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Manzoor Ahmed
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Abu Hamid Latif
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Notes from the Editor

Different facets of pedagogy and quality of the teaching-learning process are given attention in this issue. Two of the articles explore the theoretical aspects and principles of effective teaching-learning. Two others look at practical aspects of pedagogy and assessment of learning.

Kingsley Osamede Omorogiuwa from South Africa argues that effective learners are self-regulating – "appraising task requirements; setting achievable goals; and selecting, adapting or inventing strategies to achieve the stated goals." Self-regulated learners set up monitoring strategies to monitor their own progress as they participate in the learning task through feedback to themselves, regulating intrusive emotions and adjusting strategies targeted to promote success.

Md. Abu Raihan of Islamic University of Technology and **Han Seung Lock** of Kongju National University, Korea explore the relationship between constructivism, technology, and meaningful learning. The authors describe four models for technology integration based on the theory of constructivism and propose a checklist that can be helpful in integrating technologies in the classroom for meaningful learning.

Selina Banu writes about teachers' readiness for computer education classes in the secondary schools of Bangladesh. In spite of the proclaimed importance of computer education in schools, it has been found that teachers are poorly prepared and generally perform very poorly in teaching computer use. Extensive in-service training and other support measures for teachers are suggested to improve computer education.

Rozina Parvin and Md. Zulfeqar Haider write that a top-down revision of the English curriculum for secondary schools (grades 6 to 10) by the National Curriculum and Textbook Board (NCTB) in the 1990s aimed at a switch from the traditional grammar-translation method to the Communicative Language Teaching (CLT) approach. It has failed to improve the quality of English teaching and student outcome in the mainstream Bangla medium schools. However, privately run English medium schools, without subscribing formally to CLT, appears to be producing better results by following pragmatically some CLT techniques, such as, using English for giving instructions in class, silent reading and explaining new vocabulary in English.

C o n t e n t s

Notes from the Editor

Facilitating Self-Regulated Learning Through Effective Feedback

Dr. Kingsley Osamede Omorogiuwa[*]

Abstract

This paper presents a position on the self-regulated learning phenomenon. The concept of lifelong learning lends credence to the idea of self regulated learning. The role of feedback both internal and external is pertinent to effective self-regulated learning. Self-regulation involves active monitoring and regulation of a number of different learning processes: such as orientation towards learning goals; strategies to achieve goals; management of resources and effort exerted; and reactions to external feedback. Effective learners are self-regulating -- appraising task requirements; setting achievable goals; and selecting, adapting or inventing strategies to achieve the stated goals. Self-regulated learners set up monitoring strategies to monitor their progress as they participate in the learning task, regulating intrusive emotions and declining drive as well as adjusting strategies targeted to promote success. Literature supports the view that self-regulated learners are meta-cognitively, motivationally, and behaviorally active in their own learning processes and in achieving their set goals. By developing the skills and habits to be effective learners, the self-regulated learner exhibits effective learning strategies, effort, and persistence. This paper presents how self-regulated learning can be facilitated through effective feedback.

Keywords: self-regulated learning, effective learners, feedback, monitoring, intrusive emotions

Introduction

The notion of lifelong learning is born out of the need to adjust and adapt to the ever changing world lending credence to the idea of self-regulated learning. This is not to say that the idea of self-regulated learning is new, but to emphasize that even though it has been a way of learners attaining their desired goal, there is a need to explore how learners can become more proficient in self-regulated learning practices and establish it as part of the learning system through feedback. Students generate internal feedback as they engage in learning activities and appraise progress towards goals. The more effective a learner is at self-regulation, the better feedback they generate and are more able to use the generated feedback to achieve their desired goals (Butler & Winne, 1995).

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[*] Post Doctoral Fellow, Institute for Open and Distance Learning, College of Graduate Studies, University of South Africa. Email: omoroko@unisa.ac.za: kingsomorogiuwa@yahoo.com

Formative assessment is intended to generate feedback on performance to improve and accelerate learning (Sadler,1998). Self-regulation refers to the degree to which students can manage aspects of their thinking, motivation and behavior in a learning programme (Pintrich & Zusho, 2002). Self-regulation involves active monitoring and regulation of a number of different learning processes: such as orientation towards learning goals; strategies to achieve goals; management of resources and effort exerted; and reactions to external feedback. Intelligent self-regulation demands that students be aware of the goals to be achieved against which learning achievement can be compared and assessed. In the school system this involves setting specific targets, criteria, standards and other reference points, as well as feedback about how the student's present state of learning and performance relates to these goals and standards (Nicol & Macfarlane-Dick 2006). Self-regulated learners actively interpret such external feedbacks from teachers and other students in relation to their internal goals. There is evidence in literature indicating that students can learn to become more self-regulated (Zimmerman & Schunk, 2001).

Over the years emphasis had consistently moved from teachers transmitting knowledge, to conceptualization of learning as a process whereby students actively construct their own knowledge and skills (Barr & Tagg, 1995; De Corte, 1996; Nicol, 1997). Students' exposure to learning materials leads to transforming these, sometimes discussing with others, in order to internalize meaning and make connections with previous knowledge. Popularization of terms like 'student-centered learning' has made learning the greater responsibility of the learner (Lea, Stephenson & Troy, 2003). Formative assessment and feedback are still largely controlled by and seen as the responsibility of teachers; and feedback is still generally conceptualized as a transmission process even though some researchers have recently challenged this viewpoint (Yorke, 2003; Boud, 2000, Sadler, 1998). In the traditional practice teachers 'transmit' feedback messages to students about their strengths and weaknesses, and students use this feedback to make adjustments for improved learning.

One of the problems with this practice however is that it leaves formative assessment exclusively in the hands of teachers, ignoring how learners can be enabled to develop self-regulation skills needed for learning outside the structured school system and throughout life (Boud, 2000). Another problem is the assumption that when teachers transmit feedback to students this information is easily decoded and translated into action. However, there is strong evidence that feedback messages are often not easy to understand and that students require opportunities for discussion and clarification before such feedback information can be used to enhance student learning (Higgins, Hartley & Skelton, 2001; Ivanic, Clark & Rimmershaw, 2000). Viewing feedback as a cognitive process involving only the transmission of information does not take into cognizance the way feedback interacts with motivation, interest and beliefs. There is evidence in literature showing that feedback both regulates and is regulated by motivation and beliefs. External feedback has been shown to influence how students feel about themselves and what and how they learn (Dweck, 1999).

What is self-regulated learning?

Self-regulated learning is the ability of an individual to understand and control his/her learning environment. Self-regulation capabilities include goal setting, self-monitoring, self-instruction, and self-reinforcement (Harris & Graham, 1999; Schraw, Crippen, & Hartley, 06; Shunk, 1996). Self-regulation is a self directed process and comprises a set of activities which learners apply to turn their mental abilities into useful skills (Zimmerman, Bonnor, & Kovach, 2002) and habits. Following a systematic process (Butler, 1995, 1998, 2002) based on guided practice and feedback is emphasized (Paris & Paris, 2001). Self-regulated learners set up monitoring strategies to monitor their progress as they participate in the learning task, regulating intrusive emotions and declining drive as well as adjusting strategies targeted to promote success. These are the students who are active in the learning process, asking questions, taking notes, and managing their time and their resources in ways that put them in charge of their own learning (Paris & Paris, 2001).

Components of self-regulated learning

The term self-regulated learning developed from the increased interest on self-regulation by academics in the 1980's, with researchers investigating on how students can become masters of their own learning processes. Sustained research had led to the development of models of self-regulated learning incorporating aspects of both meta-cognition and self-regulation with emphasis on self-monitoring (Dinsmore, Alexander, & Loughlin, 2008). Zimmerman and Schunk (2001; 2008) and linking motivation to self-regulation. There is a consensus among these researchers that self-regulated learners are meta-cognitively, motivationally, and behaviorally active in their own learning processes and in achieving their set goals. They develop the skills and habits to be effective learners, exhibiting effective learning strategies, effort, and persistence. A number of self-regulated learning strategies are applicable across different content domains.

According to Shuy et al, (2010) self-regulated learning consists of three components: cognition, meta-cognition, and motivation. The cognition component includes the skills and habits that are necessary to encode, commit to memory and recall information as well as critical thinking. Cognitive strategies are learning strategies that can be specific to a domain or content. Problem solving strategies and critical thinking skills are also pertinent. These involve a diversity of skills,, namely, identifying a particular source of information and reflecting on whether or not that information is coherent with one's prior knowledge. Learners can be helped to articulate and practice critical thinking by guiding them through comprehension activities such as asking them to generate questions before or during studies to focus the learner's concentration and encourage participation in discussions.

The meta-cognition component involves skills that enable learners to understand and monitor their cognitive processes. Meta-cognition consist of declarative knowledge that is knowledge about oneself as a learner, the factors that influence achievement; procedural knowledge that is knowledge about strategies and other procedures; and conditional

knowledge that is knowledge of why and when to use a particular strategy. Learners are often challenged in articulating their knowledge or in transferring knowledge from a specific content domain to another. The aim of self-regulated learning is for these strategies to first become clear and eventually applicable for the learner. While making learners do a demonstration can make knowledge visible, debriefing after the demonstration can make visible the difference between declarative, procedural, and conditional knowledge illustrating transfer of knowledge from one setting to another.

The motivation of learners relates to the beliefs and attitudes that affect the use and development of both cognitive and meta-cognitive skills. Motivation includes self-efficacy, that is, the degree to which one is sure of oneself about performing a given task or accomplishing a set goal. It is also influenced by one's epistemological beliefs concerned with the origin and nature of knowledge. Self-regulated strategy development includes goal setting, monitoring and displaying progress. Encouraging these strategies as a regular feature of instruction can assist learners to replace negative self esteem with self-confidence and a sense of oneself as an effective learner.

Feedback and self-regulated learning

Nicol and Macfarlane-Dick (2006) defined good feedback practice as anything that might strengthen the students' capacity to self-regulate their own performance. They identified seven principles of good feedback practice for facilitating self-regulation as follows: it helps clarify what good performance is (goals, criteria, expected standards); facilitates the development of self-assessment (reflection) in learning; delivers high quality information to students about their learning; encourages teacher and peer dialogue around learning; encourages positive motivational beliefs and self-esteem; provides opportunities to close the gap between current and desired performance; and provides information to teachers that can be used to help shape teaching.

To achieve learning goals students need to understand those goals, see them as attainable and should be able to monitor progress toward reaching them (Sadler, 1989; Black & William, 1998). Since it is the students who set goals that serve as essential criteria for self-regulation there should be harmony between the students' goals and those of the teacher. Hounsell (1997) shows that tutors and students often have quite different conceptions about the goals and criteria. His study showed poor essay performance was correlated with the degree of mismatch between student and teacher expectations for essays in undergraduate courses in history and psychology.

Norton (1990) shows that students' ranking of specific assessment criteria for an essay task were completely different from rankings of their teachers; the former, attaching more importance to content above critical thinking and argument. Weak and incorrect conceptions of goals influence what students value in external feedback information. In order for students to be able to give proper interpretation to feedback they should share at least in part their teacher's conceptions of assessment goals, criteria and standards (Hounsell, 1997).

Providing students with written documents containing statements that describe assessment criteria and/or the standards that define different levels of achievement can help clarify task requirements. However evidence in literature shows how difficult it is to make assessment criteria and standards explicit through written documentation or through verbal descriptions in class (Rust, Price & O'Donovan, 2003). "Statements of expected standards, curriculum objectives or learning outcomes are generally insufficient to convey the richness of meaning that is wrapped up in them" (Yorke, 2003, p480). Orsmond, Merry and Reiling, (2002) write that providing students with "exemplars" of performance proved particularly useful in clarifying goals and standards. Exemplars are effective because they make explicit what is required. They define a valid standard against which students can compare their work.

To develop self-regulation students should be provided opportunities to practice regulating aspects of their own learning and to reflect on that practice. Naturally, learners are busy to some extent in monitoring gaps between internally set task goals and the outcomes that they are generating both internally and externally. However, in order to develop systematically the learner's capacity for self-regulation, teachers need to create more structured opportunities for self-monitoring and the appraisal of the attainment of set goals. Self-assessment tasks are an effective way of achieving this, as it encourages reflection on learning progress. McDonald and Boud (2003) show that training in self-assessment can improve students' achievement in final examinations. Taras (2001; 2002; 2003) has carried out a number of studies on student self-assessment in higher education which shows positive influence on students' achievement. Developing self assessment skills provide students with opportunities to assess and provide feedback on each other's work. Such peer processes help develop the skills needed to make objective judgments with reference to standards. These skills are transferred to regulating their own work (Boud, Cohen & Sampson, 1999; Gibbs, 1999).

Teachers have a principal role in developing students' capacity for self-regulation. They are also an important source of external feedback. Feedback from teachers is a source against which students can evaluate progress and check out their own internal constructions of goals, criteria and standards. Moreover, teachers are much more effective in identifying errors or misconceptions in students' work than peers or the students themselves. In effect, feedback from teachers can help substantiate student self-regulation (Nicol & Macfarlane-Dick, 2006).

Timely feedback from teachers is crucial and should not only focus on strengths and weaknesses but also offer corrective advice. Such advice can direct students to higher order learning goals and involves some commendation alongside constructive criticism. These feedbacks should help students develop effective self-regulation, they should help students trouble-shoot their own performance and self-correct; that is, the feedback helps students take action to reduce the discrepancy between their intentions and the resulting effects.

External feedback is effective when it is understood and internalized by the learner before it can be used to make productive improvements in self-regulation skills. Chanock (2000) and Hyland (2000) report there is evidence in literature that students do not understand the feedback given by tutors (e.g. 'this essay is not sufficiently analytical') and are not able to take action to reduce the discrepancy between their intentions (goals) and the effects they would like to produce. In other words, . the student may not know what to do to make the essay 'more analytical'.

External feedback from teachers to students can essentially be a monologue, thereby leaving out the active role the student must play in constructing meaning from feedback messages. For feedback to be effective it has to be a dialogue, meaning students after receiving the feedback should be given the opportunity to engage with the teacher in a discussion about the feedback (Laurillard, 2002). Freeman and Lewis (1998) argue that the teacher 'should try to stimulate a response and a continuing dialogue – whether this is on the topics that formed the basis of the assignment or aspects of students' performance or the feedback itself' (p.51). The discussions with the teacher help students to develop their understanding of expectations and standards, to check out and correct misunderstandings and to get an immediate response to questions. This can however be a challenge in large classes. This challenge can be addressed by forming peer discussion groups where concerns can be handled.

Peer dialogue enhances in students a sense of self-control over learning individually. Students who have just learned something are often better able than teachers to explain it to their classmates in a language and in a way that is accessible to other students. Peer discussion exposes students to alternative perspectives on problems and to alternative tactics and strategies. By commenting on the work of peers, students develop detachment of judgment (about work in relation to standards) which is transferred to the assessment of their own work (e.g. 'I didn't do that either'). Peer discussion can be motivational in that it encourages students to persist; and it is sometimes easier for students to accept critiques of their work from peers rather than tutors.

Motivation and self-esteem are essential facilitators of learning and assessment. Dweck (1999) shows that depending on learners' beliefs about learning they form motivational frameworks. Their responses to external feedback and their commitment to self-regulation of learning are determined by these frameworks. Black and Wiliam (1998),however, note that feedback that draws attention away from the task and towards self-esteem can have a negative effect on attitudes and performance. They make the point that students need to understand feedback as an assessment of performance, not of the person. This is so whether the feedback derives from an external source or is generated through self assessment.

Studies on motivation and self-esteem help explain why students often fail to self-regulate. Motivation and self esteem are more likely to be enhanced when a course has many low-stakes assessment tasks, with feedback geared to providing information about progress and

achievement, rather than high stakes summative assessment tasks where information is only about success or failure or about how students compare with their peers.

Feedback influences behaviour and the academic work that is produced. According to Yorke (2003), two questions might be asked regarding external feedback: is the feedback of the best quality and does it lead to changes in student behaviour? Unless students are able to use the feedback to produce improved work, through, for example, the same assignment again, neither they nor those giving the feedback will know that it has been effective. (Boud, 2000:158). Closing the gap is about supporting students while busy in the act of working on a task (e.g., essays, presentations). It is also about providing opportunities to repeat the same 'task-performance-external feedback cycle' by, for example, allowing resubmission. While not all work can be re-submitted, many writers argue that re-submissions should play a more prominent role in learning (Boud, 2000). Also, greater emphasis may need to be given to providing feedback on work-in-progress (e.g., on structures for essays, plans for reports, sketches) and to encouraging students to plan the strategies they might use to improve subsequent work (Hounsell, 2004).

