Computer-aided Learning and Mentoring for Improvement of Teaching Quality: an Assessment of BRAC Interventions

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ABSTRACT

BRAC launched computer-aided learning (CAL) in six and mentoring project in five rural secondary schools with financial support from the ministry of education. Both were piloted for one year. This study aims to explore the changes occurred due to implementation of the above. Various qualitative techniques were used. The teachers and students were found convinced that the initiatives were helpful in improving the quality of teaching and learning in their schools. They noticed some of the initial changes that occurred at the classroom level. However, they identified that the duration of the project was a barrier for a visible impact on students learning achievement. The study suggested for expansion of the activities in more schools where duration of the package should be at least three years. Some modifications are also suggested as those were the concerns of the teachers and the students. An integrated package of both CAL and mentoring can be more effective than their present independent intervention. Record-keeping system of the schools needs to be improved for measuring impact on attendance and learning achievement of the students.
INTRODUCTION

The government of Bangladesh is committed to bring all children to school by 2015 and achieving quality education for them. The *Education Watch* reports and the other government sources show that in general, success have been made in various aspects of school education in the country; however, a number of remaining challenges were also reported (Nath and Chowdhury 2009, Nath et al. 2008, Ahmed et al. 2006, DPE 2008, BANBEIS 2009). In terms of access, quality and equity, Bangladesh is relatively in a better position in the first issue but lot more yet to be done for quality and equity. High rates of dropout and consequently a small portion of the students graduating indicate serious deficiencies in the quality of school education provision (Nath 2006, Nath and Chowdhury 2009). This includes not only the primary level but also the secondary education. Deficiencies in teacher’s skills and capabilities resulting in poor quality of teaching in the classrooms are one of the leading causes for not gaining quality education.

The ministry of education of the government of Bangladesh (GoB), with support from the Asian Development Bank (ADB) and the Canadian International Development Agency (CIDA), operates a project called Teaching Quality Improvement in Secondary Education Project (TQI-SEP) in the secondary schools to improve teaching quality. The purpose of this project is to provide quality initial and in-service teacher training, including professional development opportunities that can improve classroom practices. It works with key partners and stakeholders to enhance various aspects related to teaching and learning, and thus, to develop an integrated teacher education system in Bangladesh.

With the realization that quality of teaching-learning and learning outcomes of the students are not at a satisfactory level, BRAC started working with the rural secondary schools in 2001. It was observed that a good proportion of the non-government secondary school teachers were untrained, and the management of the schools had serious problems. Thus, workshops with the school managing committees (SMC) and subject-based training for the teachers came up. A number of short courses for developing teaching capacity in English, mathematics and science and management training courses were offered to the respective persons in place. BRAC activities were limited to rural schools.

BRAC explored various areas to identify methods to improve teaching-learning in the classrooms to enhance students' overall learning. In order to introduce computer-aided learning (CAL) in 2004 BRAC started developing interactive education software based on the national curriculum. The aim was to improve teaching process and to make classroom teaching more interesting and exciting to the students. The initiative had the following specific objectives:

- Introduce technology in education and improve teachers’ capacity,
- Make presentations easier and teaching-learning interesting,
- Increase students’ involvement in classroom and peer learning through group work,
- Develop close relationship between teachers and students, and
- Provide computer literacy to teachers and students.
CAL materials, developed as animation-based on the national curriculum for English and mathematics for grades IX and X, respectively are available in CDs. Materials for mathematics aim to develop students' basic concepts and problem-solving skills while materials for English emphasize developing all four language skills namely listening, speaking, reading and writing. Animation was used to make things visible, which otherwise are difficult to comprehend. The students' monitors are connected with the computer of the teacher with a splitter. In classrooms, teachers traditionally rely on direct teaching method where they mostly give lectures and pupils passively listen to them which hardly generate any interest among the students. CAL materials promise the teachers to change their teaching approaches to a more attentive and interactive one (Billah 2011).

It was observed that only subject-based training is not sufficient to create conditions for proactive learning environment (BEP 2008). Again, students' attendance in school and their participation in classroom and internal examinations were not satisfactory; they feel shy to ask questions in classroom and consult teachers for their problems. Moreover, students have limited scope in school to engage themselves in co-curricular activities. Addressing all these problems and to create a better learning environment, BRAC introduced mentoring in secondary schools in 2003. It is a student-to-student approach to enhance learning collaboration and co-curricular activities among them. The core focus of this initiative is to create demand among the students for quality education. Studies suggest that adolescents are more attentive to their fellow students (classmates) and for them ‘peer-approach‘ works well (BEP, 2009). A mentor assists his/her peer in learning, solving problems, regular participation in classroom and curricular activities in ‘mentoring.’ The mentoring programme provides training to the students of class VI-IX who are good in performance (roll numbers 1 to 10), having helping attitude and capacity to motivate others, and also have the leadership quality. The mentors are supposed to sit with their groups once in a week to consult the problems of their fellow students, keeping the practice of co-curricular activities, and discuss other issues like school discipline. Following are the objectives of mentoring:

- To enhance students’ regular attendance in school and participation in examinations
- Develop leadership potential and create fellow-feeling among the students
- Make the students interested and involved in co-curricular activities, especially in debate, creative writing, publish wall magazines and arrange sports
- Encouraging practice of respecting elders

