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Teaching Practices and Teacher Education: Evidence from Secondary Schools of Dhaka, Bangladesh

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Teaching Practices and Teacher Education: Evidence from Secondary Schools of Dhaka, Bangladesh

Sheikh Asadullah

Abstract- In Bangladesh, there are improvements in secondary education by quantitative indicators but satisfactory picture is remained far from the quality. The gross deficiency in teaching includes one of the main reasons for poor quality of secondary education. There are higher failure rates in Mathematics subject in Secondary School Certificate examination in the last consecutive years. An extensive review of research has shown that teachers account to a large extent for student learning and achievement gains. For secondary teacher education in Bangladesh, there is a one year long training program named as Bachelor of Education (B.Ed.). Therefore, the study sought to find out the effectiveness of B.Ed. program on mathematics teachers' teaching practices as a means of improving secondary school mathematics in Bangladesh. The study was conducted among 38 mathematics teachers (trained and untrained) selected from 16 secondary schools of Dhaka city using survey method. Their classroom teachings were observed as well as mathematics teachers, head teachers, instructors and principal of Teachers Training College were interviewed. The study found that the B.Ed. trained mathematics teachers (61%) possess better teaching skills than their counterpart (50%) but the trained mathematics teachers did not exercise the B.Ed. outcomes fully in actual teaching (3.06 out of 5). There found no relation between teachers' personal characteristics and their pedagogical skills. This was the first study to investigate the effectiveness of secondary teacher education program within Bangladesh. It contributes important insights about secondary teacher education that can be used to inform the professional development of the secondary school mathematics teachers in Bangladesh.

Keywords: pedagogical skills, secondary school mathematics teachers of bangladesh, bachelor of education program, teachers training college.

I. Introduction

Poverty reduction is a high priority for the government in Bangladesh. Most politicians have recognised that the country is endowed with limited natural resources and an abundance of human resources (Bangladesh's population is currently 160.32 million, [BBS, 2016]), and see education as critical to poverty reduction, economic progress and national prosperity (Andaleeb, 2007; Ministry of Education [MoE], 2004, 2016). Since 1990, successive governments have made concerted efforts to fulfil constitutional obligations and have made "international commitments to ensure the achievement of 'education for all' goals and targets for every citizen by the year 2015" (Rahman, Hamzah, Meerah, & Rahman, 2010, p 115). Thus, various government and non-government initiatives have resulted in significant progress with regard to access to both primary and secondary education such as more schools and teachers, curriculum revision and increased enrolment rates especially for girls in secondary education (Rahman et al., 2010). For example, the net enrolment rates in primary education increased more than10% in the last decade (2005-2014) (Bangladesh Bureau of Educational Information and Statistics [BANBEIS], 2014). Not surprisingly, during 2004-2010, there was also an increase of 7% in the net enrolment rate of secondary education (BANBEIS, 2014; UNESCO, 2007). Also, for enhancing the quality of primary and secondary education the government of Bangladesh has been considering teacher education as a major factor. In secondary education a one year compulsory B. Ed teacher education program is being provided by the Teacher Training Colleges (TTCs) to enhance the qualities and qualifications of teachers and make them more skillful in teaching since the last decades (Bangladesh Bureau of Educational Information and Statistics (BANBEIS, 2006).

Despite significant progress in access, equity and public examination success, poor student performance in English and mathematics in secondary schools has become a major concern for government, education practitioners and the public in Bangladesh (Ahmed et al., 2006; Nath et al., 2007). For example, poor student performance in year eight (Junior Secondary year ten (Secondary Certificate) and School Certificate) public examinations has been attributed to consistently high failure rates in English and Mathematics. A substantial body of international research (see Hattie, 2003, 2009) has emphasised the important contribution of teacher instructional practices to student achievement. Several studies (see Ahmed et al., 2006; Nath et al., 2007) have attributed poor student performance and low quality education to poor teaching practices of teachers as one of the main reason in Bangladesh.

Therefore, studies are needed to find out the effect of the B. Ed program on secondary teachers

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teaching practices. No empirical studies conducted earlier the present study in the secondary education sector of Bangladesh to evaluate the effectiveness of teacher education program. The studies (ADB 2002 & 2004, MoE 2004) investigated the factors affecting the quality of secondary education and the prevailing problems of teacher education system in Bangladesh. The studies were not conducted on teachers' training objectives or teacher competencies developed through training. Therefore, this study was the first study conducted on Bangladesh secondary education in order to investigate the effectiveness of teacher education program and attempted to measure the effectiveness of the Bachelor of Education (B.Ed.) program on mathematics with regard to developing teaching practices of secondary school mathematics teachers in Bangladesh.

