and concerned BCC officials and key persons of the concerned ministry who were consulted/interviewed to elecit their views and comments on implementation of project activities, useablility of training programme/course materials, computer facilities available to the students, accessibility and affordability of lab facilities by the students, overall impression on strengths, weaknesses and recommendations on how to make the program more sustainable and affordable and more useable for the targeted students in upgrading their skills and employability etc.
- iv. 4th unit were the FGD meetings with concerned local level officials of of the district, members of the managment committee of educational institutions, local leaders/representatives and influential members of the community.

2.5 Data collection instruments:

The evaluation team for the present study observed and searched relevant records and documents, reports to review different activities implemented as per target under the project.

- i. A questionnaire relating to trained-up and non-trained students were used to elicit information regarding their notions about the usability this special ICT based training, training facilities, its accessibility, and students aspiration about future career and job opportunities etc.
- ii. A short proficiency test was administered to the computer teachers/ instructors and trained up students and non-trained students as well to assess their skills and knowledge in the use of MS-Word, MS-Excel, Powerpoint and Internet etc.
- iii. One in-depth interview/consultative meetings guideline was used to discuss with the head teachers/principals and computer instructors and BCC high officials, PD of the project, education officers at district levels, to elicit information regarding ICT based facilities, implementation constraints, present functional status of lab facilities, and their suggestions for more sustainable functioning of this computer lab based training for the students in future. A draft in-depth interview guideline is attached at appendix -D
- iv. A guideline for FGD meeting was conducted to gather information from members of school management committee, guardians/mothers of the students, passed out HSC students with computer studies, other influencial members of civil societies and concerned officers on their views and notions about usability of ICT based computer training implementation constraints, present functional status of lab facilities, and their suggestions for more sustainable functioning of this ICT based training for the students in future. A brief guideline is attached at appendix -E
- v. One observation checklist was also applied to review the present status of computer lab facilities and reasons for any discrepancy, constraints now prevailing in those computer lab-facilitated institutes.

2.6 Selection of districts and institutions and corresponding number of respondents:

As per ToR, 25% of the districts of the country were supposed to be sampled for its coverage. Accordingly, 25% districts out of 64 districts -16 districts were sampled randomly. For determining the number of districts from each one of seven divisions of country, 16 districts were selected keeping in proportion to the population size of respective division and also location. And from each one of the district- three to four computer lab facilitated educational institutes were visited and trained up computer teachers/instructors and trained students were interviewed. So, also from the same institutes, non-trained students were also interviewed. On the basis of the number of schools and colleges from selected districts -the following numbers of respondents were selected, interviewed/ discussed.

		•		<u> </u>	-			
Division	No.	Number	No. of	No. of	No. of non-	Indepth	No. of	Total
	of	of	trained up	teachers	trained	interview	FGD	Respon
	distr	institute	students of	trained	students of	with head	/consulta	dents
	icts	S	school and		school and	teacher/pri	tive	
			college		college	ncipal	meetings	
			levels		levels			
Dhaka	3	3x3=9	9x 8=72	9x2=18	9x 8=72	3x3=9	1x10=10	181
CTG	3	3x3=9	9x 8=72	9x2=18	9x 8=72	3x3=9	1x10=10	181
Khulna	2	2x3=6	6x8=48	6x2=12	6x8=48	2x3=6	1x10=10	124
Rajshahi	2	2x3=6	6x8=48	6x2=12	6x8=48	2x3=6	1x10=10	124
Sylhet	2	2x3=6	6x8=48	6x2=12	6x8=48	2x3=6	1x10=10	124
Barisal	2	2x3=6	6x8=48	6x2=12	6x8=48	2x3=6	1x10=10	124
Rangpur	2	2x3=6	6x8=48	6x2=12	6x8=48	2x3=6	1x10=10	124
Total:	16	48	384	96	384	48	70	982

Number of sampled districts and corresponding size of respondents.

2.7 Number of respondents actually interviewed:

On the basis of above mentioned respondents- the evaluation team more or less could reach to all of the respondents as were sampled and planned to be interviewed. The following are the sampled respondents and actually visited/interviewed number of respondents.

Type of respondents	Sampled/planned	Actually available and	% of
interviewed	to be interviewed	interviewed/discussed	achieved
		in the	
Trained students	384	384	100%
(at school and college level)			
Non-trained students	384	384	100%
(at school and college level)			
Trained computer teachers	96	78	81%
Head teachers/principals	26+22=48	26+22=48	100%
Passed out students:	160 (8 to 10 per	126	80%
	district)		
Observation checklist	48 computer labs	48 computer labs	100%
FGD meetings	7	7	100%
Profieciency tests conducted:			
Computer teachers	96	78	81%
Trained students	96	96	100%
Non-trained students	96	96	100%

- 18 computer teachers could not be interviewed or proficiency tests on computer literacy could not be obtained as they were transferred to other institutes far off from the sampled districts.
- So, also was the case of passed out students- the field interviewers could not trace out all of the passed students due to time constraints and non-availability of contact numbers from the institutes.

Division	District	Institutions.
Dhaka	Mymensing	1. Biddamoy Govt. Girls High School
		2. Govt. Commercial Institute
		3. Govt. Laboratory High School
	Gopalgonj	1. Binapani Govt. Girls High School
		2. Govt. Bangobandhu College
		3. Gimadanga Tungipara Govt. High School
	Tangail	1. Zila Sadar High Girls Biddalay
		2. Sakhipur PM Pilot High School
		3. Mowlana Md. Ali Ggovt. College
CTG	Bandarban	1. Bandarban Govt. Girls High School
		2. Bandarban Govt. College
		3. Bandarban Govt. High School
	Cox's Bazar	1. Cox's Bazar Govt. Girls High School
		2. Cox's Bazar Govt. College
		3. Cox's Bazar Preparatory High School
	Laxmipur	1. Laxmipur Adarsho Samad Govt. High School
		2. Laxmipur Govt. College
		3. Dalal Bazar Degree College
Rajshahi	Natore	1. Natore Govt. Girls High School
		2. Nawab Sirajdowla Govt. College
		3. Sinra Domdoma Pilot School & College
		4. Kaligong Bonomali Institutions, Sinra
	Bogra	1. ChowPukoriya Girls High School
		2. Azizul Hoq Govt. College
Khulna	Bagerhat	1. Bagerhat Govt. Girls High School
		2. Govt. PC College
		3. Kandapar NNML Secondary School
	Jessore	1. New Town Girls High School
		2. Jessore Govt. City College
		3. Govt. Boys High School
Sylhet	Sylhet	1. Agrogami Govt. Girls High School
		2. Murari Chand Govt. College
		3. Sylhet Govt. Mahila College
	Sunamgonj	1. Govt. Jublee High School
		2. Sumangonj Govt. College
		3. BanglaBazar Samarunnessa High School, Chhatok,
		Sunamgonj.
Barisal	Patuakhali	1. Govt. Jubelee High School
		2. Patuakhali Govt. College
		3. Hazi Moqtar Ali Mridha Degree College
	Jhalokati	1. Horchandro Govt. Girls High School
		2. Jalokati Govt. College
		3. Jalokati Govt. High School
Rangpur	Gaibandha	1. Gaibandha Govt. Girls High School
		2. Gaibandha Govt. College
		3. Gaibandha Govt. Boys High School
	Kurigram	1. Kurigram Govt. Girls High School
		2. Kurigram Govt. College
		3. Nilaram School and College

2.8 Name of of sampled districts and institutions that were visited during survey works:

2.9 Recruitment of Field Staff and their Training:

A total of 16 Field Investigators having master's degree with proven field survey experiences were recruited by Evaluation Sector, IMED for collecting data from the field. From there eight (8) teams and each team consisting of 2 members/interviewers of which one was assigned the leadership to carry out survey works. Before going to field for data collection- all the members of 8 teams were thoroughly trained for three (3) days on data collection instruments, relevant aspects on project background, evaluation objectives, methodology of the study and related field operation strategies.

2.10 Data collection:

Data were collected by the 8 team which headed by Consultant/Principal Investigator(PI) of the study. Six sets of data collection instruments had been administrerd which are attached in the annepdix.

2.11 Consistency and quality control:

For consistency and validity of field data- cross checking of filled-in schedules were carried out on sample basis by senior officials of Evaluation Sector and major editing of data were completed during the stay in the fields for survey.

2.12 Processing and Analysis of Data:

Data entry formats for survey questionnaires were generated through using Statistical Package for Social Sciences (SPSS) and data entry and statistical procedures were followed and data were processed as per tabulation plan designed by consultant and his associates.

Findings from FGD meetings, consultative meetings and Observation proceedings were utilized for qualitative understanding of project strengths and weaknesses which were more or less manually processed.

2.13 Work Plan for conducting the evaluation activities:

This is a four-month study. Hence, a tight time schedule was followed as far as possible. For far upto the preparation of draft report, the following time table has been meticulously adhered.

SI#	Events/evaluation activities	Time duration		
i.	For collection of basic information- consultant consulted	1 week was spent		
	DPP, PCR and IMED Monitoring Report etc and Consultation			
	with Key Persons in BCC			
ii.	Preparation of Inception report and Finalization of	2 weeks were spent		
	inception report through TC and SC meetings.			
iii.	Field visits for collection of data.	3 weeks were		
		deployed		
iv.	Data entry, data processing and analysis of field findings	4 weeks were		
		utilized		
v.	Submission of draft report for TC and SC meetings	2 weeks was spent		
vi.	Completion of draft final report	3weeks		
vii.	Presentation of final report for the dissemination workshop	1 week		

2.14 Evaluation Team:

The following team members engaged in carrying out the evaluation studies.

Name	Designation
Ms. Salma Mahmud	DG (Evaluation Sector)
Md. Abdul Quiyum	Director (Evaluation Sector)
Md. Mahmudul Hasan	Assistant Director (Evaluation Sector)
Md. Habib Ullah Majumder	Consultant, Secretary (Rtd)

Chapter 3

Implementation Progress

3.1 Implementation of Physical and Financial Status

Implementation of physical and financial status of project major components as observed and reviewed from project completion report (PCR) and IMED monitoring report and pertinent comments are made on views and suggestions provided by IMED and concerned ministry.

In the table below shows the financial and physical targets and actual achievement of various components of the project. Some remarks are made as following.

Item of work (as per PP)	Unit	(Target as per PP)		Actual Progress		Remarks
		Financial	Physical	Financial	Physical (quantity)	
			(quantity)			
1	2	3	4	5	6	7
Manpower	140 Persons	526.237	140	463.43	135 Persons (97%)	
			Persons			
			(Including			
			PD)			
Electricity	For Project	6.00	LS	5.92	100%	
	Office					
Training	1088 Persons	100.00	1088	96.41		
			Persons			
Course Material	For 1088	1.19		1.19	100%	
Development	Persons					
Multimedia Based	1200 CD	16.00		16.00	100%	
Courseware Development						
Miscellaneous	LS	30.16	LS	28.11	LS	
Transport	1 Microbus	19.20	1 Microbus	19.20	1 Microbus (100%)	
Computer Hardware,	For Project	2.26	For Offices	2.26	For Offices For	
Accessories &	Offices (4				Project Offices (4	
Software(Project Office)	PCs, 2				Personal Computer,	
	Printers)				2 Printer)	
					(100%)	
Computer Hardware,	192 Labs	1785.45	192 Labs (1762.65	(100%)	
Accessories &	(2496 set		2496 set			
Software(institution Office)	Personal		Personal			
	Computer,		Computer,			
	320 Laser		320 Laser			
	Printer, 128		Printer, 128			
	Projector, 128		Projector,			
	AC &		128 AC &			
	Furniture)		Furniture)			
Furniture	For Project	0.37	For Project	0.37	For Project Offices	
	Offices (4		Offices			
	Steel Almeria)					ļ
Total		2487.00		2395.54	(100%)	1

 Table - 3.1
 Component-wise Progress (As per latest approved PP)

SL NO.	Objective as per PP	Actual Achievement	Reasons for shortfall, if any
a)	To establish full fledged Computer Labs in Educational Institutions. 192 computer labs will be established in selected institutions from 64 districts for the expansion of computer education/training.	192 Computer Labs has been established in the Secondary and Higher Secondary Educational Institution in 64 districts.	No shortfall or any lapse observed from review PCR and completion report and relevant documents
b)	To Provide special training for 1088 teachers of the selected educational institutions on Computer Studies.	Special Computer training (40 days) for 1088 teachers of the selected educational institutions.	40 days training were received by teachers as designed.
c)	To provide teachers and students ICT training for the expansion of ICT literacy.	1088 teachers & around 12800 students were trained in ICT.	No laspses observed from review of PCR
d)	To develop suitable training curriculum for computer studies for SSC & HSC level.	One Teachers training manual for S.S.C & one for H.S.C developed and distributed among the Trained 1088 Teachers.	No laspses observed from review of PCR
e)	To develop suitable course/training materials and multimedia based courseware in DVD media for Computer studies in SSC & HSC level;	Developed two multimedia based computer teachers training courseware for S.S.C & H.S.C level and distributed 1200 CD's among the selected institutes.	No laspses observed from review of PCR
f)	To establish local cyber centre through providing Internet Connectivity in the selected institutions.	All 192 computer labs are facilitated by internet connectivity to establish local cyber centre.	All labs visited found to be have been facilitated by internet connectivity but not all used as local cyber center
g)	To promote and inspire computer education in SSC & HSC level by providing computer facilities.	192 Computer labs established in 64 districts to promote and inspire Computer education in SSC & HSC level.	Many passed out students enrolled in diploma and higher studies in computer science.