Good feedback provides information that helps teachers shape their teaching. The act of assessing has an effect on the assessor as well as the student. Assessors learn about the extent to which they (students) have developed expertise and can tailor their teaching accordingly (York, 2003:482) In order to produce feedback that is relevant and informative and meets students' needs, teachers themselves need good data about how students are progressing. They also need to be involved in reviewing and reflecting on this data and in taking action to help support the development of self-regulation in their students.

Conclusions and Recommendations

Self-regulated learning is a skill that should become part of the school system. The challenges of living in a world of ever increasing knowledge create the resulting dynamics of coping with the rapid changes in career requirements and social demands. The formal school system is evidently not enough to build the capabilities to function effectively in a modern society. Embracing the skills of self-regulated learning will no doubt make the goal of lifelong learning more attainable. Developing such skills as goal setting, planning, self motivation, managing attention and concentration,, flexible learning strategies, self monitoring, seeking appropriate help and self evaluation are necessary ingredients for effective self regulated learning.

In the school system these skills can be developed quite early by helping the learner clarify what good performance is by guiding them to set realistic and attainable goals. Learners should develop the practice of self assessment as a way of working effectively toward the attainment of set goals. The development of self-regulated learning capacity is highly dependent on the quality of feedback learners get from teachers. Feedback should be timely and based on objective criteria. Feedback should not only be limited to identifying strengths

and weaknesses but include advice on how the weaknesses can be overcome and the strengths sustained. Peer dialogue should be encouraged as a self-regulated learning practice. This is so because the ability to critique a peer' work enables one to apply this learning in one's own situation. There is an air of openness when peers critique each other's work, which furthers the possibility of learning from anyone even though such a person is not certified as a master in a field.

A well motivated learner develops the proper self-esteem and the resilience required for a successful academic pursuit. Feedback provided by teachers should help students to be self-motivating and build self-esteem by ensuring that feedback addresses the work and not the personality of the student. Students should be given the opportunity to re-take a test or re-do assignments after feedback. Thus the effect of feedback can be better determined and students can be better motivated to learn. Feedback should also not be seen as beneficial to the learner only but also to the teacher as it should be used to reshape the teachers' instructional delivery strategy to better address the needs of learners.

To develop and sustain a system of self-regulated learning it is recommended that training workshops be organized on self-regulated learning for teachers to enable them engage in it effectively. Empirical studies should be done to work out strategies for effective self-regulated learning in specific contexts.

References

Barr, R. B. and Tagg, J. (1995). A New Paradigm for Undergraduate Education. *Change*, 27(6), 13-25.

Black, P. & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education,* 5(1), 7-74.

Boud, D. (2000). Sustainable assessment: rethinking assessment for the learning society. *Studies in Continuing Education,* 22(2), 151-167.

Boud, D., Cohen, R. and Sampson, J. (1999). Peer learning and assessment. *Assessment and Evaluation in Higher Education,* 24(4), 413-426.

Butler, D. (2002). Individualizing instruction in self-regulated learning. *Theory into Practice. 41,* 81-92.

Butler, D. (1998). A strategic content learning ap-proach to promoting self-regulated l e a r n i n g   b y students with learning disabilities. In D. Shunk & B. Zimmerman (Eds.) *Self-regulating Learning: From teaching to self-reflective practice* (pp.160-183). New York: Guilford Press.

Butler, D. (1995). Promoting strategic learning by postsecondary students with learning   disabilities. *Journal of Learning Disabilities, 25,* 226-229.

Butler, D.L. & Winne, P.H. (1995). Feedback and self-regulated learning: a theoretical   synthesis. *Review of Educational Research,* 65(3), 245-281.

Chanock, K. (2000). Comments on essays: do students understand what tutors write? *Teaching in Higher Education,* 5(1), 95-105.

DeCorte, E. (1996). New perspectives on learning and teaching in higher education, in: A. Burgen (Ed) *Goals and Purposes of Higher Education in the 21st Century* (London, Jessica Kingsley Publishers).

Dinsmore, D., Alexander, P., & Loughlin, S. (2008). Focusing the conceptual lens on metacognition, self-regulation, and self-regulated learning. *Educational Psychology Review,* 20, 391-409.

Dweck, C. (1999). *Self-theories: Their Role in Motivation, Personality and Development* (Philadelphia: Psychology Press).

Freeman, R. & Lewis, R. (1998) *Planning and Implementing Assessment* (London, Kogan Page).

Gibbs, G. (1999) Using assessment strategically to change the way students learn, in: S. Brown & A. Glasner (Eds) *Assessment Matters in Higher Education: Choosing and Using Diverse Approaches* (Buckingham, SRHE/Open University Press).

Harris, K. & Graham, S. (1999). Programmatic intervention research: Illustrations from the evolution of self-regulated strategy development. *Learning Disability Quarterly,* 22, 251-262.

Higgins, R., Hartley, P. & Skelton, A. (2001). Getting the message across: the problem of communicating assessment feedback. *Teaching in Higher Education,* 6(2), 269-274.

Hounsell, D. (1997) Contrasting conceptions of essay-writing, in: F. Marton, D. Hounsell and N. Entwistle (Eds) *The Experience of Learning* (Edinburgh, Scottish Academic Press).

Hounsell, D. (2004) *Reinventing feedback for the contemporary Scottish university,* paper presented at Quality Enhancement Conference on Assessment, University of Glasgow, 4 June.

Hyland, P. (2000) Learning from feedback on assessment, in: A. Booth and P. Hyland (Eds) *The practice of university history teaching* (Manchester, Manchester University Press).

Ivanic, R., Clark, R. and Rimmershaw, R. (2000) What am I supposed to make of this? The messages conveyed to students by tutors' written comments, in: M.R. Lea and B. Stierer, (Eds) *Student Writing in Higher Education:* New Contexts (Buckingham, SHRE/Open University Press).

Laurillard, D. (2002) *Rethinking University Teaching: a conversational framework for the effective use of learning technologies,* 2nd edition (London, RoutledgeFalmer).

Lea, S.J., Stephenson, D. & Troy, J. (2003). Higher education students' attitudes to student centred learning: beyond 'educational bulimia', *Studies in Higher Education,* 28(3), 321-334.

McDonald, B. & Boud, D. (2003). The impact of self-assessment on achievement: the effects of self-assessment training on performance in external examinations. *Assessment in Education,* 10(2), 209-220.

Nicol, D. & MacFarlane-Dick, D. (2006) "Formative assessment and self-regulated learning: A model and seven principles of good feedback practice" *Studies in Higher Education* Vol 31(2), 199-218

Nicol, D.J. (1997). *Research on Learning and Higher Education Teaching,* UCoSDA Briefing Paper 45 (Sheffield, Universities and Colleges Staff Development Agency).

Norton, L. S. (1990). Essay writing: what really counts? *Higher Education,* 20(4), 411-42.

Orsmond, P., Merry, S. & Reiling, K. (2002) The use of formative feedback when using student derived marking criteria in peer and self-assessment. *Assessment & Evaluation in Higher Education,* 27(4), 309-323.

Paris, S. & Paris, A. (2001). Classroom applications of research on self-regulated learning. *Educational Psychology,* 36, 89-101.

Pintrich, P. R. & Zusho, A. (2002) Student motivation and self-regulated learning in the college classroom, in: J. C. Smart and W.G. Tierney (Eds) *Higher Education: Handbook of Theory and Research,* Volume XVII (New York, Agathon Press).

Rust, C., Price, M. and O'Donovan, B. (2003). Improving students' learning by developing their understanding of assessment criteria and processes. *Assessment and Evaluation in Higher Education,* 28(2), 147-164.

Sadler, D.R. (1989). Formative assessment and the design of instructional systems. *Instructional Science,* 18, 119-144.

Sadler, D.R. (1998) Formative assessment: revisiting the territory. *Assessment in Education,* 5(1), 77-84.

Schraw, G., Crippen, K., & Hartley, K. (2006). Promoting self-regulation in science education: metacognition as part of a broader perspective on learning. *Research in Science Education,* 36, 111-139.

Shunk, D. (1996). Goal and self-evaluative influences during children's cognitive skill learning. *American Educational Research Journal,* 33, 359-382.

Shuy, T, OVAE and TEAL staff (2010) Self-Regulated Learning. TEAL Center Sheet No. 3. The Teaching Excellence in Adult Literacy (TEAL) Center (Project of the U.S. Department of Education), Office of Vocational and Adult Education (OVAE), designed to improve the quality of teaching in adult education in the content area.

Taras, M. (2001) The use of tutor feedback and student self-assessment in summative assessment tasks; towards transparency for students and tutors. *Assessment and Evaluation in Higher Education.* 26(6), 605-614.

Taras, M. (2002). Using assessment for learning and learning from assessment. *Assessment and Evaluation in Higher Education,* 27(6), 501-510.

Taras, M. (2003). To feedback or not to feedback in student self-assessment. *Assessment and Evaluation in Higher Education,* 28(5), 549-565.

Yorke, M (2003). Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice. *Higher Education,* 45(4), 477-501.

Zimmerman, B. & Schunk, D. (2008). Motivation: An essential dimension of self-regulated learning. In Schunk, D. and Zimmerman, B., *Motivation and self-regulated learning: Theory, research, and application.* Mahwah, NJ: Lawrence Erlbaum Associates.

Zimmerman, B. & Schunk, D. (2001). *Self-regulated learning and academic achievement: Theoretical perspectives.* (Mahwah, NJ: Lawrence Erlbaum Associates).

Zimmerman, B., Bonner, S., & Kovach, R. (2002). Developing self-regulated learners: *Beyond achievement to self-efficacy.* Washington, DC: American Psychological Association.

Technology Integration for Meaningful Learning - the Constructivist View

Md. Abu Raihan*
Han, Seung Lock**

Abstract

The purpose of the article is to explore the relationship between constructivism, technology, and meaningful learning it seeks to explore constructivist teaching strategies that could benefit student learning in ways that are different from those practiced in traditional, non-technological classrooms. The combination of technology and the constructivist approach is changing pedagogy.. We are moving towards a future in which computing is becoming more ubiquitous and there is evidence that technology is changing the way teachers conduct their teaching. Even so, few teachers are integrating technology into their teaching in ways that can support meaningful learning. Those who are usually successful in teaching with technology are those who constantly strive to facilitate student-centered learning environments that support and improve the depth and scope of student learning. Further, they are likely to have experienced shifts in their learning paradigms and embraced constructivist teaching styles. The authors describe four models for technology integration based on the theory of constructivism: (1) technology integration goals based on constructivism, (2) ways to use technology in real classrooms, (3) technology teaching and (4) teaching with technology. The authors also designed a checklist that can be helpful in integrating technologies in the real classroom for meaningful learning.

Key words: Technology integration, Meaningful learning, Mindtools, Constructivism.

I. Introduction

Technology includes two components: a product-a tool that embodies the technology, and a process-the information base of technology. The technology integration is a process in which computers and other technologies are used as tools to support the tasks of teaching and learning. Technology integration is the use of technology tools in general content areas in education in order to allow students to apply computer and technology skills to learning and problem-solving. Generally speaking, the curriculum drives the use of technology and not

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*   Assistant Professor, Department of TVE, Islamic University of Technology,
       Gazipur, Bangladesh(e-mail: maraihan.iut@gmail.com)
**   Professor, Department of Education, Kongju National University,
       South Korea(e-mail: hsrcom@kongju.ac.kr)

vice versa (Jolene Dockstader, 2008; Edutopia, 2011). According to the International Society for Technology in Education (ISTE): "Curriculum integration with the use of technology involves the infusion of technology as a tool to enhance the learning in a content area or multidisciplinary setting... Effective integration of technology is achieved when students are able to select technology tools to help them obtain information in a timely manner, analyze and synthesize the information, and present it professionally. The technology should become an integral part of how the classroom functions - as accessible as all other classroom tools. The focus in each lesson or unit is the curriculum outcome, not the technology." (Cited in U.S. Department of Education, 2008)

Jean Piaget (1977) asserts that learning occurs by an active construction of meaning, rather than by passive percipience. He explains that when we, as learners, encounter an experience or a situation that conflicts with our current way of thinking, a state of disequilibrium or imbalance is created. We must then alter our thinking to restore equilibrium or balance. To do this, we make sense of the new information by associating it with what we already know, that is, by attempting to assimilate it into our existing knowledge. When we are unable to do this, we accommodate the new information to our old way of thinking by restructuring our present knowledge to a higher level of thinking. According to Jean Piaget (Ginn, 2010) constructivist learning is based on four stages (active engagement, participation in groups, frequent interaction, and feedback) of cognitive development. In these stages, children must take an active role in their own learning and produce meaningful works in order to develop a clear understanding. These works are a reflection of the knowledge that has been achieved through active self-guided learning. Students are active leaders in their learning and the learning is student-led rather than teacher–directed (Wood, Smith, and Grossniklaus, 2011).

Vygotsky's work highlights the importance of "others" in the learning process. His position is that "learning awakens a variety of internal processes that operate only when the child is interacting with others in his environment and in cooperation with his peers" (as cited in Peterson, 1992, p. 3). Vygotsky introduced the social aspect of learning into constructivism. He defined the "zone of proximal development (JPD) learning," according to which students solve problems beyond their actual developmental level (but within their level of potential development) under adult guidance or in collaboration with more capable peers.

The Constructivism is an educational theory that emphasizes hand-on, activity-based teaching and learning during which learners develop their own frames of thought. Constructivism draws on the developmental work of Jean Piaget (1977) and Kelly (1991). Twomey Fosnot (1989) defines constructivism by reference to four principles: learning, in an important way, depends on what we already know; new ideas occur as we adapt and change our old ideas; learning involves inventing ideas rather than mechanically accumulating facts; meaningful learning occurs through rethinking old ideas and coming to new conclusions about new ideas which conflict with our old ideas.

As teacher and student roles shift with the integration of technology, a closer relationship seems to develop between students and teachers. Any change involves taking risks and many teachers may wonder if all the time and effort will be truly worth it. Jonassen & Wilson (1999) noted the excitement and enthusiasm generated by students while they construct their own understanding using technology-based tools are more than sufficient reward for taking those risks (p. 221).

In the following section the intricate link between constructivism and meaningful learning is discussed, including the characteristics of the constructivist classroom and the changing roles of teachers and students in promoting meaningful learning. This is followed in the next section by an exploration of technology integration from a constructivist perspective. Four models of integration are presented, including technology teaching and technology for teaching; the barriers to technology integration are discussed and a practical checklist for moving towards integration of technology into learning is presented.

II. Constructivism and meaningful learning

2.1. Constructivism

Constructivism is an educational theory that emphasizes hands-on, activity-based teaching and learning during which learners develop their own frames of thought. It is based on the belief that students learn best when they gain knowledge through exploration and active learning (McBrien & Brandt, 1997). According to Gredler (2001), constructivist perspective views knowledge as a human construction, the learner's knowledge as adaptive, and the teacher's role as that of challenging the learner's way of thinking.

Different views are held on constructivism which emphasizes cognitive or socio-cultural aspects of constructivism; but essentially, constructivists perceive learning as an active process of constructing rather than acquiring knowledge (Duffy & Cunningham, 1996). The instructional process is viewed as supporting that construction rather than exchanging the knowledge. The tenets of constructivism, therefore, support active learning that is reflective, authentic, contextual, and collaborative. (Novak, 1998).

Constructivism contrasts with the view of knowledge in which there is passive transmission of information from one individual to another (Hoover, 1996). Instead, it embraces an understanding that learning requires active engagement on the part of the learner (Jenkins, 2000) and that learners construct what they learn and understand based on their experiences in different situations (Schunk, 2000). When the students continuously reflect on their experiences, students find their ideas gaining in complexity and power, and they develop increasingly strong abilities to integrate new information. One of the teacher's main roles then becomes to encourage this learning and reflection process.