The government’s TQI-SEP project has a provision to support innovative ideas at school level. BRAC’s pilot projects on CAL and mentoring could draw attention of the respective ministry. BRAC submitted a proposal to the education ministry to support these activities on a pilot basis in some schools. A contract has been signed between them in May 2009 to implement CAL in six and mentoring in five secondary schools in four selected districts. TQI has developed close cooperation with BRAC through providing moral, financial and instrumental support to BRAC supported schools where BRAC launched innovative approaches to learning and mentoring activities. Duration of both the activities is one year. Training on CAL for mathematics has been given to the teachers of classes VI-X and English is for classes IX-X. Mentoring training has been given to 25-30 students of each school from classes VI-IX. This encouraging cooperation of TQI and its active participation offer to bring potential changes in the schools.
The Research and Evaluation Division (RED) of BRAC has undertaken a study to explore the situation in the schools before and after implementing CAL and mentoring activities, and to see future prospects of these two components in the pilot schools. This study intends to focus on the present status of CAL and mentoring projects and analyze the scope of these two.

OBJECTIVES

The general objective of the study was to examine the changes occurred in the schools after implementing CAL and mentoring projects, analyze the scope of these two in the similar type of schools, and thus, put necessary suggestions considering the situation. The specific objectives of the study were to:

1. Understand the pre-and-post-condition of the selected schools under mentoring activities in terms of teaching-learning provisions, students participation in school activities, leadership capabilities, and their perception regarding the activities;
2. Understand the condition of selected schools under CAL in terms of technological advancement, rate of participation in school activities, changes of perception in mathematics and English subjects, etc. before and after implementing the project;
3. Find out the strengths and limitations of the projects and provide necessary suggestions.

METHODS AND MATERIALS

As the project was initiated few months before the data collection period, the study was designed in such a way so that input and process-related activities could be assessed instead of giving importance to outcome-related activities. As such, the qualitative data were collected through classroom observation, in-depth interviews and focus group discussions (FGD) with the students, the teachers, and the parents. Some quantitative data were also collected from school records.

RESEARCH AREA AND SAMPLING

The study was conducted in all the 11 intervention schools under the projects. Six of these schools were under CAL project in Gazipur and Comilla and five under mentoring project in Mirzapur and Munshigonj.

All the respondents for interview and FGD were taken purposively. Two mentors for interview were taken from two different classes in each five schools covering mentoring activities. The head teachers and responsible teachers for maintaining the activities were interviewed from all the 11 target schools. FGDs were taken respectively with three groups of students, parents, and other teachers from two CAL and two mentoring schools. Four BRAC staff, two from head office (one for CAL and other for mentoring programme) and other two from field responsible for the projects, were also interviewed.
VARIABLES

This study considered the activities of the teachers and the students through their involvement with the projects, their capacity development, issues regarding the possibilities and difficulties of the projects, etc. For analyzing these factors, the school attendance, examination performances, classroom practice using the subject-based CDs, teachers' teaching experiences and technological knowledge, school working days, school discipline, and co-curricular activities were considered as important variables.

DATA COLLECTION TECHNIQUES AND TOOLS

The classroom observations in mentoring schools were conducted to see the mentoring activities as well as classroom performance, teacher-student relationship, student attendance, etc. using a checklist. The observation provided the scope to see how the mentors conduct the activities, manage their groups, their relationship with their classmates, and their ability to solve problems in classroom. Observations in CAL classes allowed seeing the use of the software in the classrooms as well as observing class performance, teacher-student relationship, student attendance, etc. using another checklist. Interviews and FGDs were conducted with the mentors, teachers, parents and students to get their views on those activities. Twenty classrooms and 10 mentoring group meetings were observed, 22 teachers and 14 others were interviewed, and 12 FGDs were conducted.

FIELD OPERATION

Data were collected in October 2009 and January 2010. Eight field investigators were recruited for data collection. The researchers also engaged in data collection. The investigators were given three days rigorous training. The researchers visited the field investigators during data collection to ensure quality of collected data and also to monitor their work. The researchers checked the collected data and provided feedback to the investigators.

ETHICAL CONSIDERATION

The research objectives were clearly explained to the respondents before data collection and permission was sought from the school authorities. The researchers were highly committed to the respondents to keep the privacy of their information and source of data. They were given assurance verbally that no such data would be used which may cause any harm to the respondents. A promise of maintaining confidentially was done at the top of each checklist.

DATA MANAGEMENT AND ANALYSIS

Data gathered from interviews FGDs and observations were triangulated. The investigators and the principal researcher transcribed data on paper. The principal researcher sorted key patterns and themes manually. Subsequently, data were analyzed both through thematically and comparatively. Besides, data from different groups of people were connected and contrasted/compared on different themes.
RESULTS

This section mainly focuses on the situation of the schools before and after implementation of the projects. This chapter will locate the areas of changes expected as the outcomes of the projects and thus analyze the project implications at school level.

COMPUTER-AIDED LEARNING (CAL)

A number of monitors connected with a single computer in a specific classroom were the main instrument for CAL activities. The CAL classes usually conducted following a specific routine provided by BRAC staff. The computer was mainly handled by the teacher and the other seven monitors were put on the desk of the students. The students in the CAL classes took sit in group in ‘U’ shape. The software was being used only for two subjects—English and mathematics. The queries were therefore, especially focused to find out the effect of the use of the CDs, particularly on these two subjects.

Computer-aided learning project was piloted in six schools. English was introduced in all six classes but mathematics in classes IX and X. Total number of students covered by this project was 2,761. All of them received English contents; however, 1,012 received mathematics contents. Table 1 provides number of students benefited from CAL pilot project.