Table-3.2Achievement of Objectives of the Project

3.3 Implementation of Procedures followed for Procurement of Goods and Services

Implementation of rules and procedures followed in the purchase of goods and services related to ICT accessories by BCC/project management/project authority has been reviewed. Below in the table shows the key/major steps major steps which were followed by project authority in the purchase of goods and services. The evaluation team reviewed all relevant papers and documents which were shown by the BCC desk officer/programmer concerned with documentation of necessary papers and documents used in the purchase of goods and services.

In this study, the consultant has been assigned to review whether the goods, services e.g. procedures have been properly purchased as per rules and procedures enacted in the PPR-2008 and distributed to the concerned project offices by suppliers of goods and works etc. The consultant has meticulously reviewed all the relevant documents which were provided by concerned BCC officials in the purchases of PCs and accessories for 32 computer labs in the first round. After consultant of documents and relevant papers the following observations are made by the consultant of the study.

		Review and Observations by
		evaluation team
Ministry/division:	ICT Division, Ministry of	At present Project activities are
	Post,	within the Ministry of Post and
	Telecommunication and	Telecommunication and Information
	Information Technology	Technology
Implementing	Bangladesh Computer	-
agency	Council (BCC)	
Name of the project:	Establishment of	-
	Computer Labs &	
	Initiate ICT Training in	
	District Level	
	Educational Institutes.	
Name of the works	Implementation of	-
as per tender	Computer Training	
notification	Project in 128 Education	
	Institutions in 64	
	Districts.	
Name of the	Daily Star and Pratom	On verification, it was found that the
newspaper where	Alo, Amadar Samayow	tender notification was advertised in
tender has been		news papers which are highly
published/advertised		circulated.
Date of	15 Oct. 2008	
commencement for		
sale of tender		

 Table- 3.3
 Procurement procedures followed for purchase of Goods for Computer labs

docu	ments/paper		
Com time tende	oletion date and for sale of er documents	24 November, 2008 at (3.00 P.M)	More than one month has been allocated for the vendors and suppliers to submit their respective tender documents which has been reasonable.
Last for tende	date and time acceptance of er documents	24 November, 2008 at (3.00 P.M)	Confirmed through official files and documents.
Num recei	ber of tenders ved		
For L Comp acces	ot (1)- Personal outer and ssories.	For Lot (1) - 7 tenders 4 responsive and 3 non- responsive Leads Computers was selected.	Supplier/Vendor of PC and accessories were duly selected.
For Print	Lot (2) Laser ers	For Lot (2) - 5 tenders 4 responsive and 1 non- responsive Smart Technology was selected	Supplier/Vendor of laser printers and accessories were duly selected.
For L Volta	ot (3) UPS and ge Stabilizers	For Lot (3) - 7 tenders 4 responsive Libra Ltd was selected	Supplier/Vendor of UPs and voltage stabilizers were duly selected.
For Multi proje	Lot (4) imedia ectors.	For Lot (4) - 4 tenders 1 responsive Oriental Services (AV) BD.	Supplier/Vendor of multimedia projectors and accessories were duly selected.
For L	ot (5)- Furniture	For Lot (2) - 4 tenders 4 responsive Furnitech Industry Ltd.	Supplier/Vendor of Furniture were duly selected.
For coole	Lot (6)- Air er and Fans	For Lot (2) - 5 tenders 4 responsive and 1 non- responsive Unitech Products BD Ltd was selected	Supplier/Vendor of air cooler and fans were duly selected.
Date Evalu	of Tender ation	8/12/2008	

Committee (TEC)					
 meeting					
Date of preparation	10/12/2008 and	All seemed reasonably well			
of comparative	12/12/2008	articulated			
statement (CS)					
Date of approval of	15/12/2008 and	-			
comparative	18/12/2008				
statement (CS					
Date of approval for	26/12/2008 and	-			
works order	28/12/2008				
Date of offering the	11/1/2009 and				
notification of award	14/1/2009				
Total contract value:	Tk. 507,25,000/=	Contract value inclusive of VAT and			
		other Taxes			
For Lot (1)	Tk. 283,99,800/=				
For Lot (2)	Tk. 14,8800/=				
For Lot (3)	Tk. 15,48,000/=				
For Lot (4)	Tk. 47,00,000/=				
For Lot (5)	Tk. 37,49,696/=				
For Lot (6)	Tk. 40,50,640/=				
Date of signing of	25/1/2009				
contract					
Date of submission	29/2/2009				
of work order					
Date of initiating the	31/02/2009				
works as per work					
order					
Date of completion		All within three weeks as per time			
of works as per		duration mentioned in the			
work order		advertisement.			
Submission date of	30/3/2009 and 7/4/2009	Bills submitted by all the concerned			
final bill and amount		suppliers and vendors computer lab			
of bill		requirement and facilities.			
Date of	7/5/2009 and 30/5/2009	All bills were deducted as per			
disbursement of		prescribed VAT and other tax			
final bill		reduction and had been disbursed			
		within 4 -6 weeks by CGA office and			
		BCC.			

The information related to procurement issues was consulted from documents supplied by Mr. Wahadur Rahman, Programmer of Bangladesh Computer Council (BCC) with prior permission of the Executive Director of BCC.



Picture #1 Computer Lab with multimedia

3.4 Present Implementation Status of Computer labs : Implementation status of various computers and accessories related to computer lab/facilities as observed from the 64 institutes (govt. secondary and higher schools and colleges) of sampled 16 districts are illustrated in the evaluation report. The evaluation team has observation on the present functional status of computer labs related computers and accessories and illustrated the reasons for non-functionality of computer lab related accessories. An observation checklist as well document review were carried out to observe and assess the present status of computers and related accessories in 48 of the sampled/visited institutes. Through this checklist computer and accessories under both the 1st and 2nd phases were checked as per their numbers and specification.

3.4.1 Status of sampled Computer labs established in the 1st phase:

The computer lab established in the 1st phase consisted of 16 desktop PCs, one network switch, 2 numbers of laser printers, 8 number of UPS, 1 number of Voltage stabilizer, 4 numbers of USB internet modem, 1 number of multimedia projector, 8 numbers of computer tables, 1 number of instructor table, 16 number of computer chairs, 1 number of white board, 1 number of installation of air cooler and 4 number of ceiling fans.

	As per	Received in	Present functional status
	PP/procur	reality	
	ement		
	tender	10.00	O that 24 Course has taken to the device of a start
No. of desktop PC	16 PCs	16 PCs	Out of 34 Computer labs visited under the 1"
(1 st phase)			phase - only 6 Computer labs were found to be
			fully functional with 16 PCs. But rest of the 28
			Computer labs (1° phase) had minimum of 2
			PCs and maximum of 11 PCs nonfunctional at present.
			Neither repairs nor replacement could yet be
			ensured within 6 months to 3 years.
Network switch	1 no.	1 no.	Out of 34 sampled institutes- 25 institutes have
			non-functioning LAN facilities due to faulty
			network switch.
Number of laser	2 Nos.	2 Nos.	Out of 34 sampled institutes/Computer labs
printers			under the 1 st phase, 28 Computer labs have
			one laser printer presently functioning out of
			two laser printers.
			Laser printers often remain non functioning due
			to high price of toners for printing. No fund
			could be arranged to either repair or replace
			since 6 months to 3 years of time.
UPS 1000 B	8 Nos.	8 Nos.	Out of 34 sampled institutes/computer labs
			under the 1 st phase were found to have at least
			3-5 of the UPS non-functional out of total 8 nos.
			of UPS supplied for each computer lab. No fund
			could be arranged to either repair or replace
			since 6 months to 3 years of time.
Voltage stabilizer	1 no.	1 no.	Out of 34 sampled institutes/Computer labs
			visited- 18 Computer labs had voltage stabilizer
			found non-functional/inactive. No repair or
			replacement could yet be ensured due to lack of
			fund.
USB internet	4 nos.	4 nos.	Out of 34 sampled institutes under the 1 st phase
modem			have minimum of one and maximum of two
			internet modems non-functional out of 4 nos.
			of modem supplied for each computer lab.

 Table 3.4
 Status of sampled computer labs in the (1st phase)

Multimedia	1 no.	1 no.	Out of all 34 sampled institutes/computer lab
project			under the first phase- more than 50% of the
			institutes have non-functional projector
Computer tables	8 Nos.	8 Nos.	All of the 34 sampled institutes under the first
			internet modems out of 4 nos of modem
			supplied for each computer lab
			It is reasonably not understandable why 8 nos of computer tables accommodate 16 PCs.
Instructor table	1 No	1 No	In all of the 34 computer labs- instructor table found OK
Computer chair	17 Nos.	17 Nos.	In all of the 34 computer labs - computer chairs were found intact condition.
White board	1 no.	1 no.	Out of 34 Computer labs- 3 Computer labs were not observed to be equipped with white board.
Installation of air	1	1	Out of 34 sampled institutes under the 1 st phase
cooler			- only 30 of the Computer labs were equipped
			with air cooler but out of 30 air coolers- 8 air
			coolers were found non- functional. No budget
			provision to repair or replace those non-
			functional
Ceiling fan	4	4	Out of 34 Computer labs – only 6 Computer labs
			had one ceiling fan non functional at present.

3.4.2 Status of sampled 14 Computer labs established in the 2nd phase : The computer labs established in the 2nd phase consisted of 7 desktop PCs, one network switch, 1 no. of laser printers, 4 nos. of UPS, 1 number of Voltage stabilizer, 2 numbers of USB internet modem, 3 numbers of computer tables (otobi), 1 number of instructor table, 7 numbers of computer chairs, 1 number of white board. From observation by members of evaluation team, out of 14 sampled Computer labs installed in the second phase 4 computer labs are fully functioning. Rest of the 10 Computer labs under the 2nd phase has one or two computers which are currently non-functioning.

	Ac por	Docoi	Comments
	AS per	Necei	Comments
	PP/proc	ved	
	uremen	in	
	t	realit	
	tender/	У	
	per Lab		
No. of desktop PC (2 nd phase)	7 PCs	7	10 out of 14 computer labs- a minimum of 1 and
			maximum of 2 computers are non-functioning
			currently.
Wide screen LCD Monitor	1		Out of 14 computer labs under 2 nd phase only 8
			Computer labs are found to be installed with LCD
			monitors.
Network Switch (16 port)	1		Out of 14 Computer labs- 10 computer labs have
	-		network switch functioning
Number of laser printers	1 No		Out of 14 Computer Jabs- 2, computer Jabs had
	TNO		pon functioning laser printer
	4 Nie e		Nort of 14 Computer lake had minimum of 1 and
0PS 1000 B	4 NOS.		Wost of 14 Computer labs had minimum of 1 and
			maximum of 2 UPS are found non-functional
			during survey.
Voltage stabilizer	1 no.		In 6 computer lab out of 14 computer labs under
			2 nd phase have non-functioning voltage stabilizer
USB internet modem	1 no.		In 3 computer labs out of 14 computer labs
			under 2 nd phase have non-functioning USB
			internet modem. No fund available to repair or
			get it replaced.
Computer tables	3 Nos.		All of 14 Computer labs have 3 computer tables
			in tact.
Instructor table	1 No		All of 14 Computer labs are found to have one
	1110		instructor table in good condition
Computer chair	7 Noc		All of 14 Computer Jaks have all of its 7 computer
	7 1005.		tables in fairly good condition
white board	1		All of 14 Computer labs have its white board
			found to be usable

Table 3.5 Status of sampled Computer labs in the (2nd phase)

3.4.3 Comments and Reviews on all overall status of 48 Computer labs:

Comments and views of the field investigators of the evaluation team for the study on 1st phase of computers and accessories that were supplied to the sampled institutes are as following:

Status of PCs: 38 out of 48 of the sampled institutes that were visited were found to have minimum of 1 and maximum of 10 desk top PCs not functioning at the present. And no effective measures could have been taken to repair or replace those PCs due to lack of adequate fund provision for the head of institutes to trouble shoot problematic PCs. And also there weren't enough supervisory supports and timely warranty services as was expected from the vendors and BCC authority.

Faulty network switch: Out of 48 sampled institutes- 35 institutes had non-functioning LAN facilities due to faulty network switch. Due to absence of this non-functional LAN facilities-transferring of data and information between students and teachers and institutes are hampered.

Status of laser printers: Out of 34 sampled institutes visited in the 1st phase 22 institutes were observed to have one single laser printer functioning out of two supplied for each institute. In the second phase out of 14 Computer labs- 2 Computer labs had non functioning laser printer. Most of them became non-functional due to lack of proper tonners, low voltage of power supply, faulty UPS etc. No provision of funds to buy highly expensive tonners and trouble shoot the mechanical faults as well. Some of the students also expressed their frustration for lack of comfortability and non-accessibility to use printers for printing of their needed assignment.

Status of UPS 1000 B: Out of 34 sample institutes (1st phase) each institute had at least one to two UPS currently found non-functioning. There was no fund or personal initiative from the head of the institutes to get UPS repaired or replaced. At the present two to three UPS 1000 B are supporting power supply and controlling voltage fluctuations which are not virtually adequate for 16 PCs and 2 laser printers in case of 1st phase. In case of 14 institutes (2nd phase)- the UPS supplied were found to be well functioning. Due to shortage of required number of UPS – low voltage of power supply and frequent load shedding of power in the district level are likely to have reduced the durability and proper functioning of hard disks especially. So, some fund provision should be ensured from the concerned office to repair or trouble shoot the non-functioning UPS.