Merrill (1991) identifies various assumptions underlying the frame of thought underpinning active learning which include: (a) knowledge is constructed from experience; (b) learning is

a personal interpretation of the world; (c) learning is an active process of meaning-making based on experience; (d) learning should occur (or be situated) in realistic settings; and (e) testing should be integrated with the task, not a separate activity (cited in Mergel, 1998, p.9).

Contrary to criticisms by some (conservative/traditional) educators, constructivism does not dismiss the active role of the teacher or the value of expert knowledge. Constructivism modifies that role, so that teachers help students to construct knowledge rather than to reproduce a series of facts. The constructivist teacher provides tools such as problem-solving and inquiry-based learning activities with which students formulate and test their ideas, draw conclusions and inferences, and pool and convey their knowledge in a collaborative learning environment. Constructivism transforms the student from a passive recipient of information to an active participant in the learning process. Always guided by the teacher, students construct their knowledge actively rather than just mechanically ingesting knowledge from the teacher or the textbook.

2.2 Constructivist Classroom

When we encounter something new, we have to reconcile it with our previous ideas and experience, sometimes changing what we believe, or perhaps discarding the new information as irrelevant. In any case, we are active creators of our own knowledge. To do this, we must ask questions, explore, and assess what we know. Constructivist teachers encourage students to constantly assess how the activity is helping them gain understanding. By questioning themselves and their strategies, students in the constructivist classroom ideally become "expert learners." This gives them new tools to keep learning. With a well-planned classroom environment, the students learn HOW TO LEARN.

The constructivist classroom relies heavily on collaboration among students. There are many ways classroom collaboration contributes to learning. The students learn about learning not only from themselves, but also from their peers. When students review and reflect on their learning processes together, they pick up strategies and methods from one another. The main activity in a constructivist classroom is solving problems. Students use inquiry methods to ask questions, investigate a topic, and use a variety of resources to find solutions and answers. As students explore the topic, they draw conclusions, and as exploration continues, they revisit those conclusions. Exploration of questions leads to more questions. Calkins (1986) laments that in most classrooms, we neither teach students to ask questions nor allow them to ask questions, but simply require them to answer our questions, although asking questions is a challenging and important part of thinking and learning. By letting students ask questions, they are encouraged to ask more probing, more appropriate, and more effective questions. By asking their own questions, students acquire more consciousness of and control over their thinking. Students having "control over their thinking" is an important matter in a constructivist classroom.

Students have ideas that they may later see were invalid, incorrect, or insufficient to explain new experiences. These ideas are temporary steps in the integration of knowledge. For instance, a child may believe that all trees lose their leaves in the fall, until s/he visits an evergreen forest. Constructivist teaching takes into account students' current conceptions and builds from there.

A constructivist teacher and a constructivist classroom exhibit a number of discernable qualities markedly different from a traditional or direct instruction classroom. A constructivist teacher is able to incorporate flexibly and creatively ongoing experiences in the classroom into the negotiation and construction of lessons with small groups and individuals.

Constructivist classrooms are structured so that learners are immersed in experiences within which they may engage in meaning-making inquiry, action, imagination, invention, interaction, hypothesizing and personal reflection. Teachers need to recognize how people use their own experiences, prior knowledge and perceptions, as well as their physical and interpersonal environments to construct knowledge and meaning. The goal is to produce a democratic classroom environment that provides meaningful learning experiences for autonomous learners. Lester and Onore (1990) suggest that the attitudes, values, and beliefs of a teacher, specifically those related to the belief of student as constructor of knowledge, make it possible to create a democratic environment. A democratic classroom is self-regulating.

In a constructivist classroom, the teacher and the student share responsibility and decision making and demonstrate mutual respect. Using constructivist strategies, teachers are more effective. They are able to promote communication and create flexibility so that the needs of all students can be met. The learning relationship in a constructivist classroom is mutually beneficial to both students and teachers.

A constructivist classroom is a student-centered classroom. The student-centeredness of a constructivist classroom is clearly apparent in a reader response approach to literature. Recognizing the significance of the unique experiences that each reader brings to the reading of a selection of literature, the teacher in a response-centered approach seeks to explore the transaction between the student and the text to promote or extract a meaningful response (Rosenblatt, 1978).

Another quality of a constructivist class is its interactive nature. Authentic student-student and student-teacher dialogue is very important in a constructivist classroom. Belenky, Clinchy, Goldberger, and Tarule (1986) inform that constructivists distinguish didactic talk, when participants report experiences, but no new understanding occurs, from real talk where careful listening creates an environment within which emerging ideas can grow.

Belenky et al (1986) explain that in "real talk", domination is absent, while reciprocity, cooperation, and collaborative involvement are prominent. Consequently, constructivist

activities in the classroom that focus on speaking and listening promote not only constructivist thought but also important connections between teacher and students. In the constructivist classroom the teachers focus on students' learning rather than on teacher performance (Lester and Onore, 1990; McNeil, 1986; Dewey, 1916; Bentley and Dewey, 1949).

Finally, in the constructivist classroom, the focus tends to shift from the teacher to the students. The classroom is no longer a place where the teacher "expert" pours knowledge into passive students, who wait like empty vessels to be filled. In the constructivist model, the students are urged to be actively involved in their own process of learning. The teacher functions more as a facilitator who coaches, mediates, prompts, and helps students develop and assess their understanding, and thereby their learning. One of the teacher's biggest jobs becomes asking good questions.

2.3 Changing Roles of Teachers and Students

Calkins (1986) notes that there is a thin line between research and teaching. At the same time when teachers teach children, they also teach teachers because children show how they learn; teachers just have to watch children carefully and listen to them. This kind of watching and listening may contribute to a teacher's ability to use what the classroom experience provides to help him or her create contextualized and meaningful lessons for small groups and individuals. The ability to observe and listen to one's students and their experiences in the classroom contributes to his or her ability to use a constructivist approach. Paradoxically, a constructivist approach itself contributes to one's ability to observe and listen in the classroom. Thus, the process is circular.

In constructivist learning environments, the traditional role of instructors as dispensers of information is challenged, and the new role of instructors is that of a guide, who challenges students' thinking and encourages reflection in the learning process (Brooks & Brooks, 1999). As a guide, the instructor is no longer an authority who transmit knowledge by telling students what they must learn (Cuban, 2001) but one who shares knowledge with the learner (Novak, 1998).

Modern technology-rich classrooms such as multimedia and hypermedia provide teachers and students with an opportunity to change roles – students can use the technology to make presentations and teach one another while teachers can learn from the technology's offerings about students' interest and abilities (Sharp, 2002). As noted above, learning is viewed as an active, group-oriented process in which students construct an understanding of knowledge utilized in problem-solving situations.

2.4 Meaningful Learning

According to Ausubel (1960), meaningful learning occurs when there is a personal recognition of the links between concepts; the most important element of meaningful learning is not so much in how information is presented, but how new information is integrated into an existing knowledge base. Based on Ausubel's cognitive learning theory,

three tenets of meaningful learning are learner's relevant prior knowledge, meaningful material, and learner choice to use meaningful learning (Novak, 1998).

Novak (1998) argues that meaningful learning occurs when a learning task can be related in a non-arbitrary manner to what the learner already knows. Meaningful learning underlies two things necessary for understanding new knowledge: potentially meaningful concepts and the ability of the learner to relate the new knowledge in a meaningful way to his or her prior knowledge (Reigeluth, 1999).

Meaningful learning is constructed with rote learning, which does not allow the establishment of important links and relationships. Novak believes that while rote learning may incorporate new information into prior knowledge structure, it lacks interactions, and thus, fails to support understanding of the relationships between objects. Once a learner acquires knowledge, he or she must bring to mind and establish proper relationships between the new knowledge and the prior knowledge for meaningful learning to occur. In addition, better understanding of concepts will result from proper negotiations of meanings across links that are created with relevant prior knowledge.

To demonstrate the difference between rote learning and meaningful learning, let us consider a situation whereby students are learning five vowels in English ("A," "E," "I," "O," and "U") associated with construction of words, phrases, and/or sentences. In rote learning, a student learns the five vowels, but fails to see or understand the relationships between these vowels – the vowels exist in the student's memory as distinct, unrelated knowledge. When recalling the vowels in sentence construction, each vowel is recalled individually.

On the contrary, in meaningful learning, a student sees connections between the vowels; the vowels exist in the student's mind as related knowledge that the students can use to solve given language problems. In meaningful learning, the student understands relationships between the vowels and is aware of the differences and similarities that exist between the vowels. When recalling the vowels in sentence construction, one vowel recalled activates the memory of other vowels in what could be described as an organized and integrated knowledge recall.

III. Technology Integration through a Constructivist Approach

3.1 Technology

Technology has been introduced into classrooms because educators believe it has a great potential to improve education and student learning by providing a more active learning, and more varied sensory and conceptual modes; less mental drudgery; learning better tailored to individuals, and as better aid to abstraction (Dede, 1998). However, the potential for educational technology to enhance student achievement can be realized only if it is used appropriately (Dede, 1998).

Model 1: Technology integration goals based on constructivism
Determination of the goals of technology integration is a task for the instruction designer. The classroom setting should be changed or rearranged based on the goals of technology integration in instruction. The following picture is showing the goals of technology integration based on the theory of constructivism.
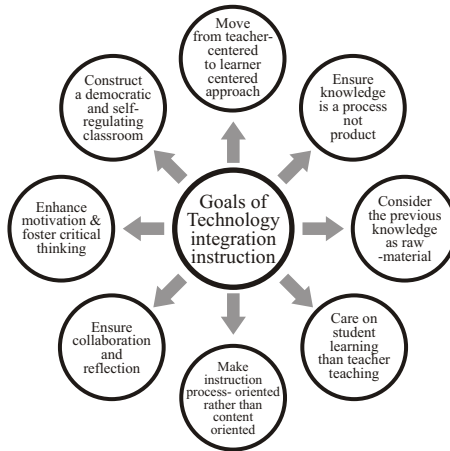

Figure 1: Goals of technology integration in instruction

Tools are extensions of our human capability (Forcier & Descy, 2002). A tool alone does not function until it is used properly. Computer technologies, as tools can empower students with thinking skills and learning skills, and improve student's affective and cognitive outcomes (Waxman & Huang, 1996). In addition, computers can help students to solve problems and think independently and collaboratively (Knapp & Glenn, 1996). Further, the use of computer technology to address realistic situations is likely to promote the integration of disciplines, foster a team approach to problem solving, and enhance individual responsibility (Singh & Means, 1997).

Educational technology can be used in the classroom as an instructional tool, as a learning tool, and as a storage device (Perkins, 1992). However, in the classroom, computers are best used as instructional tools to support student learning rather than as programming devices. Using technology, instructors are able to facilitate and scaffold learning through the components of technology integration, leading their students into areas of inquiry that invite collaboration, cooperation, and construction of knowledge as well as giving some of the control to the students in the different uses of technology (Bruning, Schraw, & Ronning, 1999).

A critical issue related to technology use is that computer technology should not drive instruction (Jonassen, 2000). Rather, instruction should drive the technological tools being used. The most effective way to benefit from technology is to integrate it into the curriculum as opposed to integrating curriculum into technology (Goodman, 1996). Additionally, instructors should strive to provide intellectually powerful and technology rich environment for students without undermining sound pedagogical practices (Anderson & Becker, 2001).

Technology is not a substitute for good instruction; effective instructors strive to integrate computers in their lessons to engage multiple learning styles of their learners. Zisow (2000) highlights the effect of instructors' teaching styles in the use of technology in the classroom. A focus on mere technology may not help to enhance learning, but good pedagogical practices that focus on teaching first and technology second may possibly lead to effective classroom computer technology use that can support student learning.

Computer-related technology can also help to motivate learners to learn as well as support a variety of instructional approaches such as cooperative learning and critical thinking (Grabinger, 1996). Further, technology can enable students to become: (a) capable information technology users; (b) information seekers, analyzers, and evaluators; (c) problem solvers and decision makers; (d) creative and effective users of productivity tools; (e) communicators, collaborators, publishers, and contributing citizens (International Society for Technology in Education, 2000).

3.2 Technology Use and Student Learning

Model 2: Ways to use technology in Classrooms
There have been different ways to use technologies in classroom. The selection of the appropriate technology in class is essential for ensuring effective learning. Examples of appropriate technology use in the classroom include the use of instructional software for subject matter learning, implementing internet activities, applying multimedia skills in the classroom, and learning to work with graphics and audio devices. When used as learning tools, technology provides tremendous opportunities to enhance classroom instruction. Figure 2 shows some of the ways to use technology in class.

Recently technologies have transformed the way we live, work, and teach (Hill & Hannafin, 2001). These changes have been rapid and consequently have placed numerous demands on instructors who are already burdened with other teaching responsibilities. According to Jonassen et al. (1999), teachers need to seek ways of using technology as a learning tool for their students even if they do not master the technology and cannot act as an expert. They should feel comfortable in allowing students to move into domains of knowledge where they themselves lack expertise. They must recognize that in the learning process they may encounter phenomena they do not understand or questions they cannot answer. (p. 22)

Although technology is usually viewed as a delivery and instructional tool, many instructors struggle to support their students to learn form, and about technology, but ignore the most important aspect -- learning with technology. Students learn meaningfully when they learn with computers, and not just about or from computers (Jonassen, 2000).

When students learn with computers, technology is viewed as a resource to help them develop, among other things, higher order thinking, creativity, and research skills (Reeves, 1998). Further, when students learn from computers, the computer is viewed as an intelligent, artificial tutor whose goal is to increase students' basic skills and knowledge. However, both dimensions of technology use are important and, if used judiciously, could enhance students' understanding of the content presented in class.

Instructors should be supported to benefit student learning in various ways. Institutions should, therefore, first assess the technological needs of their instructors in order to provide relevant workshops that could benefit teachers to successfully integrate technology into their
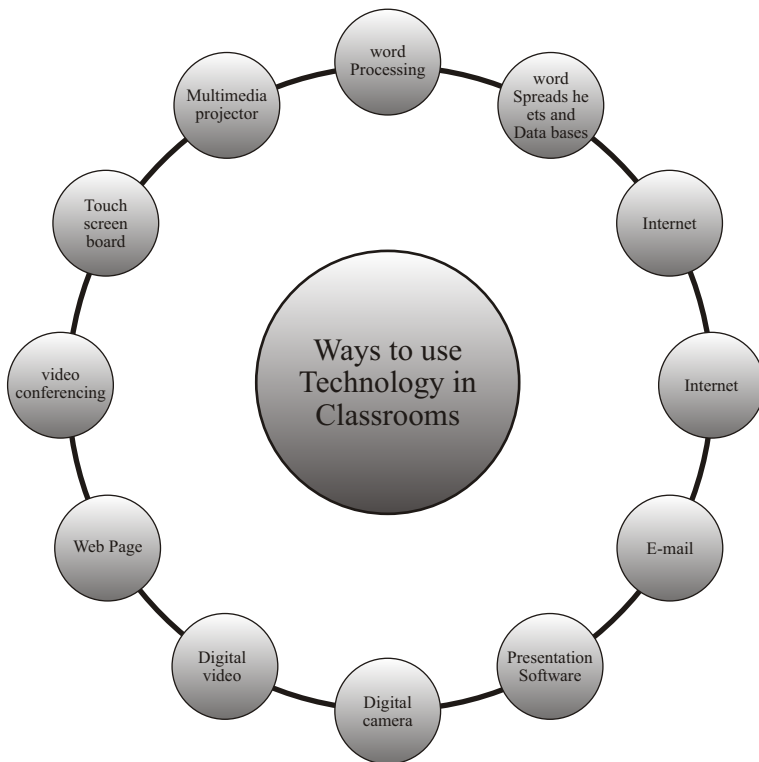

Figure 2: Technology in Classrooms

classroom instruction. Instructors are willing to spend a reasonable amount of time, for instance, learning effective strategies to integrate computer technology into their courses, when they realize the value of computing to support improved learning for their students (Kent & McNergney, 1999).

According to Rodriquez and Knuth (2000) , components of professional development for effective technological use should include: (a) connection to student learning, (b) hands-on technology use, (c) variety of learning experiences, (d) curriculum specific applications, (e) new role for teachers, (f) collegial learning, (g) active participation of teachers, (h) on-going process, (i) sufficient time, (j) technical assistance and support, (k) administrative support, (m) adequate resources, (n) continuous funding, and (o) built-in evaluations.