Table 1. Number of students benefited from CAL project

<table>
<thead>
<tr>
<th>Schools</th>
<th>Only English</th>
<th>Both English and mathematics</th>
<th>Total student</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class VI</td>
<td>Class VII</td>
<td>Class VIII</td>
</tr>
<tr>
<td>School A</td>
<td>139</td>
<td>178</td>
<td>133</td>
</tr>
<tr>
<td>School B</td>
<td>103</td>
<td>66</td>
<td>75</td>
</tr>
<tr>
<td>School C</td>
<td>52</td>
<td>47</td>
<td>83</td>
</tr>
<tr>
<td>School D</td>
<td>90</td>
<td>75</td>
<td>70</td>
</tr>
<tr>
<td>School E</td>
<td>132</td>
<td>112</td>
<td>76</td>
</tr>
<tr>
<td>School F</td>
<td>99</td>
<td>118</td>
<td>101</td>
</tr>
<tr>
<td>Total</td>
<td>615</td>
<td>596</td>
<td>538</td>
</tr>
</tbody>
</table>

Participation in English and mathematics classes

While the medium of instruction for most subjects was Bangla, a general practice was to use local dialects in case the standard Bangla did not allow making contents understandable. In some areas, a good section of the teachers and students mostly used local dialects in the classroom. When this was the situation, it was obvious that Bangla would be used in English classrooms too. However, the national curriculum instructs using English instructions while teaching English in the classrooms. A gulf of difference was there between instruction and practice. In this circumstance, the motive of CAL for English was to improve the situation towards the instruction of the national curriculum.
A move towards overall improvement in English classroom in terms of engagement of both teachers and students has started after the introduction of CAL in five schools. The teachers opined that such a technology was helpful for them too; they became more careful than before in conducting the English classes. Improvement of the students was found in all the four English language skills such as listening, speaking, writing and reading. According to an English teacher, “My students could not speak English at all before. They felt afraid and hesitant. But now they at least try to communicate in English, however, a little. Even the weakest student of my class can also speak a little in English.” This was also visible during classroom observation. The teachers in the CAL classes mostly communicated in English with the students and also encouraged them to speak in English which was not the case before. Our observation shows that most of them could not speak fluently but their endeavour to speak in English was seen. They were able to communicate in easier sentences but faced some difficulties when complicated cases arose. For example, in a class, a teacher asked the students “what is the time now?” Most of the students could follow the question and more than half of them raised their hands to give an answer. But it was found difficult for them in describing a picture of a room where there was a clock hanging on the wall and a boy was sitting on a bed. Only 5-6 students were found to raise hands. All of them could not do it correctly but their attempt was positive. Teachers of the CAL schools considered this as a positive change among the students which was not seen before.

According to the teachers, the English CDs made positive change in students' pronunciation of English words. An English teacher said “My students now know that there are two ways of pronouncing some words; for instance, education, lives, etc. which were not familiar to them before.” According to a CAL English teacher, “The CDs helped reducing shyness of the students. In the usual classes students feel shy as they think that they might make mistakes. The CAL English classes helped building their confidence.” The students also shared that they are now easily able to identify their mistakes in pronunciation. Another English teacher commented, “the students were afraid of English before the introduction of CAL but now they are enjoying the English classes.”

The English teachers thought that if the students do well in listening, they would eventually improve in the other three skills. The CAL staff told, “we were used to reading without pause, but majority of the CAL students could overcome such limitation.” Both the teachers and the staff mentioned that the CDs helped the students especially in paragraph writing. According to another English teacher, some lessons such as fill in the blanks, paragraph writing, identifying true-false, sentence matching helped enhance their writing skills. In their view, these contents were taught without understanding but now they can see them on monitors. The students themselves were able to check their work on the monitor after matching the sentences. They could correct them from the monitor if there was any mistake. The teachers as well as the CAL staff opined that students got opportunity to learn new words and synonyms of many words from the CDs.

The head teacher of a school explained the contribution of the CDs in another way. He shared that there was a chapter called ‘wheel’ in the English textbook of class X. This chapter describes various different directions, the movement of different signs which were not taught before in his school because the teachers considered this unnecessary. But when the importance of these signs and directions in daily life was elaborately explained in the CDs, the teachers could understand their importance. All the head teachers considered the CDs as one of the most useful learning tools for the students.
Both the students and the teachers opined that the mathematics CDs made a big change on their perception towards the subject. They cited one common example: axiom of Pythagoras. According to them, the axiom was presented in the CD in such a way that any student could understand it. According to a mathematics teacher, the students acquired better idea about the triangles from the CD. The same teacher viewed that a parrot has been used in the measurement part of the CD in showing the examples of angels which was very good. In FGD, one of the students shared that he could not understand the explanation of the equations but as the equations were drawn in the CDs, he got the ability to learn those in a better way. According to both the teachers and the students the CDs were very helpful to understand about the unitary method. For example, it showed the quantity of cutting paddy by a farmer both in one and ten days through animated pictures which helped the students understand the examples more practically.