USB internet modem: USB internet modem is very essential for the getting internet connectivity with the computers. Most/almost of the 48 sampled institutes were found to have one to three non-functioning internet modems. Most of these modems have become outdated, overused and slow. In 34 institutes (1st phase) had two to three of the modems out of 4 modems were found to be non-functional. It was found in some of the institutes (26 nos. of institutes) the only functional modem is facilitated with the head masters/principal's office where the students could not easy accessibility or comfortability. Most of the modems were left unused because of its very low speed and outdated and its excessive cost to recharge the modem which usually could not be provided by the school/college authority nor could any fund be generated through donation from the students. So, teachers as well students feel that the computer labs should be facilitated with LAN/WIFI or routers which would be more cost-effective.

Installation of air cooler: Out of 48 sampled institutes- only 28 institutes had air cooler installed and most of these 28 institutes were found to have its air cooler non-functioning. As such due to lack of air cooler, the computer labs packed with 16 computers, printers and other accessories was found to be suffocating.

3.4.4 Present Functional Status of PCs and related accessories in the 48 Computer labs :

The table below shows that out of 48 Computer labs visited – 34 institutes received 16 PCs of which only 6 institutes have all PCs received are well functioning while out of other 14 institutes which have received 7 PCs in the 2^{nd} phase only 4 institutes have all 7 PCs received are functioning well at the present. Most of the 28 Computer labs which have received PCs in the first phase have minimum of 2 PCs and maximum of 10 PCs are non-functioning at the present. So, also in the case of 10 institutes which have received 7 PCs in the 2^{nd} phase of the project have minimum of 1 PC and maximum of 4 PCs are not functioning at the present. The scenario looks depressing for continued sustainability of the computer lab based training programme.

District	Institutions.	No. of Comp uter receiv ed	Present status of Computer labs	Nu mbe r of Non func tion al PCs	No. of non- funct ionin g print ers	No. of non - func tion al USB mod em	No. of non - func tioni ng proj ecto r/LC D mon itor	No. of non- funct ionin g UPS
Mymensing	Biddamoy Govt. Girls High School	16	10 PCs are functioning	6	1	3	Ok	3
	Govt. Commercial Institute	16	15 PCs are functioning	1	1	1	Ok	3
	Govt. Laboratory High School	7	6 PC are functioning	1	0	1	Ok	1
Gopalgonj	Binapani Govt. Girls High School	16	7 PCs are functioning	9	1	2	Ok	4
	Govt. Bangobandhu College	16	13 PCs are functioning	3	1	2	Ok	3
	Gimadanga Tungipara Govt. High School	7	3 PCs are functioning	4	0	1	Ok	1
Tangail	Zila Sadar High Girls Biddalay	16	All the 16 PCs are functioning	0	0	2	Ok	2
	Sakhipur PM Pilot High School	16	6 PCs are functioning	10	1	3	Ok	5
	Govt. MM college, Kagmari	16	13 PCs are functioning	3	1	3	Ok	3
Bandarban	Bandarban Govt. Girls High School	16	12 PCs are functioning	4	1	2	Ok	3
	Bandarban Govt. College	16	8 PCs are	8	1	3	Ok	2

Table 3.6 Present status of PCs in the Computer labs visited in the sampled districts:

			functioning						
	Bandarban Govt. High	7	5 PCs are	2	0	1	Ok	1	
	School		functioning						
Cox's Bazar	Cox's Bazar Govt. Girls	16	All the 16 PCs are	0	0	2	Ok	1	
	High School		functioning						
	Cox's Bazar Govt.	16	7 PCs are	9	1	1	Ok	3	
	College		functioning						
	Cox's Bazar Preparatory	7	2 PCs are	5	0	1	Ok	0	
	High School		functioning						
Laxmipur	Laxmipur Adarsho	16	7 PCs are	9	1	1	Ok	5	
	Samad Govt. High		functioning						
	School		C C						
	Laxmipur Govt. College	16	All the 16 PCs are	0	0	2	Ok	1	
			functioning						
	Dalal Bazar Degree	7	4 PCs are	3	1	1	Ok	1	
	College		functioning						
Natore	Natore Govt. Girls High	16	10 PCs are	6	1	2	Ok	2	
	School		functioning						
	Nawab Sirajdowla Govt.	16	12 PCs are	4	1	2	Ok	3	
	College		functioning						
	Sinra Domdoma Pilot	16	10 PCs are	6	1	3	Ok	2	
	School & College		functioning						
	Kaligong Bonomali	7	All the 7 PCs are	0	0	0	Ok	0	
	Institutions, Sinra		functioning						
Bogra	ChowPukoriya Girls High	7	All the 7 PCs are	0	0	1	Ok	0	
_	School		functioning						
	Azizul Hoq Govt. College	16	10 PCs are	6	1	3	Ok	4	
			functioning						
Bagerhat	Bagerhat Govt. Girls	16	11 PCs are	5	1	2	Ok	3	
	High School		functioning						
	Govt. PC College	16	13 PCs are	3	1	3	Ok	2	
			functioning						
	Kandapar NNML	16	9 PCs are	7	1	3	Ok	3	
	Secondary School		functioning						
Jessore	New Town Girls High	7	All the 7 PCs are	0	0	1	Ok	0	
	School		functioning						
	Jessore Collegiate	16	11 PCs are	5	1	2	Ok	3	
	School		functioning						
	Jessore Govt. City	16	All the 16 PCs	0	0	2	Ok	3	
	College		are functioning						
Sylhet	Agrogami Govt. Girls	16	All the 16 PCs are	0	0	2	Ok	3	
	High School		functioning						
	Murari Chand Govt.	16	15 PCs are	1	0	3	Ok	2	
	College		functioning						
	Sylhet Govt. Mahila	7	All the 7 PCs are	0	0	0	Ok	1	
	College		functioning						
Sunamgonj	Govt. Jublee High School	16	14 PCs are	2	0	2	Ok	3	
			functioning						
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	Sumangonj Govt.	16	14 PCs	are	2	1	1	Ok	2
	College		functioning		_		_		-
	BanglaBazar	7	5 PCs	are	2	0	2	Ok	1
	Samarunnessa High		functioning						
	School, Chnatok	10	10 50				-		-
Patuakhali	Govt. Jubelee High	16	12 PCs	are	4	1	2	OK	2
	Batuakhali Covt. Collogo	16		aro	7	1	2		2
	Patuakhan Govt. College	10	9 PCS	are	/	T	3	UK	5
		7			4	0	1		2
	Hazi Moqtar Ali Miridha	/	3 PCS	are	4	0	T	Ок	2
	Degree College		functioning						_
Jhalokati	Horchandro Govt. Girls	16	5 PCs	are	11	1	4	Ok	5
	High School		functioning						
	Jalokati Govt. College	16	8 PCs	are	8	1	3	Ok	3
			functioning						
	Jalokati Govt. High	7	5 PCs	are	2	1	1	Ok	1
	School		functioning						
Gaibandha	Gaibandha Govt. Girls	16	10 PCs	are	6	1	2	Ok	2
	High School		functioning						
	Gaibandha Govt. College	16	10 PCs	are	6	0	3	Ok	3
			functioning						
	Gaibandha Govt. Boys	7	All the 7 PCs	are	0	0	0	Ok	1
	High School		functioning						
Kurigram	Kurigram Govt. Girls	16	13 PCs	are	3	0	3	Ok	2
	High School		functioning						
	Kurigram Govt. College	16	14 PCs	are	2	1	1	Ok	2
			functioning						
	Nilaram School and	7	3 PCs	are	4	0	1	Ok	1
	College		functioning						

3.4.5 Percentage of non functional PCs and related accessories in 48 Computer labs The table below shows that out of 642 PCs supplied in the sampled 48 computer labs, almost 28.5% of PCs are at present not functioning, followed by 32.03% of the printers out of total 82 supplied printers are currently not functioning. So also, in the case of 164 USB modems supplied so far in the 48 computer labs, 54.8% of them are not functioning at present and in case of 328 UPS so far supplied only 32.3 % of them are non-functioning at present. All the projectors/LCD monitors in the 48 sampled computer labs are functioning at present.

Table	3.7	Percentage of Non	functional P	Cs, Printers,	Modems	and UPS in	n the 4	8 computer	labs
visite	d.								
				<u> </u>					

	Type of accessories in the Lab	Total no of	Total no.	% of	Total no.	% of non-
		accessories	functional	functional	of non-	functional
		supplied in	items	items.	functional	items.
		computer			items	
		labs				
i.	PCs	642	459	71.50	183	28.50
ii.	Printers	82	55	67.07	27	32.03
iii.	Modems	164	74	45.12	90	54.88
iv.	Projector/wide LCD monitors	48	48	100.0	-	-
۷.	UPS	328	222	67.68	106	32.32

Chapter 4

Survey Findings

4.1 Findings from Students survey:

4.1.1 Socio-Economic Profile of the Trained and Non-trained Students

The table below shows the percentage of male and female interviewed, percentage of mean ages of both male and female students and number of students at school level and college level interviewed. The evaluation team followed same number of schools and college students to be interviewed for both trained and non trained students.

	Socio-Economic Profile:	Trained Students (n=384)		Non- T (n=384)	Students		
		Num	%	Mean	Numbe	%	Mean
		ber			r		
1.	Sex of the respondents:						
	Male	214	55.7		214	55.7	
	Female	170	44.3		170	44.3	
2.	Mean age of respondents:						
	Male			19.2 yrs			19.18 yrs
	Female			18.9 yrs			19.05 yrs
3.	Classes in which studying:						
	Class – VII-XI	208	54.2		208	54.2	
	Class XI-XII	176	45.8		176	45.8	

Table 4.1Socio-Economic Profile of the Trained and Non-trained Students

4.1.2 Educational Status of Father and Mother of Trained and Non-Trained Students

The table 4.2 in the following page shows the education level of both father and mothers of trained and non-trained students who were interviewed. It is observed from the table that 16% of father and 17.4% of the mothers of trained students had virtually no formal schooling. They are either illiterate or some of them could read and write to some extent. It may also been seen that 6.5% of the fathers have one to five years of schooling while 20.1 % of the mothers had at least one to five years of schooling. In the case of VI-X passed classes- 11.0% of fathers and 18.5% of mothers had completed schooling from class 6 to class 10 while 22.4 % of the father and 24.5% of the mothers had passed SSC level followed by 20.8% of the father and 11.7% of mothers had passed HSC level. Again as for graduation degree- 17.7 % of the fathers and 7.0% of the mothers had masters' degree. From, the table it is clearly observed education level of fathers is higher than those of their spouse from HSC level and above. But in case of below HSC level higher percentages of mothers are found to have passed primary and

secondary level schooling. The similar pattern may also be seen in case of parents' level of education of non-trained students. The table thus indicates as for education level- there is no marked difference between educational attainment of parents of both trained and non-trained students.

	Parents E	Parents Educational Status o				Parents Educational Status of			
	trained st	udent	5		Non-trained students				
	Father		Mother		Father		Mother		
	Number	%	Number	%	Number	%	Number	%	
Never attended	62	16.1	67	17.4	58		72		
school						15.10		18.75	
(1-5) class	25	6.5	77	20.1	33		69		
passed						8.59		17.97	
(6-10) Class	42	10.9	71	18.5	55		77		
Passed						14.32		20.05	
S.S.C.	86	22.4	94	24.5	81		91		
Class/Alim									
passed						21.09		23.70	
H.S.C	80	20.8	45	11.7	79		42		
class/Dakhil									
passed						20.57		10.94	
Graduate/Fazil	68	17.7	27	7.0	61		27		
passed +						15.89		7.03	
Masters+	21	5.5	3	.8	17	4.43	6	1.56	

Table 4.2 Educational Status of Father and Mother of Trained and Non-Trained Stud

4.1.3 Occupational Status of the Parents Trained and Non-Trained Students

The table 4.3 below shows occupational status of parents of both trained and non trained students. It may be observed that almost 17% of the fathers are involved in agriculture, followed by 4.4% in fishing, 29.7% in service , 42.0% in business and as few as 7.0% of them are unemployed due to disability and retirement while in case of non-trained students- it is observed that 19.3% of their fathers are engaged in agriculture, followed by 1.8% in fishing, 35.4% in service, 38.0% in business and 5.5% are unemployed. It is also observed that most of the mothers 88.4% and 93.0% respectively of the trained and non-trained students are housewives followed by 8.3% of the mothers of trained students are known to be working, 4.4of the mothers are doing business while those of 4.4 of the mothers of non-trained students are doing service followed by only .8% doing business. However, the table indicates there is not any marked difference in the occupational status of parents of both trained and non trained students except for services and business etc.

	Parents	occupat	ion of tr	ained	Parents	occup	ation of	non-
	students	students				tudent	S	
	Father		Mother	Father		Mothe		
	Number	%	Number	%	Number	%	Number	%
Agriculture/home	65		3	.8	74	19.3	5	1.3
gardening		16.93						
Fishing	17	4.43	5	1.3	7	1.8	1	.3
Service	114	29.69	32	8.3	136	35.4	17	4.4
Business	161	41.93	17	4.4	146	38.0	3	.8
Unemployed	27	7.03	-	-	21	5.5	-	-
Housewife			324	84.4			357	93.0

Table 4.3Occupational Status of the Parents Trained and Non-Trained Students

4.1.4 Monthly Family Income of both Trained and Non-trained Students

The table 4.4 below shows the pattern of household income of both trained and non-trained students. The average household income level both trained and non-trained students estimated to be tk. 16755/= and tk. 15230/= respectively. As may be seen in the table below-35.4% of the household has average income earning of tk. 10000 or less followed by 41.15% of the household has income earning within the bracket of tk. 10001 to tk. 20000 followed by 13.8% of household earning within the bracket of tk. 20001 to tk. 30000. As few as only 2.8% of the household has income earning within tk. 30001 to tk. 40000 while 4.7% of the household has income earning within tk. 30001 to tk. 50000 and as few as 6 (1.6%) of the household has income earning tk. 50000 and plus. So, also the household income earning of the non-trained students follow almost similar pattern as may be observed in the table below. The table indicates that more than one third of the household of both trained and non trained students have income earning, but for majority of the parents of the students are supposed to be middle income earning families.