In summary, educational reform efforts should not only focus on more machines for classrooms but also developing teaching strategies that complement technology use within curriculum (Pierson, 2001). Unfortunately, many instructors lack a model that they can use to guide them through the necessary changes they will need to make to be successful in integrating new technology into their classroom (Johnson & Liu, 2000). It is important for education leaders to provide leadership with a model of technology integration that can produce feasible result. Instructional leaders must support teachers who are innovative in the use of technology so that they could help others to do so. Although infrastructure is important, leadership is critical in establishing technology as part of the school culture.

3.3 Constructivism, Technology, and Meaningful Learning

Model 3: Technology Teacher
The term 'Technology Teacher' in the following picture means the teacher surrounded by educational technologies. It does imply an emphasis on technology itself and the teachers' role as a technology enthusiast; but the goal of integration of technology into learning (use of technology for learning) can succeed to the extent the balance shifts from promoting and teaching the technology to effective use of technology for achieving the curricular and learning goals. The 'technology teachers' have to attain sound competencies and skills on different types of advance technologies to integrate those in class to enhance learning. The use of hypermedia, social blog, kiwis, podcast, etc. is changing pedagogies day by day.

Under the theory of constructivism, as emphasized earlier, teachers focus on making connections between facts and fostering new understanding in students. Consequently, constructive teaching is based on the belief that students learn best when they gain knowledge through exploration and active learning. Hands-on materials are used instead of textbooks, and students are encouraged to think and explain their reasoning instead of memorizing and reciting facts. Education is centered on themes and concepts and the connections between them, rather than isolated information.

Computer technologies should be used as tools to engage and facilitate thinking and knowledge construction of learners (Jonassen et al., 1999). In constructivist environments such as the one called mindtools (computer-based tools and learning environments, which serve as extensions of mind), learners are actively engaged in interpreting the external world and in reflective thinking, which supports constructivist knowledge construction tools (Jonassen, 2000). In constructivist environments such as mindtools, learners are actively engaged in interpreting the external world and in reflective thinking, which supports constructivist knowledge construction tools (Jonassen, 2000). Having computer technology in the classrooms does not necessarily produce better learners (Tolmie, 2001). Moreover, acquiring computer-related skills and knowledge that have no relevance to the learner or having computer literacy without meaningful activities does not support meaningful learning goals (Jonassen, 2000). Therefore, to enhance meaningful learning, instructors should guide students to construct their thoughts through activities such as problem solving, decision making, goal setting, and managing and preventing conflict and achievements.
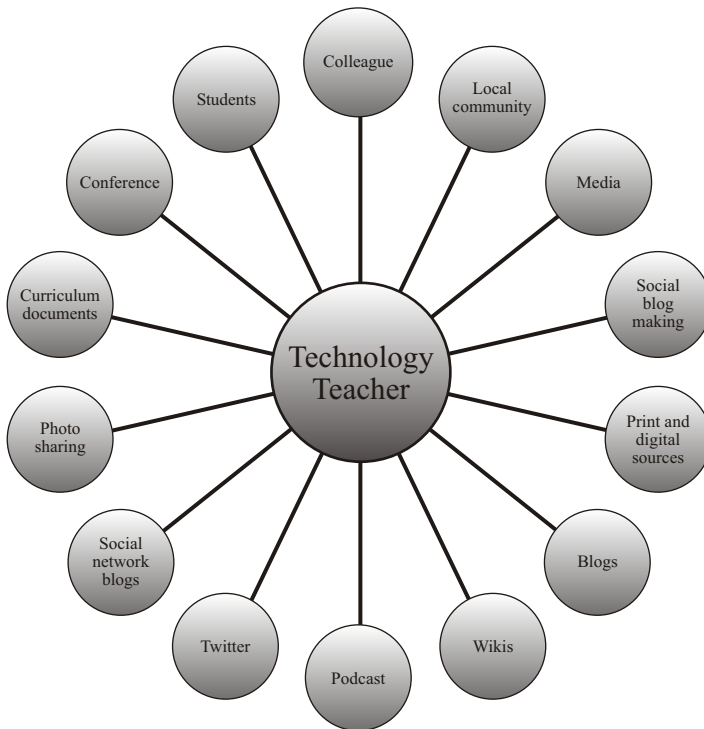

Figure 3: Technology teacher

If used appropriately, technology offers immense opportunities to help students learn meaningfully. Grabe (2004) suggest the active use of text, graphics, sound, or animation in the classroom to help students acquire and synthesize information- an activity that facilitates meaningful learning. Technology such as interactive multimedia provides rich resources that students can explore as they try to decide how to solve a problem.

Reil and Becker (2000) argue that classrooms that authentically use technology should experience change in teacher's role, learner's roles, conceptualization of knowledge and the process of teaching-learning, and assessment. Reil et al. state: Teachers who assume a professional orientation to teaching are far more likely to have made high investments in their own education, to have constructivist-compatible philosophical beliefs about education to develop the instructional practices that are related to their beliefs and to integrate computers into their classrooms in ways that support meaningful thinking and the sharing of ideas with their peers. (p. 34).

Computers can be used to support meaningful learning when technologies engage learners in: (a) knowledge construction, not reproduction, (b) conversations, not reception, (c) articulation, not repetition, (d) collaboration, not competition, and (e) reflection, not prescription (Jonassen et al., 2003). Students need to learn how to learn by engaging in meaning-making activities that provide meanings to situations, experiences, events, or actions that relate to their everyday experiences. Integration of appropriate technology into classroom practice can positively impact important dimensions of learning such as active learning, critical thinking, cooperative learning, communication skills, instructional effectiveness, multisensory delivery, motivation, and multicultural education (Barron & Orwig, 1997).

3.4 Technology Integration: Barriers

Instructors who are committed to integrating computer technology in the classroom may find the process challenging due to the barriers that exist. The barriers can either be external (first order) or internal (second order). External barriers include lack of equipment, unreliability of equipment, lack of technical support and other resource-related issues. Internal barriers include both school-level factors such as organizational culture and teacher-level factors such as beliefs about teaching and technology and openness to change (Snoeyink & Ertmer, 2001).

Resistance to change, negative attitudes toward computers, constraints on training and support, cost, and lack of access to the right types of technology in appropriate locations are other key barriers to integration of technology in the classroom (Fabry & Higgs, 1997). Other barriers include the attitude of administrators and instructors, pedagogical issues, and personal familiarity with computers (Roszell, 1995).

In line with constructivist perspective, three key issues raised by instructors in the use of technology are briefly discussed in this section. First, there is a tendency for many instructors to view instruction and integration as two separate entities that are difficult to merge, and that make demand on their time, attention, and responsibilities equally. In many instances, although instructors may be required to integrate technology into their courses, there is usually a lack of follow-up sessions to validate these requirements.

In addition, instructors may be skeptical about lack of uniformity in evaluation and assessment pertaining to technology standards to support effective instruction. Gooden (1996) emphasizes that technology is not a substitute for good instruction; effective instructors integrate computers into their lessons to engage multiple learning styles of diverse learners in the classroom.

Before technology can be used effectively for engaged learning, institutions need to ensure that technology supports the educational goals for their students. In other words, the learning goals should drive the technology use; technology is not an end in itself. Further, the goal of technology is to improve teaching and learning, not to replace teachers. As instructors get more comfortable in the use of technology, it is hoped that their instructional practices will improve and integration of technology will become an integral part of all their curricula.

Bruce (1997) argues that teachers should not only be seen as objects of change, but also as change agents who can transform the integration of their practices through the use of technology. Teachers tend to teach the way they were taught (Mehlinger & Powers, 2002) and infusing technological tools into instruction poses unique challenges to teachers who are thoroughly grounded on traditional teaching practices and are not ready and willing to change. Further, it is important to realize, however, that some elements of creativity are required of educators as well as students if the use of technology is to have a positive impact on student learning.

According to Dias (1999), one often overlooked yet serious challenge to effective integration of technology in the classroom is the anxiety that change generates. As Harris (2000) notes:

When teachers are asked to integrate technology they are really being asked to change in two ways. First, they are asked to adopt new teaching tools such as the computer and Internet. These are vastly different tools from the classroom tools many currently use such as the chalkboard, overhead projector, or television. Second, teachers are asked to change the way they teach their students, which may include changing the role they play in the classroom and the way their classrooms are physically arranged. (p. 12)

Model 4: Teaching with technology or technology for learning
The barriers of integrating technologies in education are not uncommon phenomena. Thus, the following model to minimize the technology integration barriers is proposed. The main

issues are not just to use technologies in the classroom; rather, how to use and utilize technologies in an effective manner is the major concern. If educators try to teach with technology, the major types of barriers in specific contexts have to be identified. The barriers may be related to various relationships and interaction among the components of the teaching-learning process. ; These relationships are, among others, between teacher and student, student and technology, technology and learning content, content and -curriculum development, curriculum and its implementation by the class teacher. How these relationships function through continuous communication and effective interaction will determine if the goals of "teaching with technology" can be achieved. (In Figure 4).

It has to be recognized that there are many practical and mundane barriers, in addition to those related to concepts and vision, to the use and integration of computer technology in the classroom. Lack of relevant software, lack of time, lack of funding, technical problems, teacher attitude toward computers, resistance to change, poor administrative support, and poor training are some of the factors that are compounded by the a lack of vision and commitment to integrate technology into the curriculum and the classroom. Even so, the behavior, investments and commitment of individual instructors and school leaders ultimately make a difference (Green, 1998).

Considering the practical realities that are faced in schools and classrooms, a checklist is suggested which may be helpful in applying the model of "teaching with technology."
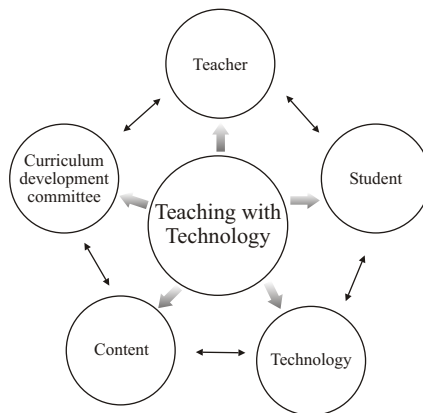

Figure 3: Teaching with technology

Table 1. A checklist to integrate technology into the real Classroom

	Criteria	Yes	No
1	Is it updated in terms of known and available learning technology?		
2	Would it make a difference in improving the cognitive level of students?		
3	Can it help in changing prevailing learning and pedagogic approach?		
4	Does it encourage students to learn on their own?		
5	To what extent is it supported by available electronic materials and methods for teaching?		
6	Is it motivating both to teachers and students?		
7	How difficult or complex is it to manage the initiative effectively?		
8	Does it help to assess student learning?		
9	Is it realistic in the context of the prevailing school environment?		
10	Is it cost-effective for the institution?		

IV. Conclusion

The use of technology for meaningful learning raises serious and significant issues as to how best we can educate our students. Promoting technology for technology's sake is a recipe for failure. Constructivist pedagogical principles coupled with appropriate technology integration shows the potential for major improvements in teaching and learning practices. The teacher's role remains primary and central to effective integration of technology in the classroom. As - Guhlin (1997) put it, "Technology integration is similar to a tidal wave, growing silently in strength, then falling with an unstoppable roar upon those who paid no attention or showed little interest".

The article highlights four implications of constructivism for teaching and learning: (1) The role of teachers has to change - teachers will act as guides or facilitators to provide students with opportunities to test their current understanding of concepts taught. (2) Teachers have to recognize that all children do not learn the same way and adapt their own behavior accordingly.. (3) Teachers should provide learning experience that incorporate problems that are important to students, not those that are primarily important to teachers and the educational system. Group and peer interaction is a key approach for this purpose. . (4) Teachers should give students ample time and opportunity to engage in reflection of the new experiences for concrete knowledge building based on past and current understandings.

As Sandholtz (1997) emphasized, technology is not a panacea for educational reform, but it can be a significant catalyst for change. To those looking for a simple innovative solution, technology is not the answer. To those looking for a powerful tool to support collaborative learning environments, technology holds tremendous potential. If technology is used effectively as a tool for learning, students can be more creative, autonomous and collaborative than in classrooms where technology is not accessible to students. There is one clear common thread throughout the literature and that is the need to accept technology as being a part of our students' lives and to respect the powerful learning tool that it can be. As David Thornberg (cited in Galas 1997-1998), the well-known futurist, affirms, "We as teachers can truly provide students the real tools of technology to cross the bridge to their future instead of our past" (p.21).

References

Adams, S. & Burns, M. (1999). *Connecting student learning and technology*. Southwest Educational Development Laboratory. Retrieved May 30, 2001, from the World Wide Web: http://www.sedl.org/pubs/tec26/nonflash.html

Anderson, R., & Becker, J. (2001). *School investment in instructional technology.* Teaching, learning, and computing report, Report 8. Retrieved December5, 2005, from http://www.crito.uci.edu/findings/report_8/startpage.htm

Ausubel, D.P. (1960). The use of advance organizers in the learning and retention of meaningful verbal material. *Journal of Educational Psychology, 51, 267-272.*

Barron, A., & Orwig, G. (1997). *New technologies for education.* Englewood, CO: Libraries Unlimited, Inc.

Becker, H.J. (2000). Findings from the teaching, learning, and computing survey: Is Larry Cuban right? *Education Policy Analysis Archives, 8(51).* Retrieved November 25, 2005, from http://epaa.asu.edu/epaa/v8n51/

Belenky, M.F., Clinchy, B.M., Goldberger, N.R., & Tarule, J.M. (1986). *Women's ways of knowing: The development of self, voice, and mind.* New York: Basic Books.

Bentley, A.F. & Dewey, J. (1949). *Knowing and the known*. Boston: Beacon Press.

Boethel, M. & Dimock, K. (1999) Constructing knowledge with technology. Southwest Educational Development Laboratory. Retrieved May 28, 2001, from http://www.sedl.org/pubs/tec27/10.html

Brooks, J.G., & Brooks, M. G. (1999). *In search of understanding: The case for constructivist classrooms.* Alexandria, VA: Association for Supervision and Curriculum Development.

Bruch, B.C.(1997). Literacy technologies. What stance should we take? *Journal of Literacy Research, 29(2), 289-309.*

Bruning, R.H., Schrew, G.J., & Ronning, R.R. (1999). *Cognitive psychology and instruction.* Upper Saddle River, NJ: Prentice Hall, Inc.

Calkins, L. (1986). *The art of teaching writing.* Portsmith, NH: Heinemann.

Cuban, L. (2001). *Oversold and underused: Computers in the classroom.* Cambridge, MA: Harvard University Press.

Dede, C. (1998). Introduction. Pp. v-x in *Association for Supervision and Curriculum Development (ASCD) Yearbook: Learning with Technology.* Alexandria, VA: Association for Supervision and Curriculum Development.

Dewey, J. (1916). *Democracy and education.* New York: The MacMillan Company.

Dias, L.B. (1999). Integrating technology: Some things you should know. *Leading and Learning with Technology, 27(3), 10-13.*

Duffy, T. M., & Cunningham, D. J. (1996). Constructivism: Implication for the design and delivery of instruction. In D. H. Jonassen (Ed.), *Handbook of research for educational communication and technology.* New York: Simon & Schuster Macmillan.

Edutopia. (2011). *Why Do We Need Technology Integration.*

Ertmer, P. (1999). Addressing first-and second order barriers to change: Strategies for technology integration. *Educational Technology Research and Development, 47(4), 47-61.*

Fabry, D., & Higgs, J. (1997). Barries to the effective use of technology in education. *Journal of Educational Computing, 17(40, 385-395.*

Forcier, R.C., & Descy, D.E. (2002). *The computer as an educational tool: Productivity and problem solving.* Upper Saddle River, NJ: Pearson Education, Inc.

Galas, C. (Dec. 1997-Jan. 1998). From presentation to programming. *Learning and Leading with Technology, 25 (4), p. 18-21.*

Gooden, A. (1996). Computers in the classroom: *How teachers and students are using technology to transform learning.* San Francisco: Jossey-Bass.

Grabe, M., & Grabe, C. (2004). *Integrating technology for meaningful learning (4th ed.).* Boston: Houghton Mifflin Company.

Grabinger, R.S. (1996). Rich environments for active learning. In D. Jonassen (Ed.), *Handbook of research for educational communications and technology (pp. 665-692).* New York: Simon & Schuster Macmillan.