**Technological development of teachers and students**

One of the important expected area of improvement as the outcome of CAL project was technological advancement of the teachers and the students. It was found, from classroom observation, that teachers did not face that much difficulty to handle the computers with some exceptions. Most of the teachers told about the technological improvement among them as well as the students. One of the head teachers expressed that the students of his school wanted to know various options of computers; they wanted to learn it from their teachers. This type of interest, in his opinion, was not visible among the teachers. One of the mathematics teacher shared that the students sometimes helped them in operating computer. They were quick learners in using computer. According to him, if sometimes any of the monitors did not get on after turning the main switch, the students requested their teachers to check the switch of the particular computer.

**Development in teaching capacity**

Before initiating the activities, teachers of these schools used only the lecture method in the classrooms and the role of the students was to listen only. But after the introduction of CAL, before starting the classes, the teachers asked the students what and how they wanted to learn. All the head teachers mentioned that a change have been noticed in classroom teaching; the CDs taught the teachers too; they were trying to involve the students in the process. Thus, possibility of a two-way communication has emerged. According to a head teacher,

*The students of my school now sit in ‘U’ shape and the teacher stand at the middle of the class. This system is good for better teaching and learning but it was not practiced before. The teacher used to stand in front of the blackboard and did not move much. The students sitting on the backbenches could not listen to the teachers. Now everyone can hear because of sitting in ‘U’ shape.*

The teachers also did not prepare any lesson plans before receiving the training and most of the teachers did not know how to make it but they did it regularly after the training. Another head teacher viewed that the teachers were now able to explain the lessons in a better way through applying the animations and examples given in the CDs.
Teacher-student relationship

Improved teacher-student relationship was one of the expectations of this initiative. The observation reveals that the sitting arrangement of the students in 'U' shape gave the teachers a scope to see all the students closely. Some other classes were also observed to understand the difference between the CAL and the usual classes. In the usual classes, the teachers were not able to observe the activities of all students. Teachers shared in their interviews and FGDs that the tendency of asking questions to the teachers in the classrooms had developed after starting the CAL activities. A mathematics teacher said,

Only a few students, who were known as good, used to ask questions in my class and the majority was afraid of asking me questions. But now the situation has changed. More students are getting interested to ask questions and take part in discussions. I thought about this change. One plausible reason might be their preparation. My students are now better prepared to talk to me. It was possible due to use of the CDs. Probably I could not make them prepared earlier.

When the classroom of the same teacher was observed it was found that about half of the students were practically involved with the teacher, which is not usually seen in a classroom in Bangladesh. The teacher expected that he will be able to engage more students within few months. Besides, some good practices were also seen in the classrooms which indicate warm relationship between teacher and students. In some classrooms, the students were found clapping to praise if any of their classmates could give a correct answer to the teacher's question. In one classroom, the teacher and the students together wished a student for her birthday. When the issue was discussed with the teachers they said that they were not used to do anything except academic activities in the classrooms. But in CAL training they learned that some social activities and praise can motivate the students to more actively participate in academic activities. One of the teachers opined that “I proved such concepts true in my class.” When the issue of observing birthday in the classroom was discussed with the students they opined that it was a new addition in their class. It started few months back. A student said, “Initially we were surprised at this. Some of us got timid at this but now we all enjoy it.” At least two head teachers mentioned that the understanding between the teachers and the students had improved after starting the CAL activities.

Group or pair work and inter-student relationship

One of the objectives of the CAL project is to develop the practice of group/pair work among the students in the classrooms. Classroom observations showed that teachers involved the students in group work in the midst of the class. It was usually done after the lecture on selected content of the CD. After the lecture, the teachers asked questions or gave some exercises to the students to solve. Then the students were asked to share those in groups of 4-5 members. The students in a FGD shared that they worked in group after learning any passage or questions, solving the section of true-false, fill in the gaps. Sometimes they did it in pair. If any of the students failed to understand, all other students who had better understanding on that topic discussed among them. They told their teachers to ask them questions after they have finished group work. The students opined that these group works were very effective to them, especially who could not understand before. They also said that earlier there was no such scope to learn from each other. They were not used to share their incapability to the capable peers; even they would not do the same in large group. They can easily do it in a small group. According to the teachers, the group work also strengthened
relationship among the students. One of the teachers commented that, “A kind of mentality to help others has developed among my pupils through group works. It also eases my work in the classrooms.” One head teacher opined that earlier the good students were used to take seat on the first row but now they sit together in the classroom. As a consequence, weak students could learn from the good students which helped them to build good relationship to each other.

Perception on CAL project

Responses of the teachers, students and parents towards CAL project were found positive. According to them this project could bring some changes in classroom activities. The students became more attentive in the classroom than before. The teachers viewed that the students were interested to attend the CAL classes. According to a head teacher, “Students' interest in CAL classes is reflected through their attendance in the class. Most of the students are now trying to attend all the classes regularly.” However, some respondents identified some weaknesses of the project. First, the use and application of the CD was confined only in the hands of the teachers. The students sometimes acted as listeners or watchers, not as actors. Some respondents suggested for independent use of computers by the students. The enthusiasm of the students to use the computers was strongly reflected in the FGDs. The other difficulty of the project was considered by them were some gaps in the mathematics CDs. In their views, these CDs contained limited examples and exercises. They demanded more examples and exercises. However, a teacher said, “These CDs can be used as basic guideline.” A head teacher also mentioned about some gaps in the English CDs. He also said that sound was missing in some topics in the CDs. For example, paragraph-writing section was divided into three parts—topic sentence, developer sentence, and concluding sentence. The gap he mentioned in the ‘developer sentence’ part in which sound was missing for 10-15 minutes. The teachers and the students also pointed out that the CDs did not cover all the chapters of the textbook.