Financial Status	Family Income of Trained Students (n=384)			Family Income of Non- Trained Students (n=384)		
	Number	%	Mean	Numbe r	%	Mean
Mean Monthly HH income	-	-	Tk. 16755/ =	-	-	Tk. 15230/=
>=10000	136	35.42		143	37.2 4	
10001-20000	158	41.15		171	44.5 3	
20001-30000	53	13.80		42	10.9 4	
30001-40000	11	2.86		13	3.39	
40001-50000	18	4.69		11	2.86	
50001 and above	6	1.56		4	1.04	

 Table 4.4
 Monthly Family Income of both Trained and Non-trained Students

Picture #2 Students Training at computer Lab



4.1.5 Mean days of training and mean number of students per computer

The table 4.5 shows the duration of training, density of students per computer and numbers of hours of training or exposure to the computer per month are essential to assess the effective use of training. The table shows that the students were trained on average of 44.0 hours although they were supposed to be trained for 3 months which is equivalent 65 days. But, the students stated that on average of 20-25 days are lost due to low shedding of electricity, absence of instructors, non-functioning of computers etc. The students also stated that two persons per computer is not an effective way of learning computer skill and their exposure to computer on an average was less than one hour which is very scanty for effective and thorough learning of computer skill. This use hour is meant only for during training period and there was virtually no time allocated for practice after the training period.

Table 4.5	Mean days of training and mean	number of students	per computer
-----------	--------------------------------	--------------------	--------------

		Mean
٠	Mean number of days students were trained	43.5 days
•	Mean number of students allowed for one computer	2 persons /computer
•	Mean number of hours each student was allowed to use internet.	Less than one hour per day/ 18 hours /month

4.1.6 Duration of months the students are imparted the training

The table below shows that as many as 26.3% of the students said that they were trained less or equal to one month only, but majority of the trained students (46.6 %) stated that they were trained for two months only followed one fourth of the students said that they were trained for 3 months only and as few as 6 (1.6%) said that they were trained for more than 3 months. The evaluation team posed to them about the reasons for not getting training less than duration of 3 months which they were supposed to. Most of the students responded saying that absence of trainers, non-functioning of PCs, load shedding, disturbances in electrical connections etc. The other reason was that in some of the institututes –students had customized training which depended much on the need of the students. However, when enquired, the teachers/assistant programmers stated that duration of training in some institutes were at times customized as per need of students and training contents and time constraints etc.

Number of months trained	N=384		
	Numbers	%	
 Less or equal to one month of training 	101	26.3	
 Two months of training 	179	46.6	
Three months of training	98	25.5	
 Four months + of training 	6	1.6	

 Table 4.6
 Duration of months the students are imparted the training

4.1.7 Receipt and Use Status of computer lab based Training by trained students

The table 4.7 below shows the receipt status of training and use status of training in practical/day to day life. When asked about the training contents- most of the students stated almost 100% of them were trained on word processing on English, 91% of them stated to have received training on Bangla word processing, followed by 52.6% to have received training on spreadsheet through MS-Excel and almost 50% have received training on presentation technique through use of PowerPoint, 61.7% had training on the use of internet for accessing exam results followed by 36.5% had learnet online application skill for admission etc. The students were also asked whether they could apply their skill which they had been taught in the training classes. As many as (83.1%) of the students could somehow apply their Bangla word processing skill in practical use, followed by (90.4%) of the students could apply their English word processing skill in day to day assignment. But in case of use of MS-Excel and PowerPoint one third of the trained students could apply their skill in day to day assignment. This indicates that their learning in MS-Excel and PowerPoint not very fruitfully used by most of the students. Similar trend is also observed in case of their skill in the use of internet, online admission skill, browsing international news etc. In fact, most of the students who do have computer and internet access at home, they had more practice in computer as such they were more comfortable to use their training skill. So, it is perceived that learning skills of the students could not be well harnessed due to lack of practice after the completion of training and nonexposure to computers and internet for the students who had no PCs at home.

Training contents	Computer l	ab based tra	ining		
	Receipt of t	training	Use status of training		
	Number	%	Number	%	
Word processing in Bangla	349	90.9	319	83.1	
Word-processing in English	382	99.5	347	90.4	
Spreadsheet analysis through MS Excel	202	52.6	133	34.6	
Presentation of Graphics/Diagrams	190	49.5	127	33.1	
through PowerPoint					
Access to various information through	237	61.7	120	31.3	
internet browsing (e.g. exam results)					
Online application skill for admission	140	36.5	116	30.2	
Contact with friends/relatives through	70	18.3	166	43.2	
face book					
News of national and international	30	7.9	150	39.1	
importance and breaking news					

Table4.7Receipt and Use Status of computer lab based Training by trained students.

(Multiple responses)

4.1.8 Receipt of practical training through computer lab

The table 4.8 below shows that as few as 9.0 % of the students did not receive any practical training after the completion of theoretical course. The reason behind was that one of the sampled institutes had received PCs and accessories but installed in the computer lab after long

time. But the concerned teachers were not shown about the functioning of the PCs, Modems, and Printers etc. This is an indication about lack of accountability from computer vendors towards their clients.

Table						
	Receipt of practical training through computer	Number	%			
	lab:					
	• Yes	350	91.1			
	• No	34	8.9			

Table 4.8Receipt of practical training through computer lab:

4.1.9 Practical training received by the students:

The table shows that 24.0% of the students stated that they were taught at times through multimedia project, followed by 37.1% of the students told about practical demonstration of graphs and PowerPoint presentations and most of the students (90%) stated about training on word processing in Bangla and English, followed by 17.0% of the students told about their practical demos on operation of hardware and software installation. This is much evidenced by performance of the trained students in proficiency tests where most of the students could not do well in practical use of computers applications and packages.

Table	Table 4.5 Type of practical training received by the students				
	Type o	of practical training	Number	%	
	•	Taught through multimedia projector	84	24.0	
	•	Taught presentation of graphs and text through	130	37.1	
		PowerPoint			
	•	Taught MS word in Bangla and English	314	89.7	
	•	Taught computer hardware/software operation	59	16.9	

 Table 4.9
 Type of practical training received by the students

(Multiple response)

4.1.10 Satisfaction of the trained students over practical class

The table below shows 90.0% of the trained students were happy/satisfied about their practical training that were imparted by the instructors/teachers. However, the students who were dissatisfied about practical training stated some of the reasons –such as very limited hours of training in the Computer labs, no scope for practice after the training is completed, lack of proper efforts/motivation by teachers to help students understand clearly and also practical classes are resumed before theoretical lessons are clearly understood.

10010	Table 1120 Miletici Satisfica Mili practical training tinough compater last				
	Status of satisfaction	Number	%		
	Satisfied	345	89.8		
	Not satisfied	39	10.2		

 Table 4.10
 Whether satisfied with practical training through computer lab:

4.1.11 Maintenance of Computer and its accessories:

Maintenance and repair works of computer through proper trouble shooting skill is essential to keep computer and all its needed accessories updated, functional and sustainable. The table below shows that majority of the students (70%) have the notion that computers and its accessories are maintained and replaced regularly. But as many 30% of the students felt that maintenance of computer hardware, software were not ensured nor was the case of replacement of faulty and damaged parts of PCs and other accessories. Due to lack of this irregular and long time lack of maintenance, some of the computers, printers become nonusable and were almost damaged.

Table	e 4.11	Regular maintenance and	replacement of	computer /ICT	inputs and acces	sories
						-

Regula	ar maintenance and replacement	Number	%
•	Yes	270	70.1
•	No	114	29.9

4.1.12 Reasons for non- replacement and repairs of computer and accessories

The table below shows that half of the students felt that there has been no permission to trouble shoot some of minor hardware and software problems with the computer, or purchase some less expensive spare parts to repair or trouble shoot any minor problems for lack of verbal or written office order from the BCC/ministry of education or any other district level administration to solve any computer lab related problems with their own skill, fund and other resources. Some as many as half of them stated about lack of adequate fund from appropriate authority and 30% of them said about no scope for repair and replacement after the termination of warranty period.

Table 4.12	Reasons for non- re	placement and re	pairs of compute	r and accessories.

Reasons for non- replacement and repair: (n=114)			%
i.	No permission to trouble shoot the minor problems	56	49.1
	for fear of breaking warranty provision/condition		
ii.	Lack of adequate fund release from appropriate	59	51.0
	authority.		
iii.	No scope for repair and replacement after the	33	29.5
	termination of warranty period		

(Multiple response)

4.1.13 Use status of internet by the trained up students

The table below provides that (60.1%) of the students was not allowed to use internet specially at the school level. Those who had access to internet- were allowed on average of 18 hours per month which is equivalent to less than 40 minutes in each training session. The reasons as stated by teachers were that some of them wasted a lot of time using internet/face book, due to faulty function of modems, students of minor age had tendency to peep into obscene picture from internet- so for these sorts of problems school authority did not encourage students at school level to use the internet.

Use status of internet	Number	%	Mean hrs
• Yes	231	60.1	
• No	153	39.8	
If yes, how many hours allowed to use internet	-	-	18 hours
per month			/month

Table 4.13Use status of internet by the trained up students

Receipt of any other training besides the computer lab based training:

The table 4.13 below shows that some of the students at school and college level had computer based training from other sources than their own institutes. Of the students some (24.0%) stated to have training in computer application from other sources on own interests.

Table 4.13	Receipt of any other to	raining besides the o	computer lab ba	sed training

· · · · ·		0
Receipt of any other training	Number	%
• Yes	92	24.0
• No	292	76.0

4.1.14 Computer and internet facilities at the household

The table below shows that 37.5% of the students had the opportunity to have personal computers at their residents and of those who had computers at home, 56% of them had internet connection and again of those who had computer connected with internet- 95.1% of them were allowed to use internet and on an average they could use 30 hours per month. However, it was observed that parents did not have any reservation in the use of internet by their children who were at the college level.

	Yes		No		Mean
	Number	%	Number	%	
Possession of own computer at	144	37.5	240	62.5	
home (n=384)					
Internet connectivity at the	81	56.3	63	43.8	
household (n=144)					
Permission of guardian of students	78	95.1	4	4.9	
(n=82)					
If, permission is ensured, how	-	-	-	-	30 hours
much time allowed for internet (
per month)					

 Table 4.14
 Computer and internet facilities at the household

4.1.15 Students' perception about teachers' skill and sincerity about teaching:

The table below reflects the students' dispassionate observation regarding their teachers' capacity and willingness to teach computer both theoretical and practical. However, most of the students have upheld a positive notion about their individual teachers work ability and skill to impart computer learning and ICT knowledge. The table below shows that most of the students (78.6%) believed that the teachers were careful about training the students, followed by number of students (60.4%) stated that teachers provided them with updated information about computer skills and changes and 94.0% of the students expressed that the teachers had showed them practical demonstration on computer related skills, tools and techniques. As many as 67.2% of the students also stated that the teachers often made assessment of the students what they had learnt from the training session and 40.0% of the students stated that they were given lessons on basis of their respective interest and knacks and (33.6%) of the students also said that the teachers provided extra time for the students who were lagging behind. And more than 55.0% of the students felt that the teachers had informed to their head of the institutions any time computer lab was found problematic or non-functioning. In fact, the statements from the students indicate that the students had good notions about their teachers overall performance and sincerity.

Number	%
302	78.6
232	60.4
361	94.0
258	67.2
153	39.8
126	33.6
122	31.8
210	55.2
	Number 302 232 361 258 153 126 122 210

 Table 4.15
 Students' notions about training skill and capability of trained teachers

4.1.16 Benefits/opportunities accrued to the students

The table below shows the information about benefits the students accrued from computer lab based training they received from the teachers. Majority of the students (67.4%) stated that they had gathered a lot of useful information and unknown things from computer learning skill, followed by some 54.2% of the students talked about speed and pleasure of working had enhanced due to computer skill. 41.0 % of the students also stated about their word processing skill in English and Bangla helped them write their assignment. 27.1% of the students stated about their benefit in becoming skilled in accounting works in MS-excel and 23.1% felt that the theoretical concept/knowledge became easier to understand due to practical use of computers. So also 14.0% of the students expressed about their capability to prepare presentation works more easily with PowerPoint application. And as few as 13.4% of the students stated that training session has somehow boosted them to study for higher studies in computer technology in future.

Benefits and opportunities accrued/derived			%
i.	Useful information and unknown things have been	259	
	discovered		67.4
ii. Speed and pleasure of working has increased		208	54.2
iii. Learnt both Bangla and English word-processing works		157	40.9
iv.	Can do small accounting works easily with MS-Excel	104	27.1
v.	Theoretical knowledge has become easier to understand		
	due to live use of computers	89	23.2
vi.	Can easily prepare presentation works with PowerPoint		
	tools and techniques	54	14.1
vii.	Thirst for higher studies in computer has increased	51	13.4

Table 4.16Benefits/opportunities accrued to the students due to training by teachers.