Gredler, M. (2001). *Learning and instruction: Theory into practice (4th ed.).* NJ: Prentice Hall, Inc.

Green, K.C. (1998). *Colleges struggle with IT planning.* The 1998 national survey of information technology in higher education. Retrieved April 4, 2005, from http://www.campuscomputing.net/summaries/1998/

Guhlin, M. (Jan. 1997). *Integrating technology from the classroom up. Technology Connection, p. 25-26.*

Harris, P. (2000, Summer). Using technology to create a new paradigm for a learner-centered educational experience. *Technos Quarterly, 9(2).* Retrieved November 12, 2005, from http://www.technos.net/tq_09/2harris.htm

Hill, J.R., & Hannafin, M., J. (2001). Teaching and learning in digital environments: The resurgence of resource-based learning. *Educational Technology Research and Development, 49(3), 37-52.*

Honey, M. & Moeller, B. (1990). *Teacher's beliefs and technology integration: Different values, different understandings.* [CTE Technical Report Issue No. 6] Education Development Center, Inc. Retrieved February 25, 2001 from http://www.edc.org/CCT/ccthome/reports/tr6.html

Hoover, W.A. (1996). The practice implications of constructivism. *Southwest Educational Development Laboratory Newsletter, 10(3).* Retrieved December 20, 2005, from http://www.sedl.org/pubs/sedletter/v09n03/practice.html

International Society for Technology in Education (ISTE. (2000). *National Educational Technology Standards (NETS) for teachers:* Retrieved November 20, 2005 from http://cnets.iste.org/teachers/

Jenkins, E. W. (2000). Constructivism in school science education: Powerful model or the most dangerous intellectual tendency? *Science & Education, 9, 599-610.*

Johnson, M., Schwab, R., Foa, L. (Winter 1999). Technology as a change agent for the teaching process. *Theory into Practice, 38 (1) p. 24-31.*

Jolene Dockstader. (2008). *Teachers of the 21st Century Know the What, Why, and How of Technology Integration, Technology Integration in December.*

Jonassen, D. H., Peck, K. L., & Wilson, B. G. (1999). *Learning with technology: A constructive perspective.* NJ: Prentice Hall.

Jonassen, D.H. (2000). *Computers as mindtools for schools: Engaging critical thinking (2nd ed.).* Columbus, OH: Merrill Publishers.

Jonassen, D.H., Howland, J., Moore, J., & Marra, R. M. (2003). *Learning to solve problems with technology. A constructive perspective (2nd ed.)* Saddle River, NJ: Prentice Hall, Inc.

Jonson, D. L., & Liu, L. (2000). *First step toward a statistically generated information technology model. Computers in the School, 16(2), 3-12.*

Kay C. Wood, Harlan Smith, Daurice Grossniklaus.(2011). *Piaget's Stages of Cognitive Development.* Department of Educational Psychology and Instructional Technology, University of Georgia.

Kelly, G.A. (1991). *The psychology of personal constructs: Volume one - A theory of personality.* London: Routledge.

Kent, T. W., & McNergney, R.F. (1999). *Will technology really change education?* Thousand Oaks, CA: Corwin Press.

Knapp, L. R.& Glenn A.D. (1996). *Restructuring schools with technology.* Boston: Allyn and Bacon.

Lester, N.B. & Onore, C.S. (1990). *Learning Change: One school district meets language across the curriculum.* Portsmith, NH: Boynton/Cook Publishers.

Lever-Duffy, J., McDonald, B., & Mizell, A. (2003). *Teaching and learning with technology.* Boston: Pearson.

Lindfors, J. (1984). *How children learn or how teachers teach? A profound confusion.* Language Arts, 61 (6), 600-606.

McBrien, J.L., & Brandt, R. S. (1997). *The language of learning: A guide to education terms.* VA: Association for Supervision and Curriculum Development.

McNeil, L. (1986). *Contradictions of control: school structure and school knowledge.* New York: Routledge.

Means, B., Olsen, K.(1997). *Using technology to support education reform.* U.S. Department of Education. Retrieved March 2, 2002 from http://www.ed.gov/pubs/EdReformStudies/TechReforms.

Mehlinger, H. D., & Powers, S.M. (2002). *Technology & teacher education: A guide for educators and policymakers:* Boston: Houghton Miffin.

Mergel, B. (1998). *Instructional design and learning theory.* Retrived on November 25, 2005, from http://www.usask.ca/education/coursework/802papers/mergel/brenda.htm.

Merrill, D. (1991). Constructivism and instructional design. *Educational Technology, 31, 45-53.*

Novak, J. D. (1998). *Learning, creating, and using knowledge: Concept maps as facilitative tools in schools and corporations.* Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Perkins, D. (1992). Technology meets constructivism: Do they make a marriage? *Educational Technology, 31(5), 18-23.*

Peterson, R. (1992). *Life in a crowded place: Making a learning community.* Portsmouth, NH: Heinemann.

Piaget, J. (1977). *The development of thought: Equilibration of cognitive structures.* (A. Rosin, Trans). New York: The Viking Press.

Pierson, M. (2001). Technology practice as a function of pedagogical expertise. *Journal of Research on Computing on Education, 33(4), 413-430.*

Reeves, T.C. (1998). *The impact of media and technology in schools.* Retrieved December 3, 2005, from http://www.athensacademy.org/instruct/media_tech/reevestl.html

Reigeluth, M. C. (1999). *Principles for learning meaningful knowledge.* Retrieved December 3, 2005, from http://www.crito.uci.edu/tlc/findings/aera/

Reil, M., & Becker, H. (2000). *The beliefs, practices, and computer use of teacher leaders.* AERA presentation, New Orleans, April. 2000. Retrieved December 20, 2005, from http://www.crito.uci.edu/findings/aera/

Rodriquez, G., & Knuth, R. (2000). *Critical Issues.* Naperville, IL: North Central Regional Educational Laboratory.

Rosenblatt, L. (1978). *The reader, the text, the poem: The transactional theory of the literary work.* Carbondale, Il: Southern Illinois University Press.

Roszell, D.D. (1995). *The use of information technology in schools.* Master's thesis. University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

Sandholtz, J. H., Ringstaff, C., Dwyer, D. C. (1997). *Teaching with technology: creating student-centered classrooms.* New York: Teachers College, Columbia University.

Saye, J., (1998). Technology in the classroom: the role of dispositions in teacher gatekeeping. *Journal of Curriculum and Supervision, 13 (3), 210-234.* Retrieved July 7, 2001 from ProQuest Education Complete database.

Schunk, D. H. (2000). *Learning theories: An educational perspective.* NJ: Prentice_Hall.

Scoolis, J. (1999). Infusing your curriculum with technology. *Trust for Educational Leadership, 28(4), 14-17.*

Sharp, V. (2002). *Computer education for teachers: Integrating technology into classroom teaching.* Boston: McGraw-Hill.

Singh, R., & Means, B. (1997). Technology and education reform. *Connections, 13, 4-10.*

Snoeyink, R., & Ertmer, P. (2001). Trust into technology: How veteran teachers respond. *Journal of Educational Technology Systems, 30(1), 85-111.*

Tolmie, A. (2001). Examining learning in relation to the contexts of use of ICT. *Journal of Computer Assisted Learning, 17, 235-241.*

Twomey Fosnot, C. (1989). *Enquiring teachers, enquiring learners: A constructivist approach for teaching.* New York: Teachers College Press.

U.S. Department of Education (2008). Chapter 7: *Technology Integration.* USA, December.

Wanda Y. Ginn (2010). Jean Piaget – *Intellectual development.*

Waxman, H., & Huang, S. (1996-97). Difference by level of technology use on student's motivation, anxiety, and classroom learning environments in mathematics. *Journal of Educational Technology Systems, 25(1), 67-77.*

Zemelman, S., Daniels, H., & Hyde, A. (1993). *Best practice: New standards for teaching and learning in America's schools.* Portsmouth, NH: Heinemann.

Zisow, M. (2000). Teaching style and technology. *TechTrends, 44(4), 36-38.*

Teachers Readiness for Computer Education Classes in the Secondary Schools of Bangladesh

Selina Banu[*]

Abstract

The objectives of the study were to identify the qualifications and competencies of the Computer Education(CE) teachers, assess the quality of teacher's performance and identify to what extent the CE curriculum is covered in B.Ed. computer curriculum as a supporting course for the subject teachers. The findings were based on classroom observations and interviews of 42 CE teachers in 42 secondary schools (October 2010 to February 2011). Observation checklist, semi-structured interview schedule and a questionnaire were used to collect the data. The findings revealed that the qualifications and competencies of Computer Education teachers were inadequate for conducting computer classes; classroom performances of the teachers were poor; and CE school curriculum were not fully integrated into the Bachelor of Education course. The researcher suggested extensive in-service training programmes focusing on computer education contents, providing content based teaching materials, arrange workshops and seminars, and inclusion of contents which were not included in the B.Ed. computer curriculum.

1. Introduction

As developed nations moved rapidly toward utilizing computers in their education systems, the governments of developing countries began to be concerned about being left behind. These governments were concerned that if computers were not introduced into their education system, the gap between their societies and those of the developed nations would become even wider. In an effort to address this problem most of the developing countries incorporated computer education into their educational systems (Zamani, 1997). Computer Education was introduced at the secondary education level of Bangladesh as an optional subject in 1996. In the recent years, vigorous efforts have been made to improve the quality of Computer Education. The Government of Bangladesh has taken a decision to introduce ICT in Education at the secondary level as a compulsory subject, instead of an optional one (Bangladesh Education Policy Report, 2010). The present study was an investigation of how far the computer teachers are prepared for implementing the recent government decision. The study tried to identify teachers' qualification; competencies, teaching performance and

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[*] Associate Professor, Institute of Education and Research (IER), University of Dhaka
     E-mail: selinabanu@yahoo.com

their professional upgrading needs for this subject. The outcome of the study is expected to assist the Government to identify what they should do for the subject teachers. The study is also expected to facilitate the designing of a need based training program for teachers and strengthening B.Ed. computer curriculum to ensure adequate coverage of contents for the school Computer Education course.

2. Significance of the Study

TeacherTeacher's quality and qualifications plays a significant role and is considered as very important factors in ensuring the quality of Computer Education. Liu (1995, p2) stated that "We describe and analyze quality of education. Yet we have not made any efforts to study quality of computer education in Third World countries." However, in recent years computer related education and research has received increasing interest (Almstrum, Hazzan, & Ginath, 2004; Fincher & Petre, 2004; Goldweber, Fincher, Clark, & Pears, 2004). Computer Education still remains the most neglected and unpopular optional subject at the secondary education level in many developing countries for different reasons including shortage of skilled teachers and computers (Konesappillai, 1998).

Bangladesh has shown a strong policy interest on Computer Education at the secondary level. Despite initial delays in introducing Computer Education as a subject, several notable initiatives have been taken in public and private sectors for the development of Computer Education. Training of the teachers is one of the major initiatives among them. Still, a legitimate question is: What actually happens in the computer education classes? Are the teachers trained to conduct the classes? A full answer is lacking, because the questions so far remain unexplored. It is intended to seek answers to these questions in this study.

"Teacher training and a continued, on-going and relevant professional development are essential if benefits from investments in ICTs are to be maximized" (Trucano, 2005). One of the challenges of developing nations to adopt Computer Education is lack of trained teachers (Gulati 2008; Kozma 1999). Educational Technology experts believe that one barrier in implementing computers is a lack of teacher training which is more obvious in developing countries. According to Hawkridge, Jaworski and MaMahon (1990, p282), "Almost all teachers using computers in developing countries were never trained to do so during their initial training, and have had only the briefest of in-service courses relating to computers." Evans-Andris (1996) explains that some teachers who lack computer knowledge and skills may feel less confident about controlling their students when they take them into the computer lab, especially if problems occur in using computers. Hasselbring et al. (2000) indicate that teachers feel less confident with computers because they feel they do not have enough knowledge and skills. The present study aims to determine the state of readiness of Computer Education teachers in the Secondary Schools of Bangladesh.

3. Objectives of the Study

The primary objective of the study was to investigate the teachers' readiness to implement the Computer Education curriculum in classes IX and X. The specific objectives were to:

1. Identify the academic and professional qualifications of the Computer Education Teachers.

2. Review the extent, nature and duration of the training programmes related to Computer Education.

3. Assess the competencies and qualities of Computer Education teachers' performances in the class.

4. Identify to what extent the Computer Education curriculum is covered in B.Ed. Computer Education curriculum.

4. Methodology

This was a descriptive study of an exploratory nature. It used a combination of quantitative and qualitative methods. Primarily, the survey method was followed to collect data. Table 1 shows the sample size and instruments used in this work.

Table 1

Sample	Size	Objectives	Techniques	Instruments
Teachers	42	Identify the academic and professional qualifications of the Computer Education Teachers.	Interview	Semi Structured Interview Questions
Teachers	42	Review the extent, nature and duration of the training programmes related to Computer Education	Interview	Semi Structured Interview Questions
Teachers	42	Assess the competencies and qualities of Computer Education teachers' performances in class	Class Observation	7 point Rating Scale
6 TTC's Teachers	6	What extent the Computer Education curriculum is covered in B.Ed. Computer Education curriculum.	Opinion polling	Questionnaire

Data were collected from 42 schools of seven Divisions of Bangladesh. Two Districts from each Division (7X2=14 Districts.), and one Upazila from each sampled Distric

(14 Upazilas) were selected. Three schools (1 urban 2 rural) from each Upazila were surveyed; thus a total 42 schools were surveyed.

- Observation check lists with some open ended questions were used to observe classroom presentation. Teachers' performances were assessed with a through 7-point rating scale; ((i)very poor, (ii) poor, (iii) moderate, (iv)good, (v) very good, (vi) excellent, and (vii) not applicable). A list of 20 class room instruction skills were compiled and used in collecting data regarding classroom performance.

- Forty-two teachers were interviewed through the semi-structured interview questionnaire.

- Open ended questionnaires were used to collect opinion of six Teachers Training College (TTC) Computer Education teachers. They were asked about Computer Education curriculum used in B.Ed. programme.

5. The Findings of the Study

Academic Qualification of Computer Teachers

The findings of the study demonstrated that although the number of schools offering Computer Education subject in Bangladesh had significantly increased, the qualifications and teaching quality of the teachers had not been satisfactory. It was revealed from the findings that the computer classes were largely taken by the existing teachers with some kind of elementary training on Computer Education. Among 42 Computer Education teachers (36% female and 64% male teachers) interviewed, a significant number of them (81%) were not recruited as computer teachers. Only 8 teachers (19%) introduced themselves as Computer Education teachers and they were newly recruited and their teaching experience was less than 10 years.

Table 2 presents the findings regarding teachers' educational qualifications. The table shows that most of the teachers (86%) were Graduate, and they had B.A, B.Sc, or B.Com degrees; while only 12% had Post Graduate (M.A. and M.Sc.) degree. The remaining teachers (2%) had different diplomas (Agriculture and Computer). The Computer Education teachers studied different disciplines like Bengali, Political Science, Islamic Studies, Social Science, Commerce etc. rather than computer related subjects. More than 45% of the teachers were from arts and social science background and others from science and commerce background.

Professional Qualification of Computer Teachers

It emerged from the data about teachers' professional qualifications (Table 2) that most of the teachers (67%) had Bachelor of Education (B.Ed.) degree, while 29%still did not have any professional degree like B.Ed. Among the teachers who had B.Ed and M.Ed Degrees, only 10 % of them studied Computer Education subject in their course. Only 5% of the subject teachers had M.Ed Degree.

Table 2: Subject Teachers' Qualification

Educational Qualification	N=42	Percent
M.A. or M.Sc.	5	12
B.A., B.Sc., B.S.S., B.Com.	36	86
Others Diploma	1	2
Professional Qualification		
No Professional Degree	12	29
B.Ed.	28	67
M.Ed.	2	5
Computer Subject Studied at B.Ed.	4	10

Computer Education Course of Teacher Education Programme

A carefully designed B.Ed. course is intended to build a teacher's knowledge, skill and competency. During the survey, 6 Computer Education teachers of TTCs were asked about the extent the B.Ed. curriculum covered Computer Education syllabus for Classes IX and X. The findings of the teachers' responses are shown in Table 3 and in Figure 1.