The head teachers and the other teachers mentioned that duration of class was a limitation to run such a project. In their views, the CAL periods should be longer than the usual class time. It should be increased to at least one hour instead of 40-45 minutes. They observed that sometimes it became harder to cover the selected lessons within the given time.

According to the teachers, the students enjoyed the CAL classes a lot. A teacher commented during the interview with him that “No CAL class was there in the routine for some weeks but the students wanted such class every day.” The enthusiasm of the students towards CAL classes was also found in the classroom observations as well as in the students’ FGDs. One of them commented, “Previously the teachers were used to give only lectures in the classes, but now we can see pictures along with listening to them. Again, our teachers now ask us what have we learnt?” Some students opined that spelling mistakes also reduced over time.

A good number of the respondents suggested to prepare such type of CDs for other subjects and other classes too. They especially emphasized on science and Bangla literature. They also mentioned that computer is a new technology to them. So, it may take some time to become used to it and to use it in an innovative way. They also wanted to enhance the duration of the project to see its impact on the students’ learning outcome.
Challenges of CAL

Some problems and challenges were identified. Interrupted power supply was one of the most challenges that the schools faced. The research team could not do scheduled classroom observation for the first few days in a school due to lack of power supply. It hampered the regular flow of the CAL classes. Such complaints were also made by the teachers. One of the head teachers suggested for providing generator for smooth running of the CAL classes.

Some of the computer monitors were not as good as the others. The research team also noticed hazy writing on the screen of the monitors. The students felt little uncomfortable to see these monitors as these looked a bit black. The class teacher identified it as a problem and asked for repairing or replacement.

The other major challenges came from the teachers which were related to the CDs. Some of the English teachers mentioned that sounds were missing in some parts of the CDs. Otherwise the English CD was highly appreciated by the teachers and they considered it as a very useful item for development of teaching-learning process. They also recommended that these CDs should be introduced in the other classes rather than for classes IX and X. Some others also demanded separate CD for teaching English 2nd part which includes grammar, comprehension, essays, letter writing and writing of applications, etc. The teachers demanded that the mathematics CDs should be equipped with more examples and exercises.

Some teachers suggested for provision of using projector in the CAL class. As they said, it would make the classes lively and all the students would concentrate much in learning. They also suggested for including lectures of some renowned teachers in the CDs. It would help teachers in better teaching. Some of the teachers recommended that the CAL classes should not be confined only in secondary schools. It should also be introduced at primary level, so that the students would be introduced with computer technology and knowledge from the beginning with a strong foundation.

MENTORING

The objectives of mentoring are already mentioned in the first section. The first objective of the study requires knowing the current status of the schools under mentoring activities considering the expected areas of improvement from the project. For this, the situations of the schools before and after the introduction of the projects were analyzed.

Before focusing on the areas of changes in mentoring schools as consequence of mentoring activities, it is required to shed light on the mentor selection process and the nature and conduction of mentoring activities.

Mentor selection process and group formation

Usually the good students in terms of learning performance were considered for being mentors. According to our observation, the mentors were selected on the basis of some characteristics through a process. A primary list of students was prepared by the class teacher. Talent, regular attendance, attentiveness, interest in study, motivation capability, helping tendency, sharing tendency, etc. were considered by the teachers in preparing the primary list. The parents of the students were asked to meet the teacher. The teacher discussed the whole issue of mentoring activities with the parents one by one and asked for their opinion regarding joining their children in the
mentors’ team. In most cases, as the teachers requested to the parents, they did not oppose. However, some were furious, especially for the girls, due to security reason. Because the teachers said that the selected students will be sent to a BRAC centre for training. In few cases, the primary list had to be changed.

The selected students were thus sent to attend a mentor training programme provided by BRAC. The number of mentors varied from class to class as well as from school to school. For example, six mentors were found in a class having 57 students whereas 20 mentors were found in a class of 90 students.

The mentor group formation took place after the mentors returned from training. The groups were formed by the teachers; however, students’ consent was considered. All the students of the class were divided into small groups consisting of 4-5 or more students. According to a mentor, “The teachers formed a mixed group considering weak and strong students. For example, if a student is weak in English, then the teachers included him/her in a group having two other students who are good in English.” A student who participated in a FGD opined, “It is supposed that the weak students will become better in performance in touch with stronger one.” These groups were led by those who received mentor training. It was found that mentor selection process ran accordingly.

The five schools under study had 1,519 students altogether (Table 2). Of them, 215 were provided with mentor training; they are 14.2% of all students. Of the mentors, 109 were girls who constituted 50.7% share of the mentors. Proportion of girls among the mentors varied from one school to another; the lowest rate of 45.6% was found in one school and the highest rate of 55.8% was found in another school.