4.1.17 Weaknesses/problems embedded in the training programme

The table below depicts some of the major weaknesses the students felt were persisting in the ICT based training programme. Weaknesses that were stated by the students are that 37.8% of the students felt that non-functioning of PCs , the existing numbers of computers not in proportionate to the numbers of students are a major problem. As many as 28.4% of the students remarked that lack of permanent skilled trainers and teachers also posed a difficulty in training programme, followed by more than 19.5% of the students felt that due to lack of fund, prompt repair and replacement and other maintenance works are hampered. Again, some of 17.4 of the students stated that computer lab lagged updating of PCs, modems and operating systems, followed by 15.1% of the students felt problem of load shedding and lack of regular supply of power posed much hindrance in smooth running of training programme. As few as 11.7% and 9.1% of the students also remarked on teachers lack of motivation in teaching the students and also lack of affordability of the poor students to learn computer skill on payment.

_	· · · · · ·		_
Weakr	nesses and difficulties	Number	%
i.	Lack of numbers of computers and related accessories	145	37.8
ii.	Lack of permanent and skilled trainers and teachers	109	28.4
iii.	Lack of fund for regular/quicker repair and		
	replacement of computer and accessories	75	19.5
iv.	Lack of up gradation of outmoded computers and	67	
	operating systems.		17.4
٧.	Problem of load shedding and lack of regular supply of	58	
	electricity		15.1
vi.	Lack of supportive monitoring from BCC authority and	48	
	education dep		12.5
vii.	Lack of teachers motivation to teaching the students	45	11.7
viii.	Lack of affordable training for the poor students	35	9.1
ix.	Not any unsolved or unmanageable problems observed	32	8.3

Table 4.17Weaknesses/problems embedded in the training programme as perceived by
the trained students.

4.1.18 Suggestions for improved performance of computer lab based education:

The table below shows some of pragmatic solutions/suggestions made by the students for more effective management of training programme and more comfortable learning enviorment for skill development by the students. 29.0% of the students felt that due to too much overloaded with other academic works besides computer training, the teachers can not make aequate amount of time to train the students with care and patience. As such the students suggested that there should be more than two teachers for computer studies and training. 18.2% of tht students also felt that in depth learning – long term and refreshers training need to be conducted at times. Some as many as 17% of the students also suggested skilled lab assistant and programmers should be recruited on permanent basis for sustained functioning of computer lab based training. As few as 16.0% of the students also suggested about alternative approaches to combat irregular power supply and load shedding etc through installing generator/IPS. 11.5% of the students suggested that adequate fund should be generated to ensure timely repair and replacement of PCs and related accessories. Some as many as 10.4% of the students suggested that numbers of PCs should be increased so that one student can have one computer to practice at a time. As few as 4.5% of the students suggested that WIFI to be installed in the computer lab so that cost of internet access will less and speedy as well. As few as 3.1% of the students felt that weaker students and as well as poor students who donot have computers at home should be given extra time to practice computer in the computer lab.

Cuere	ations for improved performance of ICT education		0/
Sugges	stions for improved performance of ici education	Number	%
progra	mme		
i.	Ensure more number of teachers for computer	112	29.2
	training		
ii.	Long term and refreshers training to be conducted for	70	18.2
	in depth learning		
iii.	Permanent and skilled lab assistant and computer	65	16.9
	engineers/programmers to be recruited		
iv.	Mitigation of irregular supply of electricity through	61	15.9
	installation of generator/alternative measures		
٧.	Adequate fund for timely repair and replacement of	44	11.5
	computers and related accessories		
vi.	Increase the number of computers in the computer	40	10.4
	lab/one computer for one student		
vii.	Wi-Fi to be installed in Computer lab for more	16	4.6
	coverage and speedy internet access		
viii.	Provide extra hours for weaker students and less	12	3.1
	exposed students		

Table 4.18Suggestionsfor improved performance of project activities infuture/upcoming project phases.

4.1.19 Receipt of computer training on own initiative by non-trained students:

The students who were not yet trained from the institutes- were asked whether they had any exposure to computer training. The table below provides that some of the non-trained students (34.4%) had sometime had training on computer fron their own motivation and intent. And when asked 51.0% of the non-trained students stated that they learnt from youth training institutes, as many as 22.0% of the students learnt computer skill form commercial firm and 17.4% learnt from NGOs and 9.8% from other sources. The non-trained students spent on average of tk. 2186.0 and mean number of days they were trained was only 37 days.

1.	Training on computer from own intent	Number	%	Mean
	Yes	132	34.4	
	• No	252	65.6	
2.	If yes, type of institutions from where trained			
	 Youth training institution 	67	50.8	
	Commercial firms	29	22.0	
	NGOs	23	17.4	
	Others	13	9.8	
4.	If yes, amount of taka incurred to get the	-	-	Tk. 2186.00
	training			
5.	Number of days training was imparted	-	-	37.0 days

Table 4.19Receipt of computer training on own initiative by non-trained students

4.1.20 Receipt and Use Status of Training of non-trained students

The table below describes the receipt of training and use of training by non-trained students in computer skill. It is observed that out of 384 non-trained students – 132 non-trained students who had training on computer from their own sources- 60.6% of them had training on Bangla word processing, 71.2% had training on English word processing, 25% in spreadsheet analysis, 16.7% in PowerPoint presentation skill, 23.5 % in access to information through internet, 7.0% had training on using online admission skill and 4.5 % had developed skill in face book and email opening. While after receipt of training in computer skill, only 28.0% found to have used word processing in Bangla, 47.7% applied word processing skill in English, 15.2% of them used application of PowerPoint presentation skill, 18.0% of them used skill in internet browsing, 7.6% and 21.2% of them used their skill for online admission, and face book and email opening etc. The table indicates at least one third to two thirds of them did apply their computer skill in their day to day life.

Trainir	ng Contents (n=132)	Receipt and Use of Training on ICT			
		Receipt of training		Use of training	
		Number	%	Number	%
i.	Word-processing in Bangla	80	60.6	37	28.0
ii.	Word-processing in English	94	71.2	63	47.7
iii.	Spreadsheet analysis through	33	25.0	26	19.7
	MS Excel				
iv.	Presentation of Graphics	22	16.7	20	15.2
	through PowerPoint				
v.	Access to various information	31	23.5	24	18.2
	through internet browsing				
vi.	Online application skill for	9	6.8	10	7.6
	admission				
vii.	Face book and email opening	6	4.5	28	21.2

Table 4.20 Receipt and Use Status of Training

(Multiple responses)

4.1.21 Facilities for internet connectivity, permission to use

The non-trained students were also asked whether they had computer, internet connectivity, permission to use internet and time duration of use of internet at home. The table below shows 23.7% of the non-trained students had computer at home and of them 72.5% had internet connectivity and of those who have internet connectivity- 81.8% had permission to use the internet and used internet on an average of 34 hours per month. It seems parents are quite permissive towards their children especially those who are in the college level to use internet at home but for a very limited hours.

Table4.21 Internet connectivity, permission to use and duration of use of internet at the home.

1.	Computer facility at home (n=384)	Number	%	Mean
	• Yes	91	23.7	
	• No	293	76.3	
2.	If yes, any internet connectivity with computer installed.			
	(n=91)			
	• Yes	66	72.5	
	• No	25	27.8	
3.	If yes, permission for use of interest is granted (n=66)			
	• Yes	54	81.82	
	• No	12	18.18	
4.	If yes, mean hours of use of internet is permitted /month	-	-	34.0
				hours

4.2 Findings from teachers' interview:

4.2.1 Profile of the Trained Teachers/ Instructors of high schools and colleges

The table below describes a short profile of the trained teachers of school and college level. Out of 78 number of teachers interviewed , only 4 computer teachers were female. The mean ages of male and female teachers were 36.2 yrs and 31.1 yrs respectively. As for academic qualification- majority of the teachers (62.8%) were found to have masters degree, followed by 34.6% of the teachers had BA/BSc degree and only 2 of them had HSC level degree. The mean years of service as teaching was estimated to be 10.4 yrs and their mean year of teaching as computer teachers was 4.4 years. The mean amount of training allowance received by teachers was tk. 3850/= and most of them (77.0%) stated that training allowance was not adequate in context to time, efforts and labour they had to invest. And according to them the adequacy of training allowance should have been tk. 8000.00.

	Socio-Economic Profile:	Trained tead	hers (n=78)	
		Number	%	Mean
1.	Sex of the Teachers/Instructors:			
	Male	74	94.9	
	Female	4	5.1	
2.	Mean age of respondents:			
	Male			36.2 yrs
	Female			31.1 yrs
3.	Academic Qualification:			
	HSC passed	2	2.6	
	BA/BSC passed	27	34.6	
	MA/MSc/M.Com	49	62.8	
4.	Years of service as teaching	-	-	10.41 yrs
5.	Years of teaching as trainers of computer	-	-	4.44 yrs
6.	Number of days teachers received training	-	-	24.19 days
7.	Amount of training allowance received	-	-	Tk. 3850.00
8.	Whether receipt of training allowance adequate:	-	-	
	• Yes	18	23.0	
	• No	60	77.0	
9.	If no, amount of training allowance to be adequate			Tk.8000.00

Table 4.22Profile of the Trained Teachers/ Instructors of high schools and colleges.

Picture # 3 Reciept of training by Teachers in computer Lab



4.2.2 Receipt and Use status of computer learning and skill

The table below shows the receipt status of training and use status of trainging by trained computer teachers. It is observed from the table that 100% of the teachers stated to have received training on word processing skill in English, 96.2 % recived training on word processing in Bangla, followed by 93.6% had received training in internet browsing skill, 92.31 % received training in presentation technique in PowerPoint, 70.51% of them had received on minor trouble shooting of hardware and software followed only 50% of them stated to have training in database management in MS-Access, while only 37.2% have received training on programming concept on C+ and Basic. It was not very clear from the statement of the teachers why some of the teachers could not avail all the training in the prescribed courses within the training period. Some of the teachers explained that it was short of training period for which they could not be trained in all of the common training contents. However, in the case of effective use of training by teachers- appeared to be quite reasonable since most of the teachers could apply almost all of their skills and training contents in their day to day assignment except for MS-Access and programming concept in BASIC and C+ languages.

	Training Contents	Receipt and use of training			
		Receipt	of	Use stat	us of
		training		training	
		Number	%	Number	%
•	Word-processing in English	78	100.00	77	98.7
•	Word-processing in Bangla	75	96.15	74	94.9
•	Spreadsheet analysis through MS Excel	75	96.15	73	93.6
•	Access to various information through	73		73	93.6
	internet browsing		93.59		
•	Presentation of Graphics/Diagrams through	72		69	88.5
	PowerPoint		92.31		
•	Computer maintenance and trouble shooting	55		56	71.8
	of minor problems of hardware and software		70.51		
•	Database Management System through MS	39		28	36.0
	Access		50.00		
•	Programming concept through Basic and C +	29		14	18.0
	Language.		37.18		

 Table 4.23
 Receipt and Use status of computer learning and skill

4.2.3 Major Course materials received during training

It was expected that all of the computer teachers who received training were supposed to have received course materials. But in the table below it is seen not all of the teachers have received all of the course materials. Only 75.6% of the teachers had received lecture notes followed 75.6% have received paper and pens/pencils and only 71.8% of them had received books and booklets and folders. Not very reliable response could be drawn from their statement as to why some of them did not receive all of the course materials.

Type of course materials (n=78)	Number	%
Lecture notes	59	75.6
 Paper and pens/pencils 	59	75.6
 Books and booklets 	56	71.8
Folder	55	70.5

 Table 4.24
 Major Course materials received during training

(Multiple responses)

4.2.4 Current status of training manuals in possession

The trained computer teachers were asked to know whether they felt the need to preserve the course materials. The table shows that majority of the teachers (75.6%) had preserved course materials (books and lecture notes) for future reference and refreshing their skill etc.

Table 4.25 Current status of training manuals in possession

Training manuals in possession	Number	%
• Yes	59	75.64
• No	19	24.36

4.2.5 Satisfaction over computer training and reasons for dissatisfaction

In the table 4.26 shows the satisfaction of the trained teachers regarding training courses and training – most of the teachers (82.1%) stated to have been satisfied with training contents and implementation of training courses by trainers. Rest of the trained teachers (18.0%) stated some of the reasons for dissatisfaction were short duration of training, training not as per curriculum of text books in SSC/HSC and not trained by well trained computer expertise/specialist.

1.	Whether satisfied or not	Number	%			
	Satisfied	64	82.1			
	Not satisfied	14	18.0			
2.	Reasons for dissatisfaction (n=14)	Number	%			
	 More duration of training and refresher/follow up training 	11	78.6			
	• Training should be as per curriculum of text book in SSC/HSC	7	50.0			
	Recruitment of well trained trainer	4	28.6			
		-	20.0			

 Table 4.26
 Satisfaction over computer training and reasons for dissatisfaction

(Multiple response)

4.2.6 Computer repairs, maintenance and replacement issues:

The teachers' notions about repairs and maintenance of PCs and accessories and their satisfaction over the standard of PCs and accessories received from computer vendors are depicted in the table 4.27. The table shows that majority of 67.0% of the teachers stated that repair and replacement of PCs and others were done as per their request but rest of 33.0% of the teachers felt that the repair, replacement and maintenance works were not done as per time and need of the situation. Again, some 24.4% of the teachers also expressed their dissatisfaction over standard of PCs and accessories. The reasons stated by them were non functioning of some of the PCs and modems within short time, followed by lack of prompt supports from computer vendors and no essential basic training on operation and maintenance of PCs and accessories by the computer vendors.