Table 3: TTC Teachers Opinions Regarding Chapter-wise Inclusion of CE School Curriculum in TTC's Curriculum

Title of the chapters	TTC's Teachers Response					
	Included in B.Ed Course		Partially Included In B.Ed' Course		Not Included in B.Ed' Course.	
	N=6	%	N=6	%	N=6	%
Computer and History of Comp.	4	67	2	33		0
Organisation of the computers	4	67	2	33		0
Computer Software	4	67	2	33		0
Operating System	1	17	4	67	1	17
Word Processing	5	83	1	17		0
Number system and Comp. Logic	2	33	4	67		0
Spread Sheet Analysis	3	50	2	33	1	17
Database	2	33	1	17	3	50
Concept of the Program.	1	17		0	5	83
Lang.Application of the Computers	3	50	2	33	1	17
	Total 29	48%	Total 20	33%	Total 11	18%

It transpired that 67% of TTC teachers indicated that contents of chapters 1 to 3 of Computer Education curriculum for class nine and ten were included in the B.Ed. course. However,

33% of them stated that these chapters were partially included. A significant number of teachers (67%) stated that Chapter 4 (operating system) and Chapter 6 (Number System and Computer Logic) were partially included. 83% of teachers expressed that Chapter 9 (Concept of Programming Language) was not included at all. 50% of the teachers indicated that Chapter 8 (Database) was also not included. About 50% of the teachers stated that Chapter 7 (Spread Sheet Analysis) and Chapter 10 (Application of Computers) were included, whereas 33% of them opined that these were partially included. Most of the teachers (83%) informed that Chapter 5 (Word Processing) was included.

Figure 1: TTC Teachers Opinions Regarding Chapter-wise Inclusion of CE School Curriculum in TTC's Curriculum
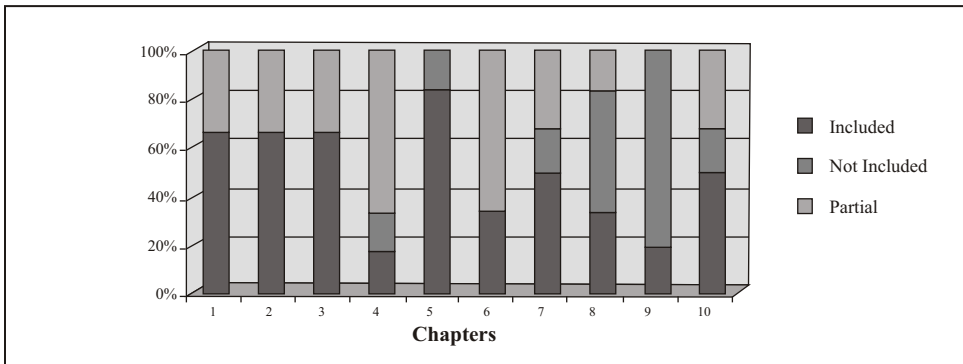
It transpired from the findings that there was a gap between the Computer Education school curriculum and B.Ed. computer curriculum. As a result of this gap, there was a lack of confidence and competence among the teachers. Consequently, they faced various problems and difficulties in conducting the Computer Education classes.

Computer Education Related Training

One of the key challenges in implementing Computer education in schools is the lack of appropriate training for teachers (Griffin, 1987; Persky, 1990). According to Marshall, "with possibly 50% or more of their teaching population having no training at all, many developing areas have a considerable way to go before in-service in the instructional application of computers makes sense" (Marshall, 1984, p. 380).

A significant number of the teachers received their training from Teaching Quality Improvement Project (TQI), Bangladesh Institute of Administration and Management (BIAM), National Academy for Educational Management (NAEM), and NOTRAMS (spell out).

The teachers during their interview stated that a vast majority of them (90%) received training on Computer Education. A small proportion (10%) neither received any kind of

Computer Education training nor their academic background was related to teaching Computer Education. The nature of the training offered was of an introductory nature. Most of the training duration was not more than a month. However it was revealed from discussion with teachers that a large part of the training progrmmes were concerned with general pedagogy rather than on Computer Education or ICTE. In many cases, only a day out of 30 days of the training program was allocated for Computer Education training. Figure 2 shows duration of the computer training programme completed by the teachers. 22 teachers (52%) participated in training of 15 to 30 days'; 6 (14%) teachers got one and half month long training; 5 (12%) teacher had 2 to 4 months' training; 4 (10%) had 6 months training; and only one teacher had a 1 year computer training leading to a Diploma. Computer Education teachers generally said that they were not adequately trained to teach students.

Figure 2: Duration of Computer Training Programme of CE Teachers
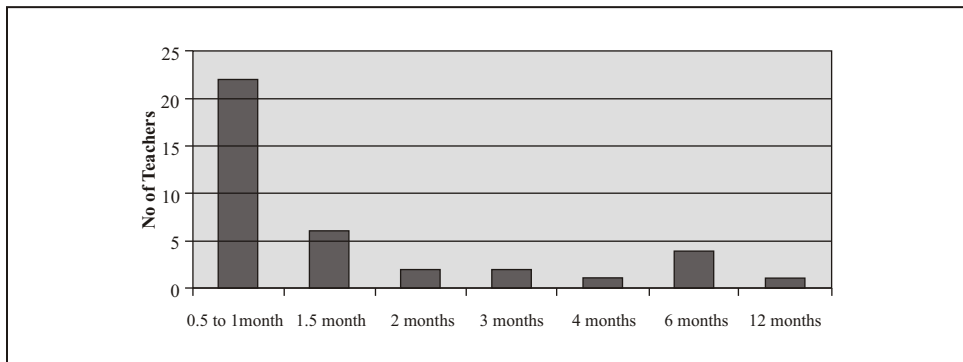
The study clearly revealed that in-service training courses for teachers were insufficient, especially in content areas. These in-service training courses also had a lack of hands-on activities. It appeared that due to lack of appropriate training, the teachers were likely to be without self-confidence, disinterested and de-motivated. These shortcomings in training led the teachers to be un-interested, unenthusiastic, and reluctant to engage in teaching Computer Education.

Chapter wise Teachers Confidence Level

The sustainability and effectiveness of a curriculum largely depends on its proper dissemination. About 45% of the teachers stated that they never saw the curriculum. Due to lack of knowledge on the subject, the teachers' observations on some of the contents were negative and harsh.. The teachers recommended content based training program for enhancing their competency, capacity and knowledge. It emerged from the analysis of teachers' perceptions about contents of the Computer Education curriculum that most of the contents of CE were relevant and necessary. However about 12% of teachers stated that spread sheet as a content was unnecessary. About 11% of teachers expressed that networking

and internet as a content was irrelevant and unnecessary. The chapter-wise detailed analysis of teachers perception is presented in Figure 3.

Chapter 1: Computer and History of Computer.
About 58% of the teachers stated that the chapter was very easy (48%) and easy (10%), and 32% of them considered the content medium type and only 10% perceived it as difficult. None of the teachers found this subject very difficult.

Chapter 2: Structure and Organization of the Computer.
A large number of teachers (52%) ranked the content of medium difficulty; 38% ranked the content as easy. Only 2% of the teachers found it 'very easy'.

Figure 3: Teachers' Difficulty Level of the Contents:
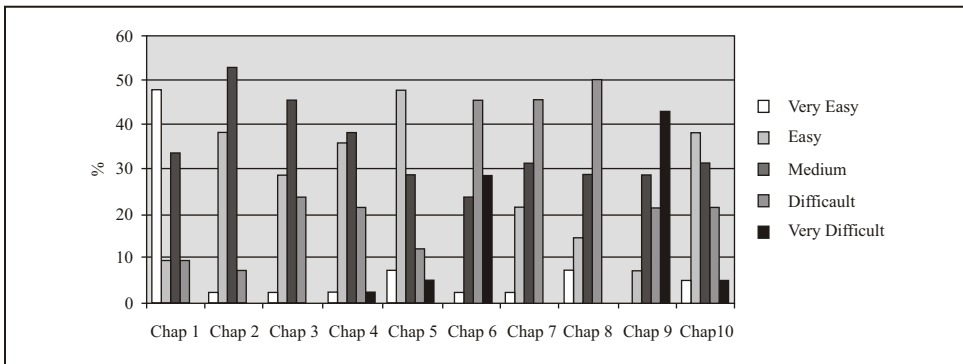
Chapter 3: Software and Operating System
It emerged from the study that teachers' ranking of this content ranged from easy to medium and none of them found it very difficult.

Chapter 4: Number System and Computer Logic.
About 38% of the teachers ranked this content as easy to very easy;. 23% teachers felt that this section was difficult or very difficult.

Chapter5: Word Processing.
The comments provided by the teachers on this content were mixed. Although a small group of teachers found this content as difficult, 55% of the teachers graded this section as very easy to easy; 17% and 29% of the teachers respectively graded this section as difficult to very difficult and as of medium difficulty.

Chapter 6: Spread Sheet Analysis.
A noticeable number of teachers ranked this section as difficult (45%) to very difficult (29%); 24% of the teachers ranked this chapter as of medium difficulty. None of the teachers found it very easy and only 2% graded it easy.

Chapter 7: Database.
A large number of teachers ranked this content difficult.

Chapter 8: Concept of Computer Programming
A larger number of teachers (50%) found Programming section difficult, but none of them ranked it as very difficult; 21% of the teachers stated that the chapter was very easy to easy.

Chapter 9: Networking and the Internet:
A significant number of teachers (64%) found this chapter very difficult or difficult.

Chapter 10: Computer Application and Multimedia:
About 43% teachers and 67% students found this chapter as easy or very easy; 21% teacher opined that this chapter was difficult, whereas 5% teachers found it very difficult.

Teacher's Performance

A teacher's performance in classroom logically is the ideal criterion to evaluate the teacher's readiness for the CE class. Table 4 presents the performance of teachers in classroom presentations.

The performance of CE teachers in classroom presentations was ranked by considering 20 items related to relevant pedagogic skills. It was observed that 29 teachers (69%) followed the traditional lecture method of teaching. It was also found that a teacher was conducting class just by reading from the text book. Ten (24%) teachers taught their classes following the lecture method with some discussions and questioning, and 3 (7%) teachers tried to apply the learning by doing method.

In 41 (97%) classes, there were provisions for hands-on practice, but only 10 teachers (24%) applied this method partially. It emerged from the above that absence of hands-on practice which is the most important component of a practically oriented subject like Computer Education, the students would likely to be reluctant and disinterested to learn. This deficiency had largely accentuated the gap between the prescribed and practiced curriculum.

Table 4: Teachers Performance of Some Selected Skills

|	Motivation	Preparation	Clear conception	Engaging students in their lesson	Questionin Technique	Board use	Effort to understand	Explaining new words and concepts	Voice
Not Applied	13 (31%)	-		16 (38%)	14 (33%)	33* (79%)	3 (7%)	23 (55%)	
Very Poor	8 (19%)	3 (7%)	2 (5%)	2 (5%)	2 (5%)	0	3 (7%)	1 (2%)	1 (2%)
Poor	4 9.(5%)	9 (21%)	7 (17%)	9 (21%)	8 (19%)	2 (5%)	5 (12%)	6 (14%)	6 (14%)
Moderate	10 (24%)	22 (52%)	18 (43%)	10 (24%)	14 (33%)	24 (57%)	24 (57%)	9 (21%)	16 (38%)
Good	7 (17%)	7 (17%)	11 (26%)	5 (12%)	4 (10%)	7 (17%)	7 (17%)	3 (7%)	17 (41%)
Very Good	0	1 (2%)	4 (10%)	0	0	0	0	0	2 (5%)

Table 4: Continued..

	Subject oriented	Easy to Hard	Format-i've Evaln.	Evaln. at the end.	Gesture	Eye contact	Sense of Humour	Encoura ging question	Students participa tion	Techniqu e of use T.Aid **	Method relevant
Not Applied		14 (33%)	26 (62%)	28 (67%)		6 (14%)		29 (69%)	1 (2%)	42 (100)	
Very Poor	1 (2%)	-			1 (2%)	2 (5%)	39 (92%)	1 (2%)	1 (2%)		3 (7%)
Poor	6 (14%)	12 (29%)	7 (17%)	3 (7%)	11 (26%)	11 (26%)	1 (2%)	1 (2%)	6 (14%)		6 (14%)
Moderate	16 (38%)	16 (38%	8 (19%)	9	27	20	2 (5%)	8 (19%)	25 (60%)		23 (55%)
Good	17 (41%)	-	1 (2%)	2 (5%)	3 (7%)	2 (5%)		3 (7%)	9 (21%)		10 (24%)
Excellent	2 (5%)					1 (2%)					

*8 schools do not have any board to use in the class. ** None of them use teaching aid except computer.
(None of the students was retarded or came from an ethnic group.)

Teacher performance was generally found to be very poor in classes observed. The impression one had was that the teachers were unprepared, had no clear concept of the topic, and lacked basic computer education knowledge and skill. They lacked confidence in taking their classes and the students were passive and unattentive. The quality and projection of voice, body language and eye contact, as the teachers spoke, could be considered satisfactory. However, due to deficiency in knowledge and understanding of the content, state of readiness of teachers, and their performance in motivating the students, engaging the students in the class, questioning technique, use of teaching aids and board using technique were unsatisfactory and frustrating.

The scenario described above about teachers' competence and state of readiness for conducting classes is illustrated in Figure 4

Figure 4: Findings on Computer Education Teachers' Readiness
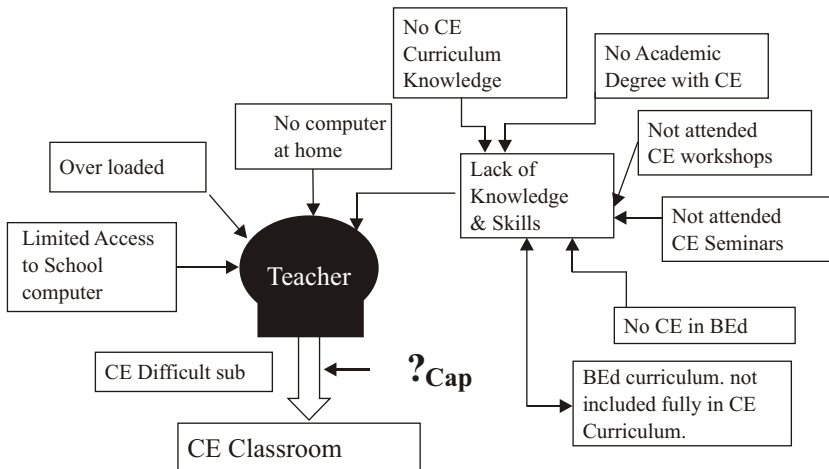
6. Conclusion and Recommendations

According to Hawkridge, Jaworski and MacMahon, (1990, p. 282), "Almost al1 teachers using computers in developing countries were never trained to do so during their initial training, and they have had only the briefest of in-service courses relating to computers". The study also revealed that the teachers were conducting the Computer Education classes with inadequate knowledge, skills and training in Computer Education. It also emerged that the teachers were facing many challenges in conducting classes due to lack of Computer Education related knowledge and skills. Due to these limitations and deficiencies the teachers were unable to conduct their classes with confidence and competence.

Recommendations:

- In order to ensure effective implementation, systematic dissemination of the Computer Education Curriculum among the Head Masters and Computer Education teachers should be made through trainings, workshops and seminars.

- Computer Education teachers should have a clear idea about what they are expected to do and should be clear about the objectives and expected outcomes of the subject. The duties and responsibilities should be made clearly articulated and made available for al1 teachers.

- Those responsible for policy regarding computer education should consider how an effective in-service training for computer education teachers can be designed and implemented and identify organizations which can assist in this effort.

- The training program should cover the curriculum and make a teacher more skillful and confident about the subject. The in-service training courses should focus on practical hands-on computer work and not only on theoretical materials. The content of the in-service computer courses should be determined according to the participants' needs.

- Opportunities should be created for computer education teachers to participate in seminars and meetings with other computer teachers in order to keep them updated on developments in computer usage and implementation.

- Government should employ Institute of Education and Research (IER) University of Dhaka, and Government TTCs to coordinate the plan and programme on professional development of computer education teachers. The B.Ed. Computer Education curriculum should be strengthened to produce computer conversant trained teachers.

- Incentives (financial assistance) should be provided to motivate teachers with a view to compensating for unusually high demands on teacher time and initiative.

- Support should be provided to computer education teachers to have access to teaching aids, such as, content based teaching materials including electronic materials, books and journals.