<table>
<thead>
<tr>
<th>Schools</th>
<th>Total number of students</th>
<th>Number of mentors</th>
<th>% of girl mentors</th>
</tr>
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<tbody>
<tr>
<td>School G</td>
<td>242</td>
<td>44</td>
<td>52.3</td>
</tr>
<tr>
<td>School H</td>
<td>345</td>
<td>57</td>
<td>45.6</td>
</tr>
<tr>
<td>School I</td>
<td>323</td>
<td>43</td>
<td>55.8</td>
</tr>
<tr>
<td>School J</td>
<td>241</td>
<td>25</td>
<td>52.0</td>
</tr>
<tr>
<td>School K</td>
<td>368</td>
<td>46</td>
<td>50.0</td>
</tr>
<tr>
<td>Total</td>
<td>1,519</td>
<td>215</td>
<td>50.7</td>
</tr>
</tbody>
</table>

Analysis of school records shows that the mentors were ahead of the others in terms of classroom attendance, and participation and performance in examinations. The average attendance rate of the mentors during July-December 2008 was 80.4% which was 76.7% among the non-mentor students. After one year during July-December 2009 the rate for the mentors increased to 81.6%; however, it slightly decreased to 75.7% for the non-mentors. Over 99% of the mentors attended in all the subjects in the annual examination of 2009 which was 91.2% for the other students. On an average, the mentors got 60% of total marks in the above examination; however, the non-mentors got 50.6% of the total marks. All these records show that relatively better students were selected as mentors.

Mentors’ activities

One of the crucial parts of mentor activities is the seat plan in the classrooms. The mentors never sat together in the classrooms rather they took their seats with their
fellow members. This means that the good students of the classes were distributed around the classroom. When the seating issue was discussed with the mentors, one of them said that the mentors would not be able to understand the problems of their group members or they would not be able to help them if they do not sit together. The other mentor said, “The training that we received and the things we learned in the training would be confined only to us if we do not try to understand our fellow classmates and help them accordingly. Seating with them is one way of understanding them. It helps us seeing their classroom activities closely.” The research team who visited a number of classrooms also confirmed that the mentors sat with their fellows.

**Mentors’ and students’ role in conducting activities**

Interviews and FGDs with the mentors and the general students and classroom observations reveal that the mentors primarily noticed a few things of their fellow members. These included whether they were present in school, prepared all home works, dressed with school uniform, bought all textbooks and other stationeries, acted in a disciplined way, etc. The second important task was to help the fellow classmates to understand lessons on their demand.

The mentors mentioned that they identified the absentee students of their groups to find out the reasons behind absenteeism. They sometimes talked to the parents of the absentee students over cell phone, asked the neighbouring students to talk to the parents face-to-face or themselves went to their homes. The mentors were found careful whether their group members brought all necessary textbooks for the day. They sometimes shared their own books with those who did not bring textbook and also warned for their habit. Some of the mentors said that they helped their fellows to prepare home tasks. The fellow students also recognized such support from their mentors. One of the students said, “One day, I was not able to understand trigonometry even after the teacher discussed it in the classroom. I then talked to my mentor and she made it easy for me.” The other day, we saw that a mentor was demonstrating a mathematical problem to his fellows during break. The other members of the group were also helping the mentor. It was known that the mentors sat with their fellow members before the examination to discuss about the exam preparation. The other important issue of such discussion was to motivate them to participate in all the scheduled examinations.

There were few examples that the mentors initiated financial support to the students in need. With their initiative, some poor students got copybooks and pens. When some students were unable to accumulate examination fees the mentors took initiative to help them with support from the teachers and some students of well-off families. Following is an example:

*It was a mentoring meeting of class VIII. A fellow student told about his sufferings due to poverty. He had only one class copy to use for all the subjects but he wanted separate copies for the subjects. On discussion of the matter the students find out a number of alternative solutions of the problem. Each member agreed to give one copybook to the student and one of the students proposed to provide him a copybook every month from his father's stationary shop.*

**Teachers’ co-operation**

All sources of data confirmed that the teachers put their active contribution in strengthening the mentoring activities. The teachers motivated the students about group activities by saying positive words. In a mentors’ word, “Our teachers
encouraged us by saying many moral words, such as, all the students are like brothers and one brother should help another. You are the future of your family and the nation. You would learn and shine if you work together, etc.” The teachers also provided directions to the mentors to do their activities properly and also advised other students to listen to the mentors’ and cooperate with them. The teachers also helped students in preparing wall magazine and arrangements of debate competition. They helped in selecting items and edit them for the magazine and generating ideas and logics before any debate.

Mentoring meeting

Mentoring meeting was the most important part of the activity which was held once a week, mainly Thursdays in most schools for 45 minutes. In the meeting, the mentors checked the attendance, group members’ problems in lessons as well as their personal problems. They also performed co-curricular activities such as music, recitation of poems, discussed about school discipline, cleanliness, etc. In case if the main mentor could not be present, the assistant mentor played his/her role. The teachers were present in most meetings. The students were found to discuss their problems openly with the mentors and the other members, and some of the problems were solved by taking joint initiatives.

School attendance

Some improvements were noticed in students’ attendance after introducing the mentoring project. Both the teachers and the students noticed this. They described the changes in attendance as positive and effective. According to a teacher, “One cannot ignore the change in students’ attendance after introducing the mentoring activities. Earlier some students left school at certain point of time say during the break but now all of them stay in school for the whole duration.” The other teacher who is the class teacher of grade VI in a school said, “There are 99 students in my class. On an average, 45 students came to school earlier. This is now gone up to at least 70. Sometimes I found as many as 90 in my class.” One of the mentors said, “I sometimes did not come to school or missed classes before, but now I am responsible to ensure my classmates’ attendance. So, how can I be absent from classes? I cannot. If I do, my group members will follow me.” There are some more examples which show students’ realization about regular participation in school activities. One of the teachers said that they are now well-informed about students absenteeism and early leaving which helped them taking action against these. He described the mentors as ‘watch dog’.