1.	Regular repair /replacement on time (n=78)	Number	%
	• Yes	54	67.2
	• No	19	27.4
	Non response	5	6.4
2.	Satisfaction over standard of PCs and accessories	Number	%
	• Yes	59	75.6
	• No	19	24.4
3	Reasons for dissatisfaction (n=19)	Number	%
	• Non functioning of PCs and modems within short	10	
	time		52.63
	 No support services from computer vendors 	12	63.16
	• No proper training after installation of PCs and		
	other accessories.	6	31.58

 Table 4.27
 Computer repairs, maintenance and replacement issues:

4.2.7 Use of internet and reasons for no permission for students to use internet

The table below shows that most of the teachers (73.0%) stated that the use of internet was allowed to the students those who were at the college level. The reasons for not permitting to use internet were: i) as instructed by head of the institution, ii) students have a tendency to view indecent pictures and iii) in some of the Computer labs – internet connection are faulty and very slow- so no scope for the students to use the internet. The institutes in which internet was allowed but it was for a very limited hours which were only 14 hours a month on average.

1.	Use o	f internet by students	Number	%
	•	Yes	57	73.0
	•	No	21	27.0
2.	Reaso	ns for not allowing internet (n=21)	Number	%
	•	No permission for the students to use internet	17	80.95
	•	Student waste time to view indecent text and pictures	11	52.38
	•	Internet remain closed or do not get connection	5	23.81
	•	Others	2	9.52
	•	(Multiple response)		
3.	If yes,	how many hours is allowed for each student per months	14 hrs/ mc	onth

 Table 4.28
 Use of internet and reasons for no permission for students to use internet

4.2.8 Availability and use of Internet facilities by trained teachers at home

The table below shows most of the trained teachers (86.0%) had computer at their homes and of them who had computers- 76.12% of them had internet connection and they usually spent on average of 41 hours on internet per month.

1.	Availability of computer at facilities at home	Number	%
	• Yes	67	85.9
	• No	11	13.1
2.	Availability of internet connection with home computer (n=67)		
	• Yes	51	76.12
	• No	16	23.88
3.	If yes, time spent on internet per months	41 hours /m	onth

 Table 4.29
 Availability and use of Internet facilities by trained teachers at home

4.2.9 Type of benefits/ opportunities accrued due to computer training

The teachers were asked what type of benefits they felt to have accrued due to their exposure to computer training under the project. In the table below it shows that most of the teachers (92.2%) felt happy for their being skilled in typing both in Bangla and English followed by almost 90.0% of the teachers stated to have been benefited due to their new accounting skill obtained through spreadsheet analysis. Some more than 84.0% of the teachers felt very much benefited for knowing a lot of unknown and useful things through internet access. So also 80.0% of the teachers have felt confidence in applying PowerPoint tools in presentation of their texts/pictures and some (18.0%) of the teachers had felt more impetus to speed up their day to day assignment due to their new earned skill.

	<u> </u>	
Type of benefits accrued	Number	%
Developed good skill in English and Bangla typing	72	92.31
Developed skill to do to accounting and spreadsheet analysis		
through MS-excel	70	89.74
Come to know a lot of unknown and useful things through internet		
access	66	84.62
Has developed capability to use PowerPoint presentation		
	62	79.49
More impetus and confidence in speeding up day to day works		
	14	17.95
Others	6	7.69

 Table 4.30
 Type of benefits/ opportunities accrued due to computer training

(Multiple responses)

4.2.10 Weaknesses/problems embedded in the training programme

The trained teachers were asked about some of key/major weaknesses which they feel impeded the effective implementation of training programme. The table shows that 39.7% of the teachers felt that number of computers are inadequate in proportionate to numbers of students followed by some 34.6% of the teachers mentioned about lack of fulltime computer programmer and lab assistants are serious setback of this training programme. Some 26.9% of teachers talked about lack of adequate fund for timely upgradation, repairs and replacement of

PCs and other essential accessories are hampered. They also felt lack of speedy modem connection, load shedding, lack of supervisory and technical supports and lack of inclusion of computer training within class routine posed some difficulties in effective management of training.

Weaknesses and difficulties	Number	%
Lack of adequate number of computers for training of	31	
students		39.74
 Lack of permanent instructors/programmer and full 	27	
time computer operators/lab assistants		34.62
• Lack of timely upgradation, repairs and replacement of	21	
computer and related accessories due to fund		26.92
 Lack of speedy internet connectivity and access 	18	23.08
 Problem of load shedding and irregular power supply 	15	19.23
• Lack of supervisory and technical supports from BCC &	14	
computer vendors		17.95
 Training manual not supplied in time 	12	15.38
 Lack of computer training in the class routine 	11	14.10

 Table 4.31
 Weaknesses of the training programme as perceived by the trained teachers.

(Multiple responses)

4.2.11 Suggestions provided by trained teacher for improved training and overall performance of project activities in future.

The trained teachers were also asked about their perceptions or opinions as to how to improve the overall performance and sustainability of training programme in future. In the table below shows some of the major suggestions offered by teachers are : 42.3% of the teachers suggested that computer lab size and number of PCs and related accessories should be facilitated in proportion to number of students of each institute followed by 34.6% of the teachers expressed about the generation of funds should be ensured for repairs and replacement of computers and related accessories. As many as one third of the teachers stated that full time computer/lab assistants and permanent computer instructor/programmer should be recruited on permanent basis for the institutions. Some around 30% of the teachers suggested that each computer lab should be equipped with generators as alternative means to tackle the problem of load shedding and irregular supply of power. As many as 18.0% of the teachers suggested that training courses should be more job oriented and refresher courses to be introduced to update their skill and as many as 15.4% of the teachers suggested that computer training should be within the class routine rather than after school period. Some of the teachers also expressed that introduction of WIFI/high speed broadband internet connectivity should be done to minimize the expenses of internet access etc.

-	Suggestions for improved performance	Number	%
	Computer lab size and number of computers etc	33	
	facilitated in proportion to number of students of each		
	institute.		42.31
	 Generation of funds has to be expedited and ensured 		
	for timely repairs and replacement of computers and	27	
	related accessories		34.62
	 Recruitment of permanent and skilled computer 		
	instructors/programmer and full time computer	26	
	operators has to be ensured		33.33
	• Some sort of alternative and permanent solution has to		
	be made minimize the effects of load shedding and	21	
	irregular supply of electricity		26.92
	 Long term training and refreshers courses to be 	18	
	introduced		23.08
	• Some sort of alternative and permanent solution has to		
	be made minimize the effects of load shedding and	16	
	irregular supply of electricity.		20.51
	 More job oriented and refresher courses to be arranged 	14	
	for updating skill of the teachers and students as well		17.95
	Computer training should be within the class period	12	15.38
	 Introduction of WIFI/high speed broadband internet 	11	
	connectivity may be implemented.		14.10
	Training manual to be supplied on time	9	11.54

Table 4.32Suggestions provided by trained teachers for improved training and overallperformance of project activities in future.

4.3 Findings from Head teachers and Principals' Interview :

4.3.1 Educational Status of Head teachers and Principals of the sampled Institutes

Table below shows that 77% of the head teachers of the institutions had masters degree and 23% of them had graduation degree while out of 22 principals 21 principals had masters degree and only one of them had PhD degree. The table indicates most of the head of the institutions were reasonably well educated.

Table 4.33	Educational	Qualification	of	Head	teachers	and	Principals	of	the	sampled
Institutes										

Educational Qualification /Degree Education of the respondents						
	Head	Teacher	Principal (n=22)		
	(n=26)					
	Number	%	Number	%		
Graduation	6	23.1	-			
Masters	20	76.9	21	95.5		
PhD degree	-	-	01	-		

4.3.2 Age, length and duration of involvement of head of the institute as Head teachers and Principals

The table below shows the mean ages of head teachers and principals were almost similar 48.6 yrs and 49.4 years of age, the length of their services were of 23 yrs and 24.2 yrs respectively and their length of involvement as the head of the institutions are of 8 yrs and 6.8 years. All of the head of the institutions are observed to be highly experienced in terms of their involvement in teaching professions.

Table	4.34	Age,	length	and	duration	of	involvement	in	the	present	position	as	Head
teache	rs and	Princ	ipals										

Age, Length and involvement in the post	Mean Numbers		
	Head	Principal	
	Teacher		
 Age of head teachers and principals 	48.6	49.4	
Length of service	23 yrs	24.2 yrs	
• Length of involvement in the post held at the	8 yrs	6.8 yrs	
present			

4.3.3 Information related to computer Lab Status

The table 4.33 below describes some of the common notions of the head of the institutions about adequacy of fund, maintenance of Computer labs in absence of fund, their receipt of PCs and other accessories from other resources, type of accessories recived, adequacy in the warranty services and also use of Computer labs as cybercafé after classes are off. The table reflects- most of the head (85.0%) of institutions stressed about the inadequacy and non-availability of fund for repair and regular maintenance of PCs and related accessories. Despite

absence or inadequacy of government fund- they collected some funds from district administration, miscellaneous fund of the institutions, meager amount of donation from the students, and lum some amount of fund acquired from BCC and Ministry of Education etc. As for getting PCs, printers, Laptops, modems, projectors etc- as many as 66.0% of the head of the institutions stated to have received from other sources (NGOs, International organizations, private donors etc). Some as many as (77.0%) of the head of the institutions stated to have got adequate warranty services and rest of 23.0% have received warranty services partially and not for the accessories but even if have received services but not in the time needed most.

		Number	Percentage (%)
1.	Adequacy of fund for maintenance of PCs/accessories		
	• Yes	07	14.6
	• No	41	85.4
2.	How maintenance ensured in absence of fund (n=41)		
	• Fund procured from district administration to	5	
	carry out some minor maintenance work-		10.4
	 Miscellaneous fund from the institution 	16	33.3
	• From small amount of donation from the students	13	
	and private arrangement		27.1
	 Small lump some fund from education ministry 	7	14.6
3.	Whether quality of PCs and accessories provided		0.0
	• Yes	48	100.0
	• No		
6.	Receipt of computers/accessories from other sources		
	• Yes	32	66.7
	• No	16	33.3
7.	If yes, type of accessories received (n=32)		
	Desk top PC	16	33.3
	Lap top computer	26	54.2
	Multimedia Project	24	50.0
	Printers	8	16.7
	Modem	6	12.5
	• UPS	5	10.4
8.	Whether proper/adequate/needed warranty services was		
	rendered:		
	• Yes	37	77.1
	• No	11	22.9
10	Whether community people can Computer lab as cybercafé		0.0
	• Yes	-	
	• No	48	100.0

 Table 4.35
 Information related to computer Lab Status

4.3.4 Weaknesses related to ICT related issues/activities

The table 4.34 below shows that most of the head (91.7%) of the institutions stated to have faced some problems and weaknesses in the management of project activities/ computer lab. The head teachers/ principals have witnessed some of the key weaknesses which are 56.8% and 27.3% of them felt inadequacy of budget/fund to repair and maintenance of hardware and upgradation of software and trouble shooting of accessories are major hurdles in attaining the good performance in the management of computer lab and training programme. Some as many as 59% of them also felt shortage of assistant programmer and trained teachers also one of the major problems to train the students effectively. And 50.0% of the head of the institutions also observed that absence of lab assistants posed problem in the day to day operation and minor trouble shooting of PCs and other accessories. Some one third of the heads of the institutes stated about lack of refreshers /follow up courses /training, and assistant programmers' too much to attachment in district office works, load shedding and irregular, faulty and slow internet connection /access etc.

Table 4.36	Whether	have	observed	any	weaknesses	related	to	computer	lab	related
issues/activiti	ies									

Weaknesses observed	Number	%
Yes	44	91.7
• No	04	8.3

Table 1 27	Tune of meetings	a haamuaal in a		haaad taawaa	/
1 abie 4.57	i ype of weaknesses	observed in c	omputer lab	baseu issues	activities

Weaknesses (n=44)	Number	%
 No adequate budget/fund for maintenance for hardware and software and other related trouble 		
shooting of accessories	25	56.8
 No fund for up gradation of computers and related 	12	
accessories.		27.3
 Shortage of programmer and well trained teacher 	26	59.1
No lab assistant or lab operators for maintenance of	22	
Computer lab		50.0
 No provision for refreshers/follow up courses for 		
teachers and students.	14	31.8
 Assistant programmers more attached with the district 		
administration.	17	38.6
 Lack of supervisory and technical supports 	15	34.1
 Frequent problem of load shedding and supply of 	16	
electricity		36.4
 Irregular, faulty and slow internet access 	11	26.3

(Multiple responses)

4.3.6 Suggestions offered by Head of institutions and BCC officials

The head of the institutions were very much concerned about improved functioning of all activities related ICT based training programmes. The suggestions offered by the head of the institutions were : regular and adequate fund should be generated for upgradation, repairs and replacement of PCs and accessories when needed, 60.4% of them stated about recruitment of permanent lab assistant s and programmers, 31.0% mentioned assistant programmers should be made responsible and accountable to the head of the institutions, 46% of them stated about number of PCs should be provided in proportions of the students of the institutions, as many as 35.4% of them observed that supervisory and technical supports from all concerned should be ensured, some of the heads (27.1%) stated that students sometimes become disinterested to use internet due to too slow speed of internet in the computer lab. Some of the heads of the institutions also observed about the importance of introduction of refreshers courses, installation of generators, introduction compulsory computer educations for all the students in the institutes etc. These suggestions are worth mentioning and need to be thought about by concerned Ministry and policy planners etc.