II. Secondary Education in Bangladesh

Secondary education in Bangladesh caters adolescents aged 11-17 years and includes two stages, the secondary stage (or grades 6-10) and higher secondary stage (or grades 11-12). The secondary stage is further divided into the junior secondary (or grades 6-8) and senior secondary (or grades 9-10).

At the end of the junior secondary stage (or grade 8), the learning achievement of a student is assessed at a public examination, known as the Junior School Certificate (JSC) in the general stream, and the Junior Dakhil Certificate (JDC) in madrasah stream. A student who passes the JSC or JDC may proceed to the senior secondary stage (grades 9-10) and be enrolled in a general, madrasah or vocational stream school (see Table 2.1). In the general stream, the students select to follow a curriculum in either the humanities, science or business disciplines. In the madrasah stream, the students select between general, science, mujaddid and hifjulquaran (both 'mujaddid' and 'hifjulquaran' emphasise Islamic curriculum). In secondary vocational education, there is no sub-division and two years of the certificate program is offered. At the end of the senior secondary stage (or grade 10) learning achievement is assessed at the public examination, known as the Secondary School Certificate (SSC), in the general stream, the Dakhil in the madrasah stream, and the SSC Vocational in the vocational stream.

The institutes (or schools) in the secondary education consist of public and private institutes. The public (government) institutes are managed and fully funded by the Bangladesh government. The private (non-government) institutes are managed independently, however, may either be funded by government subsidy or independently sources. The Ministry of Education (MoE) is responsible for the secondary education as well as the tertiary education.

III. Bachelor of Education (B.Ed.) in Bangladesh

Teacher education programs include coursework which focus on equipping teachers with knowledge and understanding of student needs, development and learning, pedagogical knowledge and, content area knowledge (Stronge, 2007). The aim of the secondary teacher education in Bangladesh (i.e. Bachelor of Education program) is to re-orientate secondary teachers' understanding of what constitutes teaching and produces a change in their classroom practice that increases student achievement (B.Ed. Curriculum, 2006-2007). Its purpose is to build teacher capacity in the form of new knowledge, skills and attitudes and in the application of these in practice. The curriculum of teacher education is, therefore, based on a defined set of teacher competencies and its content selected to provide the programs that enable untrained teachers and teacher trainees to develop and demonstrate a range of competencies required to promote student learning (B.Ed. Curriculum, 2006-2007).

Bachelor of Education (B. Ed.) program is titled as Bachelor of Education (Secondary Teaching) and the name of the award is Bachelor of Education. This course is for one academic session (one year long) and the accrediting institute of this program is National University, Bangladesh. Teacher training for secondary teachers including the B.Ed. are currently being provided in a range of institutions are depicted in Table 1.

Table 1: Types of secondary teacher training institutes

Type of Institute	Number of Institutes
Government Teacher Training College (TTC)	14
Private Teacher Training College	104
Higher Secondary Teacher Training Institutions (HSTTI)	05
Bangladesh Madrasah Teacher Training Institute (BMTTI)	01
National Academy for Educational Management (NAEM)	01
Bangladesh Open University (BOU)	01
Institutes of Education and Research (IER), Dhaka University	01

Source: BANBEIS, 2014.

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The present B.Ed. syllabus has been revised under National University Act. 1992 (Act 37 of 1992) and has been in effect in the government and private TTCs from the academic year 2006-2007. The curriculum is structured into five learning areas (including the teaching practice) which are mentioned in Table 2 with the score distribution and hours involved in each learning area.

Table 2: Total hours for each learning area and marks distribution in the B. Ed. Program

Learning Areas	Hours	Scores
Professional studies	108	100
Educational studies	216	200
Teaching Studies	432	300
Technology and Research Studies	108	100
Teaching Practice	336	300
Total	1200	1000

Source: B.Ed. Curriculum, 2006_2007

a) "Teaching Mathematics" course in B.Ed.

"Teaching Mathematics" is a course of the B.Ed. training under 'Teaching Studies' learning area. This course provides a range of learning opportunities designed specifically for trainees seeking to become secondary mathematics teachers. The purpose of this course is to support trainees to develop the knowledge, skills and attitudes required to competently teach mathematics in the Bangladesh secondary school curriculum for years 6-8 and years 9-10. The content of the "Teaching Mathematics" course is divided into 06 (six) units: Secondary mathematics curriculum in Bangladesh, Teaching learning approaches in the mathematics classroom, Logical approaches to familiar topics, Approaching difficult mathematics topics, Planning lessons for effective teaching and learning in mathematics, Assessment of student progress and achievement, and Independent learning in mathematics.