Participation in examination and performance

The teachers and the students observed some changes in the schools regarding internal examinations. First of all, due to peer pressure, some more students participate in all the exams of all the subjects than before. The other issue they noticed is the competition among the mentoring groups regarding participation and performance in the examinations. One of the teachers described these as ‘healthy atmosphere’ for educational development in the schools. The other teacher said, “Such collaborative attitude of the students within the group and competitive atmosphere among the groups were totally absent before implementation of mentoring activity.”

One of the head teachers reported that about 70% of the students participated in the first term examination which was held before introduction of mentoring project in
the school. However, few months after the introduction of the project when the second term examination was held the participation was found to be over 90%. He also added that “generally the rate improves from first to the second term exam but this year the rate is slightly higher than the past few years.” The teachers mentioned the following during FGDs:

Owing to lack of adequate preparation, the students felt shy to participate in the examinations. The other reason of non-participation was inability to pay examination fees. Scopes have been created to remove both the barriers through intervention like mentoring. The students now help themselves in both the issues. It is now possible for the teachers to take an initiative because the issues are now raised by the students which was not the case before.

However, regarding performance of the students in the examinations, the teachers said that it would take some more time to have such an impact. They also added that improvement in the performance is their main aim but at the same time it cannot be achieved overnight. However, some of the teachers mentioned that they noticed little improvement in the answer scripts of some of their students. According to them, “It might be due to their additional discussion in groups.” One of the parents said, “My son became more attentive in his studies after returning back from mentoring training. I heard that he is leading a group of his class. He did better in the second term exam than the first term.”

Teacher-student and inter-student relationship

The mentoring activities contributed in strengthening relationship among the students as well as the teacher-student relationship. Inter-student relationship improved due to more engagement of the students in groups for academic and non-academic causes. The so called ‘good students’ were seen much sympathized to other students’ needs and thus extend help to them. The other activities like arrangement of debate competition and preparation of wall magazines brought the students closer to each other as well as helped harmonizing teacher-student relationship. Reflection of such relationship was found during classroom observation. This was seen in the cases of sitting pattern, teachers asking questions, students’ response, and overall teachers’ response to the students’ needs. Some of these examples can be found in the earlier sections.

Co-curricular activities and leadership potentials

Co-curricular activities were one of the important aspects of mentoring programme. The schools under the programme had no or little attempt for such activities before the implementation of the programme. The activities included preparation of wall magazine, arrangement of debate and sports competition, and weekly meeting of the mentoring groups. Table 3 provides number of activities of each type separately for each of the schools under the programme during July-December 2009.
Table 3. Co-curricular activities in mentoring schools, July-December 2009

<table>
<thead>
<tr>
<th>Schools</th>
<th>Wall magazine</th>
<th>Contributors (girls)</th>
<th>Debate competition</th>
<th>Sports competition</th>
<th>Weekly meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>School G</td>
<td>2</td>
<td>26 (14)</td>
<td>1</td>
<td>1</td>
<td>44</td>
</tr>
<tr>
<td>School H</td>
<td>3</td>
<td>35 (21)</td>
<td>0</td>
<td>1</td>
<td>31</td>
</tr>
<tr>
<td>School I</td>
<td>3</td>
<td>41 (28)</td>
<td>1</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>School J</td>
<td>3</td>
<td>40 (28)</td>
<td>1</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>School K</td>
<td>3</td>
<td>45 (22)</td>
<td>0</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>187 (113)</strong></td>
<td><strong>3</strong></td>
<td><strong>2</strong></td>
<td><strong>138</strong></td>
</tr>
</tbody>
</table>

The students of the five schools prepared 14 wall magazines altogether—three each in four schools and two in one school. The first two schools (Schools G and H) had some experience of preparing wall magazines but it was for the first time for the rest three schools. A total of 187 contributors were involved in the wall magazines, of which 113 were girls. In other wards, the girls contributed 60% of the writings in all the magazines. The girls’ contribution was about 50% in one school (School K) and about 70% in two schools viz., School I and School J. The number of contributions varied from one school to another—26 in School G and 45 in School K. Majority of the contributions were rhymes and poems; however, short stories and art works were also contributed by a number of students. Each of the wall magazines was much colourful, which were decorated by colourful papers or colour pencils. The wall magazines signify innovations and potentials of the students. The teachers were found happy with the product of their students. One of the teachers said, "At this stage, it is important to encourage the students to write for the magazines." The other teacher added, "They would obviously write better over time. It is important to continue the effort with proper guidance."

Debate competition was arranged in three schools and sports competition in two. Both were arranged in School G and none in School K. Records on number of students participated in the competitions were kept poorly. Thus, it was not possible to find any accurate information on this. The mentors sat with their groups 138 times during July-December 2009. Most of the group meetings were held on Thursdays after official contact hour was over. Number of weekly meeting also varied from one school to another. The highest number of meeting was found in School G (44) and lowest in School I (19). The average number of meetings per school was 27.6 during the period. Besides, discussion on academic matters, the students also had some co-curricular activities in the weekly meetings like reciting poems, singing songs, and playing drama. In a meeting, the students were seen discussing on creativity, i.e., what is creativity, how it can be flourished, etc. A student prepared the following rhyme on smoking instantly in a meeting:

*Dhumpan bishpan*  
*Otoeb sabdhan*  
*Dhumpan kore jara*  
*Okale more tara* 

A mentor teacher opined, “Through the process of debate competition and conducting the meetings, the students now know how to address the audience or deliver a speech.” He also added, “We tried to arrange debate competition earlier, but very few responses were found from the students. The students felt shy and thus, did not participate much. But I think the weekly meetings gave them opportunity to get prepared for formal debate.” The other teacher opined, “I see a good linkage among
the training in the TARC (Now BLC), the weekly meetings in school, and the debate competitions. It is a well thought programme for students’ capacity development."