- Access to internet is essential. Communication with other people in the computer field and consultation with computer experts should also be made available.

- Several private and non-government organizations such as Bangladesh Computer Council, Youth Development Centers, and BANBEIS are engaged in providing support in the form of supplying computers to the schools and arranging training programs for the Computer Education teachers. These training programmes should be conducted emphasizing Secondary School Computer Education Curriculum. A study is also needed to examine the impacts of these interventions.

References

1. Almstrum, V. L., Hazzan, O., & Ginat D. (Eds.). (2004) Special issue on import/export relationships to computer science education research. *Computer Science Education, 14* (4).
2. Government of Bangladesh (2010) (Report), *National policy for Education,* MOE.
3. Evans-Andris, M. (1996). *An apple for the teacher,* Thousand Oaks, California. Corwin Press, Inc.
4. Fincher, S., & Petre, M. (2004). *Computer science education research.* London: UK: Routledge Falmer.
5. Goldwaeber, M., Fincher, S., Clark, M., & Pears. A.(2004). The relationships between CS education research and the SIGCSE community. *SIGCSE Bulletin, 36*(1), 147–148.
6. Gulati, S. (2008), 'Technology-enhanced learning in developing nations: A review', International Review of Research in Open and Distance Learning, vol. 9, no.1, viewed 8 April 2010, http://www.distanceandaccesstoeducation.org/contents/IRRODL-Gulati.pdf.
7. Hasselbring, T. S.; Smith, L.; Glaser, C. W.; Barron, L.;Risko, V. J.;Snyder, C.; & et. al. (2000). Literature Review: Technology to support teacher development. Retrieved on 23 May, 2005, from: http://www.ericsp.org/pages/digests/techteachdev.htm.
8. Hawkndge, D., Jaworski. J., & MaMahon, H. (1990). *Computers in third world countries.* London: Billing & Sons Ltd.
9. Kozma, R. 1999, 'ICT and educational reform in developing and developed countries', Center for technology on learning: SRI International, CA, Retrived on 19 August 2010, from: http://web2.udg.es/tiec/orals/c17.pdf.
10. Liu, Lewis-Guodo (1995, Computer Education in developing Countries: Analysis and Annotated Bibliography. Reference Material, ED 378939.
11. Trucano, M. (2005). Knowledge Maps: ICTs in Education. Washington, DC: infoDev/World Bank. Retrieved on 12 April 2008 from http://www.infodev.org/en/Publication.8.html.
12. Zamani, Bibi Eshrat (1997), *Implementation Issues in the Introduction of Computers into the Iranian Education Syatem,* PhD Dissertation, Ontario Institute for Studies in Education of the University of Toronto.

Methods and Practices of English Language Teaching in Bangla and English Medium Schools

Rozina Parvin*
Md. Zulfeqar Haider**

Abstract

The National Curriculum and Textbook Board (NCTB) revised the English curriculum for secondary schools (grades 6 to 10) in the 1990s in an attempt to address the continuing deterioration of the standard of English language teaching. A top-down revision process called for a switch from the traditional grammar-translation method to the Communicative Language Teaching (CLT) approach. Since then CLT became the prescribed approach to teaching of English at the mainstream Bangla medium schools of Bangladesh. On the other hand, the privately run English medium schools are mainly concerned with preparing the students to take the tests set by international testing authorities like Edexcel. This study examines the methods and practices of English language teaching in the mainstream Bangla medium schools of Bangladesh and compares them with the current methods and practices used in English medium schools. The study is based on the responses of 400 students and 32 teachers from both Bangla and English medium schools and 22 classrooms observations in the year 2008 and 2009 located in Dhaka city. Among some of the common practices found at both Bangla and English schools are: translations from English to Bangla, reading aloud, setting individual tasks for students and memorization of grammatical rules etc. It is also revealed that some CLT techniques e.g. using L1 for giving instructions, silent reading, explaining the new vocabulary in English are practiced in English medium schools. Other CLT techniques namely, warming up activities, techniques to present new vocabulary, pair and group works, and peer correction are hardly practiced in both types of school.

1. Introduction

English is a dominant factor in the development of a country as it affects the choices and opportunities in education, technology and global trade and business all over the world. A workforce that is creative, adaptive and proficient in English is essential for fostering a nation's socio-economic development. However, achieving the command and mastery of English is a challenging task in a developing country like Bangladesh. After four decades of independence, Bangladesh is yet to formulate a clear policy for the status, use and teaching

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*   Assistant Teacher, English, Tejgaon Govt. Girls' High School, Tejgaon, Dhaka. rznprvn@yahoo.com
** Associate Professor, English, Govt. Bangla College, Dhaka. zhfahian@yahoo.com

of English in academic and other spheres. Consequently, the country is struggling to produce a young workforce with a high level of proficiency in English. This situation calls for a rethinking about the currently applied methods of teaching English.

Background

At the dawn of the new millennium, the National Curriculum and Textbook Board (NCTB) revised the English curriculum and introduced the Communicative Language Teaching (CLT) method for teaching English at the secondary level. CLT was introduced in Bangladesh with a focus on developing the four skills of listening, speaking, reading and writing in a communicative context. However, the NCTB syllabus document of 1995 does not prescribe a particular CLT approach', rather, it suggests some features of CLT to be applied to initiate the practice of communicative language teaching in Bangladeshi classrooms. The syllabi mainly put emphasis on the need for developing the four skills by maximizing learners' interactive use of the target language within the classroom in meaningful contexts.

The concept of CLT

There have been various interpretations and understanding of the term CLT since it was announced as the nationally prescribed teaching approach of English. Many of the Bangla medium teachers were not familiar with the key concepts of CLT that is based on the Hymes'(1972) theory of communicative competence. This theory emphasizes learners' ability to use language in specific contexts and in terms of social demands of performance (McNamara, 2000:116). Canale and Swain's (1980) analysis of communicative competence found four dimensions of communicative competence. They are: grammatical competence, sociolinguistic competence, discourse competence and strategic competence (cited in Richards & Rodgers, 2002:160).

The basic characteristics of CLT include using authentic texts in the learning situation providing opportunities for learners to focus, not only on the language but also on the learning process itself. They also include taking the learner's own personal experiences as an important element in classroom learning - linking classroom language learning with language use outside the classroom (Nunan:1991). Richards & Rodgers (2002) points out that CLT focuses on classroom activities based on communicative methodology, such as group work, task-work, and filling information gap.. Freeman (1986) emphasizes grammar and vocabulary that the students learn from the functions, situational context, and the roles of the interlocutors in CLT. Alderson (2000) mentioned the importance of the process of reading that is silent, intent and private.

Current scenario

In the light of the above mentioned features of CLT, one can strive to formulate a set of strategies to implement CLT approach in EFL classroom. Accordingly, a group of Bangladeshi experts along with some expatriate consultants reviewed the former English for Today (EfT) textbook for grade 6 to 10 and wrote textbooks following communicative

approach in line with the recommendation of National Curriculum and Syllabus Committee (Hoque, Mummie, Shrubsall, 2010). They prepared teachers' guide following the textbooks also. The Bangla medium schools followed the revised curriculum and textbooks introduced by the NCTB. It was expected that students would achieve mastery of English, and at the same time be fully appreciative and devoted to the use of Bangla, the mother tongue. However it is generally agreed that after more than a decade of implementation of CLT, students of Bangla medium schools are still struggling to achieve desired level of proficiency in English (Afroze, Kabir & Rahman, 2008; Rahman, 2011). On the other hand, there has been a remarkable increase in the number of English medium schools, which do not operate under the control of local education administration. These English medium schools follow foreign curricula and textbooks. It is the general impression that the students of the English medium schools have a higher degree of proficiency in English (Hasan, 2004; Rashid, 2010). Therefore, the question that arises is what differences in methods and practices of English language instructions in the two types of schools result in the presumed difference in language proficiency outcome. This study intends to answer the question by looking at the similarities and differences in English language teaching techniques between Bangla and English medium schools.

Prescribed guidelines for teachers

As a set of prescriptions to the teachers of Bangladesh, Foster (1997) specified some classroom-teaching practices in Teacher's Guide for class 6. It was mentioned that teachers should avoid translation and students should develop their English skills in English. It further said that students should be trained to work in pairs and groups for some of the oral and writing activities in the textbooks. To present the new language, warm-up activates were suggested at the beginning of the lesson. Foster (1997) also mentioned how to present new vocabulary items such as, using textbook pictures, other visual aids, miming, etc. Silent reading was emphasized to develop reading skills. It was also mentioned that memorising grammatical rules were not of much help; a clear understanding of the concept was more important. To present new structures, teacher's task was to make sure that students understood the concepts as well as the actual words. Foster (1997) emphasized lesson planning because it would include management of time, technique of presenting the whole lesson, vocabulary, new structures, thinking of extra examples and predicting any difficulties which would arise in the class.. There was no such document containing guidelines for English language teaching for the English medium schools in Bangladesh. The text books were published by foreign publishers which were prescribed by the school authority to teach the language.

2. Method of study

The research was conducted following a combination of qualitative and quantitative approaches. The data collection techniques involve use survey analysis and classroom observation.

Sampling

The study used the students and teachers of Bangla and English medium schools as respondents for comparing English language teaching methods and practices. The sampling for the study was done purposively from four Bangla medium and four English medium schools. A total of 400 respondent students took part in the survey of which 280 were from Bangla medium schools and 120 from English medium schools. The total number of respondent-teachers was 32, of which 20 teachers were selected from Bangla medium schools and 12 teachers from English medium schools. Two types of questionnaires were prepared for the teachers and the students. As the class-size of English medium schools were smaller than that of Bangla medium schools, the number of respondents from the two types of school were not the same. Considering time and other constraints, the sample was narrowed down to the students of class six only. Eight lessons taught at English medium schools and sixteen lessons taught at Bangla medium schools were selected for observation. Considering the time and communication constraints for the self motivated researchers, the schools were purposively selected in Dhaka city. The duration of the research period was 2008 to 2009.

Data collection tools

There were seven structured questions in the questionnaire for the Bangla medium students and the same questions were included in English for English medium students. However, the questionnaire for the Bangla medium participants was in Bangla. The questionnaire for the teachers of both medium of schools contained seven semi-structured questions. The questionnaires were designed to collect information on the classroom-based practices of CLT by the students and teachers. An observation checklist was prepared to record the findings of classroom observation. The checklist was designed to focus on important aspects of classroom teaching.

3. Findings

On the basis of the data gathered from questionnaires and class observation, some differences and similarities in certain areas of teaching-learning practices between Bangla and English medium schools have been identified. The differences are presented below.

3.1 Differences

3.1.1 Medium of instruction

Regarding the medium of instruction in the English language classes, 17.86% students of Bangla medium schools state that their medium of instruction in the English lessons is only English while 82.14% mention it to be a mixture of Bangla and English. In their responses, 33.33% Bangla medium teachers report that they use English always and 66.67% of them mention they use both English and Bangla as medium of instruction. On the other hand, 100% of students and teachers of English medium schools state English as the only medium of instruction used in their English classes. The class observation finds the use of both
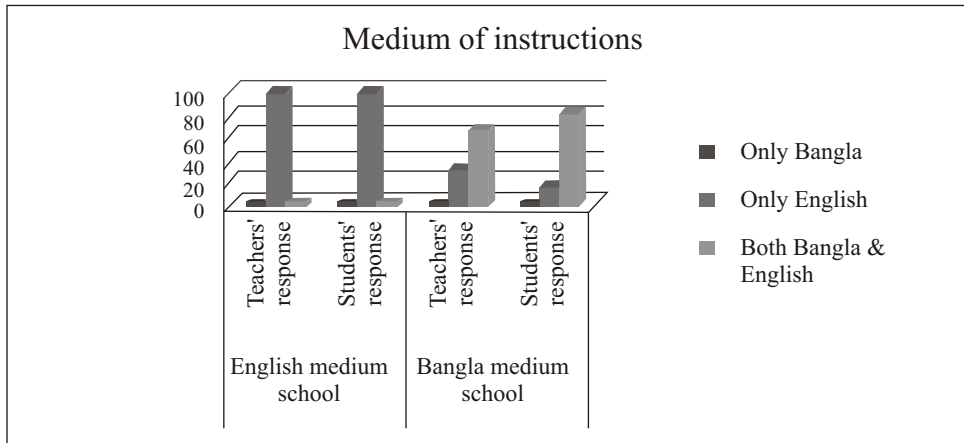
Figure 1: Medium of instruction used in Bangla and English medium schools

Bangla and English for giving instructions in Bangla medium schools while all the instruction in English medium schools are given in English. (Figure 1)

3.1.2 Use of Translations from English to Bangla
Regarding the use of translation in the classes, 62.86% students and 53% teachers of Bangla medium students mention that the English texts are translated in Bangla while 100% students and teachers report that no translation is used in their English classes. It is also evident from the classroom observation that the Bangla medium schoolteachers often translate the text into Bangla to make the students understand. No teacher of English medium school is found to have used translation into Bangla in their lessons.

3.1.3 Techniques of reading
While responding on the reading techniques used in their English classes, 51.43% of Bangla medium students mention reading aloud, 20% mention silent reading is the practice, and 28.57% mention use of both reading aloud and silent reading. In comparison, 100% of English medium school students report silent reading as the sole reading technique practiced in the classes.

Again, 40% of Bangla medium teachers admit that they ask students to read the text aloud while 20% of them report to engage their students in reading silently and another 40% refer to both silent reading and reading aloud as the common technique used by them for teaching reading. As stated by the English medium schools students, 100% of the teachers of English medium schools assert that they always ask their students to read the texts silently. While observing the classes in Bangla medium schools, most teachers were found to instruct the students to read aloud in the classes. In English medium schools, the teachers asked the students to read the text silently in the classes. (Figure 2)
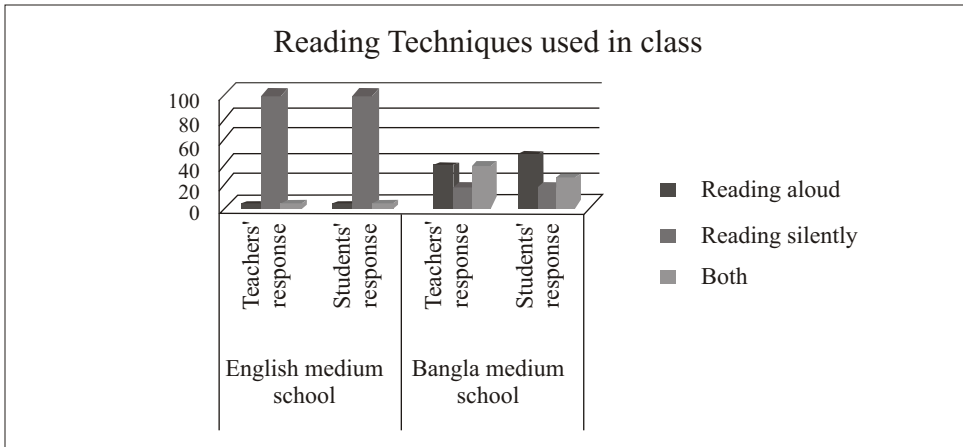
Figure 2: Techniques of teaching reading in Bangla and English medium schools

3.1.4 Techniques of grammar rules

In their responses to the question how they learn use of grammar rules, 56.14% of Bangla medium school students mention they start learning grammar by memorizing the rules;

42.87% report that they do it by reading the content of the English textbooks.. Among the English medium students, 3.33% students response that they try to understand the concept of the structures and use of rules; but a large majority of 96.67% mention practicing the set grammatical items from the content of the text. On the other hand the Bangla medium
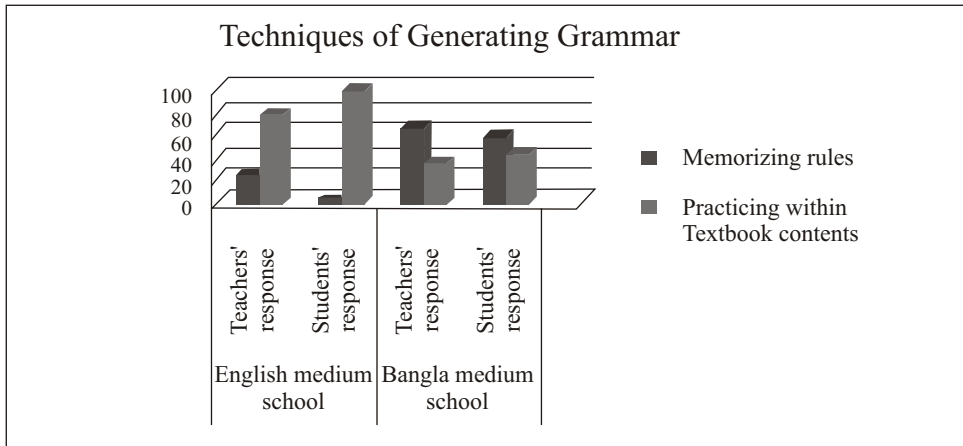

Figure 3: Techniques of generating grammar

teachers report that 65% of them help students learn grammar by asking students to memorize grammatical rules; 35% of them say they ask students to study the grammar- items in the English textbook. However, the English medium school teachers opine that 24.99% of them taught grammar by explaining the concept of the structure and use of the rules and another 74.97% asked students to practise the grammar items from the contents of the text books. From the classroom observation in Bangla medium schools, it was evident that grammar items were required to be memorized. In English medium schools, it was found that students were encouraged to practice the use of grammatical or structural items within the set contents of the textbooks.