Table 4.50 Type of suggestions offered by field of the institutions and bee offedias								
	Sugge	stions offered (n=48)	Number	%				
	•	Regular and adequate amount of budget should be						
		ensured to upgrade/repair/replace computers and						
		accessories	31	64.6				
	•	Computer lab operator/assistants should be recruited	29					
		for the institutions on permanent basis.		60.4				
	•	Assistant programmers should be tagged and made	15					
		accountable to the institutional head.		31.3				
	•	Increase computers and accessories in proportion to						
		the numbers of students in the institutes.	22	45.8				
	•	To install web based programmes/websites and on						
		line admission for all institutes	9	18.8				
	•	More supervisory/ technical supports from supplier,	17					
		vendors, BCC and education ministry.		35.4				
	•	Continued supply of power and high speed internet	13					
		connectivity should be ensured.		27.1				
	•	Refreshers/updated courses and workshops should be	17					
		arranged for teachers and students		35.4				
	•	Computer lab size should be increased and more						
		facilitated with accessories in proportion to numbers of	21					
		trainee students.		43.8				
	٠	Computer education should be made compulsory for						
		students of classes IX and X.	7	14.6				
	•	Generators to be installed to face load shedding and						
		irregular power supply	11	22.9				

Table 4.38	Type of suggestions offered by Head of the institutions and BCC officials
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(Multiple responses)

4.4 Findings and observations made from FGD and consultative meetings:

Seven (7) Focus Group Discussion meetings were conducted for this evaluation study. The major objective of conducting the FGD meetings were to get the notion or perception of teachers of the institutions, guardians of the students studying in the sampled institutions, local representatives, GOB and NGO officials and members of the civil society. Each one of the FGD meetings comprised minimum of 10 members. The FGDs were conducted in one district from each one of seven divisions of Bangladesh. The issues discussed with the FGD members were the appropriateness of this training programme to both teachers and students, benefits accrued from this type of computer lab based training to both teachers and students, problems and difficulties/weaknesses observed in the effective implementation of this computer lab based training, how far the mitigation of problems was useful and effective. And ultimately, their notions and opinions were sought as to how to make this programme more effective, supportative and sustainable in future. Some of the key findings that were elicited from FGD meetings are noted as following.

- i. Most of the members of the FGD meetings felt the necessity of this type of computer lab based training for the students and teachers very timely and reasonable. But, a few of them were not confident how much the programme has aspired their children for higher studies in computer science, how far it has created an impetus amongst the students to enhance their skill in computer literacy.
- ii. Teachers and students have got themselves involved in information world and feel more confident to have access to useful information, job market for students, career development etc.
- iii. Some of the guardians and other local people felt that non availability and irregularity of assistant programmer during training sessions hampered quality training. They felt that due to their involvement in DC offices and education offices and their accountability to the BCC office, they are sometimes found not very concerned about training of students and troubleshooting the problems of computers and other accessories in the Computer labs.
- iv. Guardian and local community also appealed for inclusion of other non-trained students in computer lab based training to instill in them for studies in computer science.
- v. A good number of the participants felt that due to lack of adequate funds- the process of repairs, maintenances and minor trouble shootings are delayed and sometimes remain unsolved for a prolonged time as such the training programme was shortened and irregular which usually became disheartening to the students as well as teachers. They also felt BCC has not enough suppot staff/man-power/man or resources to ensure monitoring and provide necessary supportative services to the institutes on time.
- vi. Some also felt that computer teachers are often overloaded with academic classes/studies so they are not always interested or motivated to spare time for conducting practical demonstration of computer application to the students.

- vii. Some of the FGD participants also felt that Assistant programmers are at times transferred and withdrawn from their post and location by BCC authority which to some extent hampered the smooth and regular functioning of Computer labs and practical classes.
- viii. Moreover, job of assistant programmers is temporary and salary is not big enough as per their technical skill and expertise- so they have a tendency to switch for better and prospective jobs or do at times get in involved in other part time jobs to earn extra income. As such they cannot make themselves always available to the needs of the students in the computer lab of the institutes.
- ix. These type of irregularity or short of teachers and absence of assistant programmers do make the students get disinterested to attend computer lab practical lessons which are also worsened by shortage of non-functioning computers, limited internet services etc.
- x. Some of the discussants in the FGD meetings also opined about volume of the contents of curriculum/course materials are too big to be effectively learned and practiced within short span of training for both the teachers as well the students.
- xi. Some of them also felt the necessity of including more job oriented computer applications in the curriculum which are such as web design and development, desktop publishing tools and techniques, adobe Photoshop, illustrators, data processing packages etc.
- xii. Guardians of the students also felt that some sort of incentives/award or proficiency certificates should have been awarded to the students to boost up their learning zeal.
- xiii. Local community also stated that computer lab should have been facilitated to the local people for internet services and browsing of information after the classes are off or during the holidays.
- xiv. The students who are not well-off to have computer or internet facilities in their respective homes- could have been permitted to practice in the Computer labs during the holidays or after end of classes.
- xv. And they felt that training of computer lab based courses and maintenance of Lab could have been more efficiently managed provided some sort of lab assistants and computer programmers on permanent basis were recruited for the institutes.
- xvi. BCC should pursue the suppliers/vendors to render prompt technical supports and feedbacks as per urgency of institutes as when needed. Some of the members of FGD meetings also observed that dependency on BCC and computer vendors should be reduced rather some sort of community based fund should be generated to ensure rountine maintenance and common trouble shooting and repairs works of computer labs through involvement of local sponsors and community people.
- xvii. BCC should ensure that computer suppliers and vendors should be made more accountable for more prompt warranty services, replacement of accessories and ensure training on common trouble shooting skills and tools to the concerned computer teachers/instructors.
- xviii. Installation of Computer labs should also be launched in other district and Upazila level institutions to bring all the students of SSC and HSC under the purview of this type of ICT based training.

- xix. Computer labs should be connected with broadband internet services/WIFI so that this lab could be used as cybercafé for general community during off school hours.
- xx. Trained teachers should be granted technical allowances for rendering extra time and energy to train up students despite their overloaded activities.

4.5 Findings from Consultative meetings with BCC officials, Assistant programmers and head of the instititutes.

- i. The major observation by BCC officials/assistant programmers are that most of the teachers who had been trained for only 40 days on computer and ICT based courses are basically not computer professional or CSE degree holders.
- ii. It was their observation that this short training on programming languages, hardware and software trouble shooting, use of application packages did not sufficiently helped them to equip themselves with computer literacy and functional expertise/practical expertise.
- iii. They also commented that since most of the teachers are engaged with teaching of students from class three to class ten and some of the teachers are also engaged in tuitioning the students in computer studies and for that some of them have a tendency to avoid teaching/training the students in computer lab.
- iv. Principal as well as head teachers felt that teachers with relevant computer related academic qualification such as computer science and engineering degree should be a mandatory degree for teaching the students more effectively and professionally.
- v. The head teachers and principals of the institutes are also very much concerned that after the withdrawal of BCC officials and Assistant programmers from the institutions will likely to hamper the upgraded and quality training to the students. And this would definitely hamper the sustainability and effective management of computer lab facilities and prompt and proper maintenance of computer related accessories.
- vi. They also suggested that at least one assistant programmer should be permanently deputed or recruited for proper functioning, maintenance and up gradation of computer learning for the students.
- vii. BCC officials /assistance programmers stated some of the head of the institutes are not in good terms with them and they have a notion that it is the responsibility of assistant programmer to solve all problems related to trouble shooting of PCs and accessories. They showed lack of interest in mitigating the problems of repairs, replacement or maintenance of computers.
- viii. So, creation of adequate funds by institutional heads or from any other sources have to be sought to finance all the day to day faults, repairs and replacement of PCs and related accessories. And it is the responsibility of institutional heads to generate their own funds to carry on all the activities related to computer lab and trainings as per their contract agreement with BCC authority.

Chapter 5

Impact Findings

5.1 Increased Proficiency of Teachers in computer

One of the major objectives of this evaluation was to find out the impact of the ICT based training course on teachers and students skills in computer application, increased enrollment of students in computer studies in the institutes and increased aspiration of the passed out students for higher studies in computer science as well as their increased employability and income from jobs in computer fields in their practical life. The findings below show some of the observable impacts which are as following: One of the major objectives of ICT based training was to train up computer subject related teachers of school and college so that they could have skill and proficiency to train the same computer courses to the students. In this evaluation study, the teachers' proficiency was tested through a questionnaire developed by IMED evaluation team with consultation with BCC computer professionals. A 30 minutes test on both basic theoretical knowledge and practical demo in the typing Bangla, English, PowerPoint presentation and addition, subtraction and average functions on MS excel test and use of internet was was conducted.

Out of 48 educational institutes (school and college level), two trained up teachers were supposed to teach computing and ICT based application to the students in each institutes. But during field visit some of the 18 of institutes had only one trained teacher to teach the students and in the absence of one trained teacher- the evaluation team conducted the proficiency test for the assistant programmer available in those institutes. The table below shows the performance of trained teachers assigned for training up students is as following. The teachers' performance in computer proficiency was found to be much better in comparison with their students especially at the school level. Most of the trained up teachers (almost 80.0%) obtained marks (in between 51-70) in basic concept/ theoretical knowledge in computing while three out of 4 teachers (76.0 %)n obtained marks in between 51-70 in practical application of computing skill in MS-office, MS- excel, PowerPoint etc. Similarly, 20.0% and about 26.0% of the trained teachers obtained marks in between 71-90 in theoretical knowledge and practical application of computer respectively. This evidences that teachers' computer skill and literacy are reasonably sound. So, it was expected that the teachers were more or less well trained to teach/coach the students. But trained students performance in profieciency tests was found to be poorer than that of trained teachers. However, as for the performance of higher secondary and graduate students seemed reasonably at par with the teachers' performance in proficiency tests. The reasons may be drawn from the statement of students that they were not provided the adequate length of time for practice nor any access to computer and internet after the completion of their three months training and so also any refrershers course to refresh their skills.

Table 5.1Marks obtained in theory and practical demo by computer teachers/assistantprogrammers

Type students	/pe of Marks obtained in theoretical Marks obtaine sudents knowledge on computer a				otained i uter appl	in practical demos llication			
		51- 70 marks		71- 90 marks		51- 70 marks		71- 90 marks	
		Number	%	Number	%	Number	%		
Trained teachers (n=78)	up	62	79.49	16	20.51	58	74.36	20	25.64
				90-100 marks				90-100 marks	
				Number	%			Number	%
Assistant programm (n=12)	iers			12	100			12	100

Figure # 1



5.2 Increased computer proficiency of trained up students and non trained students:

• Trained students' (school and college level) as well non-trained students performances in computer proficiency and skill was obtained from same set of theoretical and practical demo test: Both the students trained from the educational institutions and the students those who were not trained from the institutes were given the same proficiency tests containing the basic theoretical knowledge as well as practical skills in
simple typing in Bangla and English, simple spreadsheet analysis and power point presentation and internet browsing .

- As per performance and proficiency/computer literacy, there is reasonably significant difference between trained and non-trained students. The table below shows that out of 52 trained up school level students- majority of the students as many as 58.0% and 38.0% obtained marks in between (31-50 marks and 51-70 marks respectively. While the test performance indicated that majority of non-trained students (58.33%) obtained marks in between 20-30 and as few as 33.3% and 8.3% of them obtained marks in between (31-50 marks respectively).
- The table also shows that performance of college level trained students was markedly better than that of the trained students. Most of the trained college students (72.7%) obtained marks in between 51-70. It is thus evident that training to some extent proved effective in improving the computer skill both at school and college level. However, the students performance in computer at school level with that of trained up college students was primarily because of their first time exposure in computing , limited or insufficient scope for computer practice after the completion of training or lack of refreshers and follow up training.

Та	able 5.2	Marks	obtained	in	theoretical	knowledge i	n computer	by trained	and	non-
tr	ained stude	nts.								
-	_									

Type of	trained	Marks ob	Marks obtained in theoretical knowledge in computing						
students		20-30 marks		31-50 marks		51- 70 marks		71-	90
								mark	S
		Number	%	Number	%	Number	%	No.	%
Trained	school	2	3.85	30	57.69	20	38.46	0	
students (n=	52)								
Trained		0		5	11.36	32	72.73	7	15.91
college/degr	ee								
students (n=4	44)								
Non-trained		56	58.33	32	33.33	8	8.33	0	
students (n=	96)								





In case of basic theoretical knowledge about computer and ICT related knowledge, majority of the college and degree students (73.0%) have obtained marks in theoretical test which hovered around 51-70 marks while majority of trained up school students (57.70%) secured marks around 31-50, on the other hand, majority of the non-trained students (58.3%) secured marks within the range of 20- 30 only.

Marks obtained in practical demonstration of computer application by trained up students and non-trained students.

Table 5.3	Marks obtained in	practical demonstration on	word processing,	spreadsheet,			
PowerPoint applications etc by trained and non-trained students.							

Type of	trained	Marks ob	Marks obtained in practical demonstration in computir						
students		20-30 marks		31-50 marks		51- 70 marks		71-	90
								mark	S
		Number	%	Number	%	Number	%	No.	%
Trained	school	4	7.69	26	50.00	22	42.31	0	
students (n=	52)								
Trained	up	0		6	13.64	33	75.00	5	11.36
college/degr	ree								
students (n=	44)								
Non-trained		44	45.83	30	31.25	22	22.92		
students (n=	96)								

In case of practical skill in the use of computer application, majority of the non-trained students (45.8% and 31.25%) nsecured marks within the range of 20- 30 and 31-50 marks, while a good number of trained up school students (42.3%) secured marks around 51-70 on

the other hand, majority of the college and degree students (75.0%) have obtained marks which hove red around 51-70 .



Figure # 3

Thus, it is quite evident that performance of trained students both school and college level are reasonably higher than those of non-trained which indicates a positive impact of exposure to computer practical use and exposure.