**School discipline and values**

Learning discipline and values are parts of school life. The teachers teach their students these at every stage in the school. But it is not always easy to keep a disciplined life and learning the values. Discussing the issues with the teachers, parents and the students, it was found that as the issues were discussed in the mentoring training at the BRAC TARC and thus, some changes occurred after the inception of the programme. The issues became popular among the students after the programme begins.

In addition to the academic issues, the students were found discussing the issues like cleanliness, respect to the elders, attentiveness in classrooms, etc. in their weekly meetings. In such a meeting a mentor was found advising his group members to be silent in the classroom while the teacher is in and not to make any noise in school. The mentors asked their fellows to wear school uniform regularly and keep them clean. Some of the parents told that their children were not regular in study at home but during the past few months they became regular. According to a mother, “My son now knows how much time he should spend for which subject.” A head teacher informed that the students were repeatedly reminded to clean the classrooms and the school premises but they could not be made willing to do these. As a result a maid was hired to do so. But after the mentoring training it became easier for the teachers to engage the students in such activities.

**Perception and challenges of mentoring activities**

It was hard to find out a respondent in the entire study who had not expressed positive responses to the mentoring project. All of them opined to enlarge the project in future. The most striking point was that they mentioned so many strengths but found very limited weakness of the project. Most of the respondents opined that the most strong point of this project was to develop the leadership capacity among the students and to overcome their hesitation. The other major strength mentioned by them was the building habit of group work. The involvement and participation in co-curricular activities were another leading positive area expressed by the respondents. One of the comments of a participant could be noted here, “The students only knew that the poet can write poems but they did not have any idea that they could even do it. Besides, they used to think that poems are only published in books but they never knew that it is possible to hang the stories, poems on wall in the form of a magazine.” According to the teachers, the students have accepted these activities very positively. The mentors were asked whether they felt extra pressure to maintain the responsibilities as a mentor and the answers were got negative in every case. They considered it enjoyable. However, according to a teacher, some guardians of the mentors considered the mentoring activities as added burden for their children though they were small in number. Teachers also shared that as the students sweep with brush (jharu) to clean the school, some guardians get offended at this. The teachers then had to explain and motivate the parents that these were also important parts of education.

Some suggestions were sorted out from them. One of the common suggestions was to organize the mentoring training once a year. One of the mentors commented, “A scissor can get damage if it remains unused for a long period, so there is a possibility to forget if the training would not be given again.” Some teachers also
proposed to provide this training to all students rather than some selected students. According to some of the teachers, students and mentors, they did not have enough books in their libraries. Some other viewed that there should be some musical instruments in schools such as harmonium, drum (tabla), etc. for conducting cultural activities. Most of the respondents opined that these activities could contribute a lot for the betterment of the secondary education as the activities would effect on attendance and therefore examination of the school.

Challenges on mentoring project

Some of the students shared that sometimes they had to collect papers and other necessary materials by themselves and had to go far to buy them. The students proposed to supply necessary materials from the school so that they could get these on time. A common suggestion came from the students as well as the teachers that some reward or prizes should be announced and provided to the best performer so that they as well as the other students feel encouraged and tries hard to perform better in future. The teachers and the BRAC field officials noted that the mentors should not get over emphasis throughout the mentoring activities. Because the other students might have leadership potentiality and thus they also should get proper attention. To take this challenge, all the students should cover through the training programme by rotation. If all students receive training an equal opportunity could be created to develop their leadership quality.

CONCLUSION

In this study we explored two independent but new components for quality improvement in secondary schools. These are computer aided learning and mentoring projects. The components ran in respectively six and five rural schools on a pilot basis funded from a project called TQI under the ministry of education. Duration of this piloting was one year. The projects were officially started in May 2009 and ended in April 2010. The first two month of the project was spent for preliminary preparation including school selection and training of the respective persons. This study covered only six months— third to eighth, i.e., July-December 2009.

This study mostly based on qualitative exploration of the activities which included perception of various stakeholders (students, teachers, parents, etc.) and observation of classroom and other activities. An attempt was made to collect some data on students learning achievement and attendance but the data could not be used due to faulty record-keeping system of the schools.

The stakeholders in general opined that both the initiatives were beneficial for the students. They also lauded at the curricular and co-curricular activities of the projects, especially the capacity development parts of the projects. It was difficult for the respondents to see an impact of the projects on learning achievement of the students within the short span of time. However, they noticed some examples which indicated positive changes. The teachers suggested for increase of project duration at least for three years in order to have concrete evidence in this regard. They also suggested some changes for the betterment of the students.
As the stakeholders especially the teachers and the students were found convinced that the initiatives like CAL and mentoring are helpful in improving quality of teaching and learning in the secondary schools, it is suggested that the projects can be expanded in more schools. Duration of the package should be at least for three years instead of one year. Some modification can be made as per suggestions of the teachers and the students. An integrated package of both CAL and mentoring can be more effective than their present independent intervention. Record-keeping system of the schools needs to be improved for the sake of measuring impact on attendance and learning achievement.
REFERENCES