3.1.5 Difficulties in four skills

While asking students to comment on the difficulty they face with the four skills of English language-listening, speaking, reading and writing, 45% of the Bangla medium students
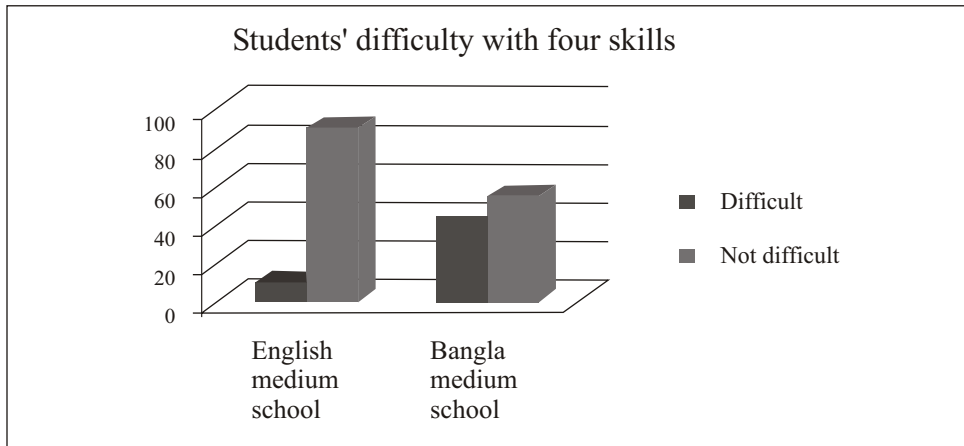
Figure 4: Students' difficulty with four skills

respond that find the four skills to be difficult while the rest 55% state these are not difficult to them. On the contrary, only 10% of students of English medium schools say that the four skills are difficult to them and 90% have no difficulty with the four skills of English. It is evident that the students of English medium schools do not find English as a difficult subject as it is to their Bangla medium counterparts.

3.1.6 Teachers' qualifications and training:

It is revealed from the respons made by teachers that only 20% of teachers of Bangla medium schools have a graduation degree in English while the remaining 80% do not have graduation level qualification in English. In contrast, 100% of the English teachers of English medium schools have the bachelor degree in English. This finding clearly indicates that the teachers

of Bangla medium schools are lagging behind their English medium colleagues in terms of academic qualification in English language.

Regarding the number of teachers having professional development training, the Bangla medium schools have a clear advantage over the English medium ones, at least in terms of the quantum of training. It is reported that 80% of Bangla medium teachers who teach English have been trained on CLT and the remaining 20% have some other professional training. Among the English medium school teachers, only 16.67% have training in CLT approach and the remaining 83.33% teachers have no training at all.

3.2 Similarities

Despite the above-mentioned differences there are some common features found in the teaching-learning practices of Bangla and English medium schools. The areas of similarities are described below.

3.2.1 *Warm up activities*

According to 87.86% of the students of Bangla medium schools, no warm-up activities, such as, using pictures or games etc. are used while presenting new language to them. Only 12.14% students mention the use of pictures as warm up activities. A similar situation prevails in English medium schools as 83.33% of the students say that new lessons are not presented through pictures or games. A modest 16.67% mention warming-up in their classes. Again, as reported by teachers themselves, 55% and 71% of teachers from Bangla and English medium schools do not use any warm up while 40% of Bangla medium teachers and 29% of English medium teachers introduce new language lessons through pictures. Only 5% teachers of Bangla medium schools report using games as warmers. Warm up activities were rarely in evidence during classroom observations.
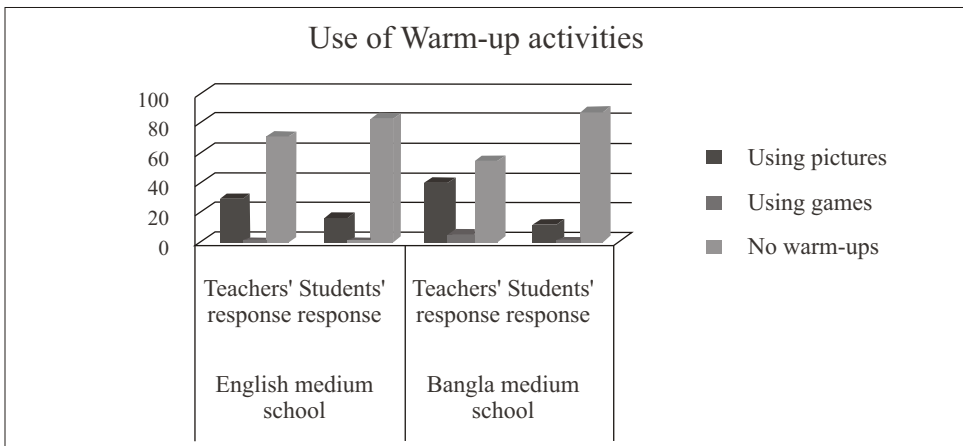
Figurer 5: Use of warm up activities for presenting new language

3.2.2 Presenting vocabulary

In their responses to how new vocabulary is presented in the classes 6% students from Bangla medium schools and 13% from English medium mention "inferencing" technique, which they use for guessing meaning of words in a text. 9% mention using textbook pictures and other visual aids. However, according to 57% of students they learn vocabulary through teachers' explanation in Bangla. Only 17 % students of Bangla medium school mention teachers' use of English for explaining the unknown words compared to 46% students of English medium. However, 30% English medium students learn vocabulary by searching the words in English-to-English dictionaries.
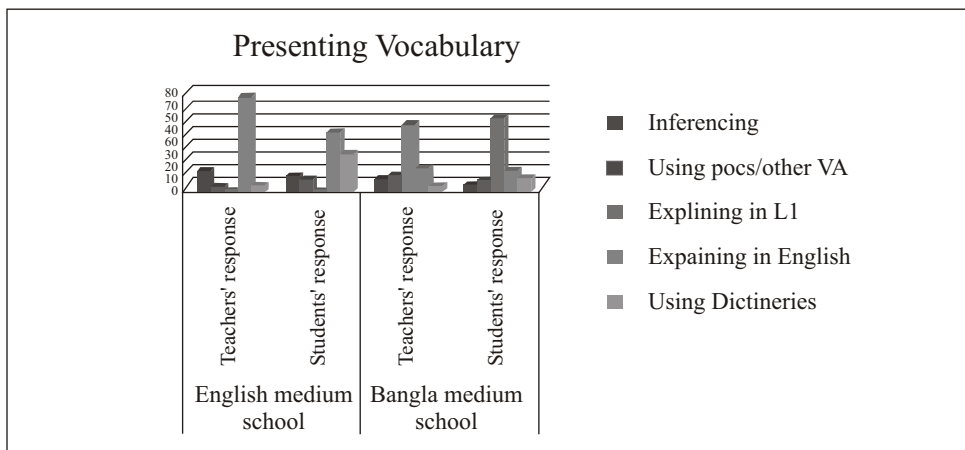

Figure 6: Techniques for presenting vocabulary

As per the responses of Bangla medium school teachers, 11% present vocabulary by inferring meaning from the text, 13% use textbook pictures and use other visual aids, 52% teachers explain the words in Bangla, 19% teachers explain the words in English and 5% present them by using dictionaries. Again, among the English medium teachers, 17% use inferring meaning, 4% use pictures and other visual aids, 73% explain the unknown words in English and 6% present vocabulary by using dictionaries. While observing the classes, it was seen that the techniques almost exclusively used of presenting new vocabulary was explaining the meaning in Bangla and in English in Bangla and English medium schools respectively.

3.2.3 Students' interaction pattern

Regarding the interaction pattern that the students have to work in during the lesson, 20% of Bangla medium students mention pair work or group work as ways of classroom based language practice, but 80% of students mention individual work only.

According to the students of English medium schools, 10% students are engaged in pair work, 13.33% in group work and 76.66% in individual work. As for the teachers, 30% and 10% of Bangla medium teachers report using pair work and group work respectively with their students while 60% of them admit they use individual work only. The teachers of English medium give almost the same reply. According to their responses 28% of the teachers used pair work, 8.33% group work and 63.67% used individual work. However,
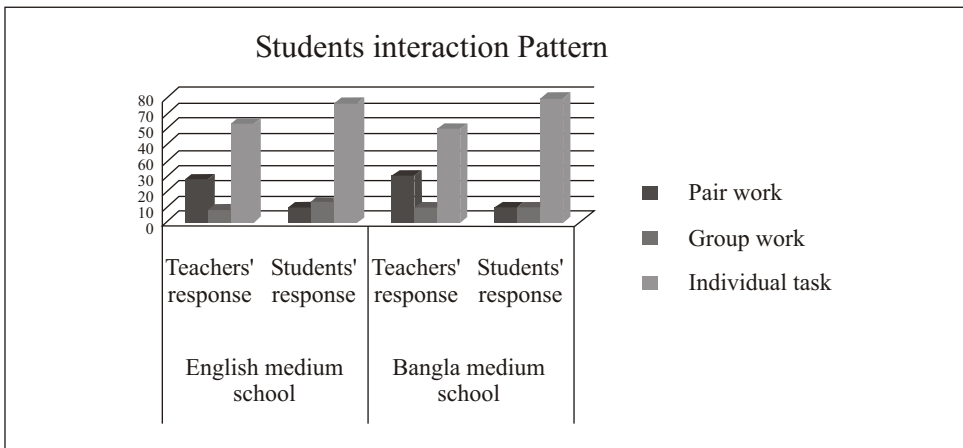

Figure 7: Students' interaction patterns

during classroom observation, it was found that the pair work and group work were not practiced in most of the classes in both types of school. No pair work, group work and peer correction activities were found in the observed the classes.

3.2.4 Preferred method of teaching

Among the Bangla medium teachers, 80% mention Communicative Language Teaching as the preferred method and 10% state that they follow the content of the prescribed textbooks. On the other hand, 83.33% of English medium teachers opine that they follow the contents of the textbooks while only 16.67% mention CLT. However, while observing the classes in Bangla medium schools, most of the teachers were found conducting the classes in traditional ways. The lessons taught by the English medium schoolteachers were mainly reliant on following the textbooks rather than following a certain method of teaching. Overall, the findings reveal the fact that despite their presumed knowledge of CLT the Bangla medium teachers follow traditional ways of English language teaching in the classes. The teachers of English medium schools do not seem to follow a specific approach or method, but improvise classroom activities following closely the contents of selected textbooks.

3.2.5 Preparation of lesson plans

Regarding preparing and using lesson plans 20% teachers in Bangla medium schools state that they prepare lesson plans everyday and 80% mention preparing lesson plan once a week. In the English medium schools, 100% of the teachers tell that they prepare lesson plans everyday. On the contrary, while observing classes, there are a very little evidence of preparation and use of lesson plans either by Bangla or English medium schoolteachers.

4. Discussion

The findings of the study reveal some differences and similarities between English language teaching practices at Bangla and English medium schools. It also identifies some strengths and limitations of the English language teaching methods and techniques followed by the concerned teachers in both types of schools. It is revealed from the study that the Bangla medium teachers are not as qualified as their English medium counterparts in terms of academic qualifications are. However, most of the Bangla medium teachers have professional training on CLT or other teaching methods, though the quality and value of this training was not examined in this study. It is generally agreed that a combination of good academic background and professional training is needed to produce better teachers for schools, irrespective of the medium of instruction. . Therefore, it can be argued that it is necessary for the English medium teachers to have some professional training while having at least a graduation degree in English is certainly necessary for the Bangla medium teachers who have better training opportunities.

It is revealed from the study that the English medium teachers are exercising better teaching practices in the classroom in terms of use of target language as medium of instruction, encouraging silent reading activities, avoiding translations and presenting grammar-structures in meaningful contexts. The findings on teachers' academic qualification have significant implication in this regard. In fact, teachers' own proficiency level in English is an important factor to determine his/her teaching practices in the classroom. In this respect, the English medium schools are rather privileged in having their teachers as graduates of English. On the other hand, despite the professional training the Bangla medium teachers have on teaching methodology, they are less able to exercise many of the training ideas due to their limited proficiency in English. For example, almost all the Bangla medium teachers are aware of the fact that they should give instructions in English but the study reveals that they do not do so. This does not indicate their unawareness of the importance of using the target language in the classes; this rather implies their inability to use English fluently and accurately in lessons.

As per the study, both English and Bangla medium teachers have the tendency of either avoiding or neglecting some recommended teaching practices, such as making lesson plans, using warm ups, teaching vocabulary in contexts, using pair/group work etc. As these deficiencies are common in both types of school, it is difficult to identify the factors

responsible for such detrimental practices. As noted earlier, a good command of English combined with a sound understanding of the methodological aspects of CLT may help the concerned teachers improve the scenario in both types of schools. Nevertheless, the question of teachers' motivation is still highly pertinent which remains unanswered in this study.

5. Conclusion

The aim of the study was to explore the similarities and differences of existing method in Bangla medium and English medium schools in Bangladesh. The key findings indicate that though most teachers of Bangla medium schools had professional training on CLT, they do not practise the most common techniques of CLT in the classroom and their students find it difficult to develop the four skills of English. On the other hand, though the teachers of English medium schools did not have training on CLT or any other English language teaching method, their instructions are given in English and they practice some features of CLT in the classes. However, the teaching practices of English at both Bangla and English medium schools have many limitations which need to be addressed by the concerned teachers. Therefore, a good command of English combined with a sound understanding of the methodological aspects of CLT may help the concerned teachers improve the scenario in both types of schools.

References

Afroze, R., Kabir, M. M., Rahman, A. (2008). English Teachers' Classroom Practice in Rural Secondary Schools, An Exploration of the effect of Brac Training. Bangladesh Education Journal, 7(1), 7-16.

Alderson, J.C. (2002). Assessing Reading. Cambridge: Cambridge University Press.

Foster, P. (1997). Teacher's Guide for English for Today For class Six. Hannan,K,.A.. (Ed). NCTB.

Hasan, K.. (2004 08 08). A Linguistic Study of English Language Curriculum at the Secondary Level in Bangladesh – A communicative Approach to Curriculum Development. Retrieved from http // www.languageindia.com on 10 October 2011.

Hoque, M.S., Mummie,J.G. & Shrubsall, R..S.(2010). Preface. English for Today. Dhaka. Bangladesh. NCTB.

Larsen – Freeman, D. (1986). Techniques and Principles In Language Teaching. NewYork,. OUP.

McNamara, T. (2000).Language Testing. Oxford: OUP

Nunan, D. (1991). Basic Features of CLT. Online english. Retrived from http://www.google.com on 9 October, 2011.

Rahman, H.A. M. M.. (2011). Proceedings from LECW "11: 5th Belta International Conference, Dhaka.

Rashid, H. (2010 12 30). English Language Teaching in Bangladesh. The News Today. Retrived from http://www.google.com on 11 October 2011.

Richards, J.C., & Rodgers,T.S. (2002). Approaches and Methods in Language Teaching. Camdridge. Cambridge University Press.

Bernstein, D. K., & Tiegerman, E. (1989). *Language and communication disorders in children* (2nd ed.). Columbus, OH: Merill.