5.3 Impact on increased enrollment of students in computer studies/science:

This table 5.4 below provides information as to the enrollment of students in computer studies and its trends over the period of three consecutive years from the year of commencement of the ICT activities in the institutes. It may be seen as depicted in the table that increase in the admission in computer studies in the school level for male students were 22.2% in 2009, 14.3% in 2010 and 11.8% in 2011 while those of female students at school level the increase in admission in computer studies were 20.6% in 2009, 20.6% in 2010 and 11.8 in 2011. While in case of college level, increase in admission in computer studies were 20.6% in 2009, 20.6% in 2010 and 11.8 in 2011. While in case of college level, increase in admission in computer studies by male students were 15.3% in 2009, 9.4% in 2010 and 12.9% in 2011 while those of female students in college level increase in admission in computer studies were 14.3% in 2009, 16.3 in 2010 and 14.3% in 2011. Whatever may be scenario- it is evident from table below that enrollment rate and percentage increase in the admission in computer studies with respect to the base year 2008, the initial year of project activities are increasing at the increasing rate. This is indication that in near future, this uptrend in enrollment of students in computer science would need more full-fledged computer labs equipped with required number of computers and related accessories for the students.

Table 5.4	Number of e	nrollment and percentag	e of	increase ir	n admission	in computer	
studies by students in the years 2009 to 2011.							

Students of class IX and XI	Enrollment of students in			Increase	in admis	ssion in	
	compu	computer studies			computer studies (in %)		
	2008	2009	2010	2011	2009	2010	2011
School level:							
Male students of class IX	63	77	86	92	22.22	36.51	46.03
Female students of class IX	34	41	48	52	20.59	41.18	52.94
College level:							
Male students of class XI	85	98	106	117	16.47	27.06	34.12
Female students of class XI	49	56	64	71	14.29	28.57	36.73

Figure # 4







5.4 Current Improved Status of Passed-out students

It was expected that computer training and use of Computer lab facilities would enthuse the students of SSC and HSC especially students with computer studies- to go for higher studies in computer sciences. So, it was pertinent for the evaluation team to know the whereabouts of the students who have passed from the institutions and their present status in terms of pursuing higher education or in the job market. It was decided that at least 10 passed out students from each one of the sampled districts would be traced/contacted from their respective locality/district areas i.e. 160 passed out students. But the evaluation team/field investigators could trace out the addresses of some 126 students within the survey period. Out of 126 passed out students- only 86 students could be physically contacted for interview and rest of the students were contacted over their cell phones and direct contact with the guardians of the passed out students.

5.4.1 Increased aspiration for higher studies in computer science:

In the table 5.5 below shows 70% of the passed out were male and 30% of the students were female. From discussion with the students - some as many as 30.0% of the students are studying in diploma/B.Sc degree in computer science as per their earlier aspiration for higher studies in computer studies followed by some 15.0% of the students have been studying different subjects rather than computer studies.

5.4.2 Increased employability and income earning by the passed out students:

The table 5.5 below shows that some as many as 24.6% and 13.5% of the students were found to be presently employed and self employed respectively and 16.7% of the students who were unemployed were mostly female students who got either married and not interested to go for higher studies nor involved in any job at the present. It is found that the passed out students who are presently employed and self employed are earning on average of tk. 10560/- and the passed out students who are doing part-time job in the midst of their studies are earning on average of monthly tk. 3566/-.





SI#		Num	%	Mean
		ber		
1.	Sex of the respondents: (n=126)			
	Male	82	69.5	
	Female	44	30.5	
2.	Present status of passed out students:			
	 Studying in diploma course and B.Sc degree in computer science 	38	30.16	
	 Studying in different graduation/masters degree in subjects other than computer studies/science 	19	15.08	
	• Employed in the district office as computer operators and E- service centers at the UP office.	31	24.60	
	 Self employed as teaching in students of SSC and HSC, computer shops and software firms etc 	17	13.49	
	 Unemployed (housewives, not getting suitable job, doing non-computer jobs) 	21	16.67	
3.	Monthly income earned through regular job (n=48)	-	-	Tk. 10560.00
4.	Monthly income earning from part-time job while studying (n=19)			Tk. 3566.00

Table-5.5 Information related to Passed-Out students

5.4.3 Problems faced during training and Suggestions by passed out students

They were also asked what were the problems and difficulties they faced in computer training/education in their previous institutions and what would they suggest for making computer training program more practicable and job oriented.

The table 5.6 below shows the difficulties and problems they faced during studying in their respective institutes were : that 33% of them stated that teachers were not properly trained or less motivated to teach the students followed by 42% and 28% of the passed out students stated about shortage of training materials and inadequate number of computers and short duration and irregular training respectively. More than 25% of the passed out students stated about having no adequate access to computer for practices and internet use after the completion of training.

5.4.4 Suggestions provided for Improved performance of computer lab :

The suggestions offered by the passed out students were that 35% of the passed out students stated that permanent lab/computer specialist and more trained teachers need to be recruited followed by 28% who mentioned about more duration of training course and access to internet, 22% stated that poor students should be provided free of cost of training, 18% mentioned about introduction of refreshers and longer duration of training, 11.0% stated about creation of job opportunities ; followed by 20% who stated that computer lab should be equipped with computers in proportion of number of students of the institutes. However, the findings as elicited from the statement of passed out students, indicate their aspiration for higher studies has been created and their salary earning from computer related jobs has been reasonable as per present job market.

i.	Problems faced during learning computer skill:		
	Teachers not properly trained and motivated to teach the	42	
	students		33.3
	Shortage of training materials and inadequate number of	53	
	computers		42.1
	Short duration and irregular training.	28	22.2
	Had no adequate access to computer for practices and	32	
	internet use after the completion of training		25.4
ii.	Suggestions to improve ICT based training and lab facilities:		
	(n=126)		
	Permanent lab/computer specialist and more trained	41	
	teachers need to be recruited		32.5
	More access to internet and practice classes after training	35	
			27.8
	Poor students should be provided computer training and use	28	
	of internet free of cost		22.2
	More duration of training courses and refreshers courses to	22	
	be introduced		17.5
	Job opportunities to be created for passed out students	14	11.1
	Number of computers should be increased in proportion to		
	number of students	25	19.8

Table-5.6Problems faced during training and Suggestions by passed out students

(Multiple responses)

5.5 Overall Strengths and weaknesses of Project Activities

5.5.1 Strengths of the computer lab based training programme :

- i. The project activities have been implemented primarily to improve and upgrade the ICT based knowledge and computer skill of the secondary and higher secondary school teachers assigned for computer studies. And which in turn help them to teach the students of SSC and HSC to attain basic computer literacy and skill in using common application packages and browsing of internet and email etc. The evaluation team investigated the present implementation status of installation of computer and related computer lab facilities and talked to all relevant stakeholders- the students, trained teachers, head teacher/principals and concerned BCC officials about the strengths and positive effects/benefits of project activities accrued to the key beneficiaries the students.
- ii. The strengths and benefits or positive outcome that has been elicited from their in depth discussion and consultative/FGD meetings are depicted in the tables described below:
- iii. Computer lab based training on basic theoretical knowledge of computing, exposure to practical demonstration on application packages have given much impetus to the students for more learning about computer and as well as aspiration for higher studies in computer science by the ongoing students as well as passed out students.
- iv. Findings also show that the enrollment/admission of students in computer studies at the school and college level in the school and college level incrased over the project period. The passed out students were found to have been engaged in computer related job in the district offices, Union IT offices, computer hardware and software firms and business related to accessories.

5.5.2 Weaknesses of the computer lab based training programme :

Weaknesses in the management of training, limited exposure to the use of computer etc have surfaced from in-depth discussion, consultative meetings and interview with teachers and students are as following:

- i. Syllabuses on computer training have been too big to be assimilated either by the teachers or by the students within short period of 40 days and 2-3 months of training respectively.
- ii. There has not been adequate fund for maintenance, repair or replacement of PCs and related accessories so once a computer or printers get troubled, it remained damped for many days without any repair or trouble shooting.
- iii. Institutional heads/principals are not given any authority or instruction from the ministry of education, district administration or BCC authority to trouble shoot any

minor hardware or software problems of PCs and related accessories before the expiry of the warranty.

- iv. Although there is provision for internet connectivity- the students have very limited access to internet and browsing facilities as there are only 4 modems that are supplied for 17 numbers of computers. So, the students can hardly make time to use internet facilities.
- v. It was also observed that most of the computer teachers in the school level are also overloaded with teaching students of grade III to grade X as such they could hardly make time and have the needed energy/ stamina to teach so many students from class VI to class X in computer studies batch by batch throughout the year. Moreover, since computer is a highly technical subject- it needs thorough learning and practices- as such the teachers already overloaded with lot of teaching assignments and other routine activities, find it unrewarding to teach/train the students without any financial incentives or allowances.
- vi. There has been no provision to recruit or assign assistant programmers on permanent basis- as such after the withdrawal of assistant programmers by June 2014, would be big setback for ensuring the maintenance, repair and other related trouble shooting activities in keeping computers and its accessories functional and sustainable.

Chapter 6

Recommendations and Conclusion:

7.1 Recommendations

Recommendations for this evaluation study are based from various interaction and feedbacks from head of institutes, teachers, students, BCC officials, FGD meetings at the community level and as well as from meeting with members of steering committee and finally from comments and views of the honoured participants of workshop held at the conference room of IMED, Ministry of Planning, Sher-e-Bangla Nagar. The recommendations are made on the issues related to improvement of training, recruitment of specialized computer professionals, financial matters, sustainability of the project activities in future and other management issues related to effective functioning of computer labs etc.

Training and recruitment issues:

- i. Post of specialized teachers/instructors/lab assistants may be created and be recruited against those posts as early as possible to take care of/ ensure regular maintenance of computer labs, helping the students to make proper use of computer and related accessories during and after training classes and practice session.
- ii. Post of Librarian in the schools and colleges may be upgraded into ICT based post with more practicable computer training so that their services can be utilized for facilitating the computer education in the institutes.
- iii. Number of computer teachers should be increased in proportion to the number of students in the institutes and so also computer lab size should be increased and more facilitated with accessories in proportion to numbers of trainee students as enrollment of students in computer science are gradually increasing over the years.
- iv. Trained teachers should be granted technical allowances for rendering extra time and energy to train up students despite their overloaded activities.
- v. Trained teachers could be provided with a lap top through loan with minimal amount of interest which may be repaid on monthly or yearly basis.

Students' enrollment and their performances:

- vi. Compulsory computer education for all students at SSC and HSC levels should be introduced as demand for computer skill and knowhow are increasing day by day.
- vii. Students learning and skill in computer should be evaluated on regular basis.
- viii. Students should be provided with easy and free access to use Lab for their practice.
- ix. Practical tests should be administered to the students at times to evaluate the students' computer skill and knowledge and thereby motivate them for more learning and skill development in the use of computer application as well as their impetus for higher studies in computer science.
- x. The non-trained students of the institutes may be included in the next phase of the project so that they may be more motivated to study computer sciences for their higher studies.

xi. More job oriented computer applications such as web design and development, desktop publishing, adobe Photoshop, illustrators, data processing packages etc. may be included in the curriculum in future programme.

Financial issues:

- xii. Funds may be raised from the students during their enrollment in computer studies/science by the institutes to ensure expenses for regular maintenance, repairs of computer labs, replacement of accessories and minor trouble shooting etc. There should be a policy decision from the concerned ministry on this fund raising issue.
- xiii. Operating funds for maintenance of computer lab may also be additionally generated through making commercial use of computer lab as cybercafé so that local community could have access to information and computer learning through nominal charges or fees.

Owenership and sustainablility issues:

- xiv. BCC authority should ensure that the suppliers/vendors of PCs & accessories do render more prompt and timely repair & maintenance services and also provide training on basic computer operation and maintenances tips to the computer Lab teachers during installation of accessories in the computer lab.
- xv. BCC should be more supportative to ensure prompt technical supports and feedbacks from the vendors to the institutes in future project activities.
- xvi. The Ministry of Education should be delegated to generate fund to maintain the computer lab and so eventually the educational institutes under the Education Ministry should be provided the ownership and responsibility to maintain and manage the overall functioning of computer labs.
- xvii. The job descriptions of assistant programmers should be more sepecifically defined so that they could render all essential technical supports and related services to their respective offices and institutes as when needed.
- xviii. Upazila administration should ensure monitoring of computer labs which should be discussed in the monthly coordination meetings on regular basis.
- xix. Installation of Computer labs as resource centers should also be launched in Upazila level institutions to expedite the computer learning for students at secondary and higher secondary institutes.

Effective functioning of computer labs:

- xx. Computer labs should be connected with broadband internet services so that PCs could be served with internet access more cost-effectively.
- xxi. To minimize problems of load shedding and irregular supply of electricity- installation of IPS may be launched.
- xxii. Each institute should develop websites for its own institutions and facilitate it with on line admission for all institutes

7.2 Conclusion :

- i. The overall findings from different sources/approaches evidenced that the training programme under the computer lab based activities had reasonably added to the computer proficiency and skill development of teachers as well as the students. The proficiency test that was administered to the trained up computer teachers showed that they were skilled enough to train up the students in computer learning and lessons.
- ii. The findings showed that the students at college level had more expertise and development in computer skill than that of students at school level. The proficiency in computer learning and skill depended much on students' motivation, more practice at computer labs, and more exposure to computer facilities at home etc.
- iii. The project's major deficiency/weaknesses that has surfaced are its lack of adequate fund for prompt repair and maintenance of PCs and accessories, short of computer teachers, short of PCs and needed accessories, no provision of any lab assistant to do proper maintenance, minor trouble shooting of computer lab and its accessories etc. This state of affair had to some extent impeded the effective and continued sustainability of the training programme.
- iv. Thus, all the major shortfalls and lapses that are identified through this evaluation need to be minimized for more sustainability and improved management of computer lab based training programme for similar other ICT training projects/programme in future.