IV. Research on Teacher Training and Teaching Skills

Researchers had explored the effect of teacher education or teacher training effectiveness using different approaches. Some researchers (for example, Farooq & Shahzadi, 2006; Palardy & Rumberger, 2008) had attempted the effect of teacher training program by investigated direct relationships between student achievement and teachers' participation in teacher training and teacher education programs. The study of Farooq & Shahzadi (2006) in Pakistan evaluated effectiveness of teaching of trained and untrained teachers by comparing the mathematics achievement of 400 students by the teachers. Using descriptive survey design the study found significant differences in the teaching of trained and untrained teachers of mathematics and stressed that the teaching of trained teachers had significant impact on the mathematics achievement of the students.

Guarino, Hamilton, Lockwood & Rathbun (2006) conducted a study using data from the Early Childhood Longitudinal Study, Kindergarten Class of 1998 –99 (ECLS-K) collected by National Centre for Education Statistics (NCES) in the USA. The study examined the relationship of teachers' background variables (teaching certification, coursework in pedagogy, employment status and, teaching experience) and instructional practices and student achievement (in reading and mathematics) during the kindergarten year. Using two-level hierarchical linear modelling (HLM), the study showed only teachers' amount of coursework in pedagogy had a positive relationship with instructional practices (in reading and mathematics) that were associated with higher students' achievement in both subjects. Also, the study found instructional practices were positively associated with student achievement gains in both subjects but, no direct relationship between the qualifications of teachers and student achievement with the exception of teachers' employment status (part time and full time).

A part from the above, other researchers investigated the relationship or the influence of teacher training with teaching practice in the classroom. For example, in eastern Australian schools, Rowley (2002) conducted a study to examine whether the specialized teacher training in gifted education assisted teachers in developing teaching skills, competencies and classroom climates identified as effective in teaching gifted and talented students. Differences were observed among 56 trained, 31 currently undertaking training and 80 untrained teachers in their classroom, and both trained and currently undertaking training teachers were found to demonstrate better teaching skills than the untrained group. Subsequently, Bambico (2004) evaluated the effectiveness of in-service teacher training for 70 elementary mathematics teachers in the Philippines by using pre and post-tests and found that the teachers teaching skills improved after the training and the performance of the 2144 students from grade 1 to 4 improved after their teachers' participation in the training. Similarly, Mohsin (2004) in Bangladesh using survey method had revealed teachers education

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program provided by Primary Training Institute (PTI) had improved 267 primary school teachers teaching skills.

V. Conceptual Framework and Research Questions

The main findings of the literature review above provided the basis for the development of a conceptual framework for the study. The conceptual framework allowed relative comparison of teaching practices in the area of preparation of the teacher, teaching learning activities, use of teaching/learning resources, lesson evaluation, time management and giving homework in order to measure the secondary school mathematics teacher effects particularly the participation in the teacher education program (B. Ed) on their mathematics teaching practices. With respect to the purpose of the study, the two research questions were posed in the study:

1. Is there any difference between trained and untrained mathematics teachers in their teaching practices of mathematics within Dhaka, Bangladesh?
2. What is the level of application of the developed teaching skills (if any) in their classroom teaching by the trained teachers within Dhaka, Bangladesh?
3. Besides, to examine any relationship between teachers' personal characteristics and their teaching practices, research question was posed.
4. Are teacher personal characteristics (i.e., age, duration of service, academic qualification, and type of the institute) related to teaching behaviours of mathematics teachers within Dhaka, Bangladesh?

VI. Method and Procedure

a) *Design and sample*

A non-experimental comparative approach was employed in the study in order to measure the effectiveness of the B.Ed. program on secondary school mathematics teaching by comparing the classroom teaching practice of trained mathematics teachers' and untrained mathematics teachers. Sample of the study was drawn through convenient sampling strategy. 23 B.Ed. trained secondary school mathematics teachers and 15 untrained secondary school mathematics teachers were identified from 4 public and 12 private schools of Dhaka city. Mathematics teachers who had already undergone the Bachelor of Education (B.Ed.) training were considered as trained teachers while those who had neither B. Ed. training nor received any kind of professional training in teaching mathematics were considered as untrained teachers.

Mathematics is taught as a compulsory subject from grade I to grade X in Bangladesh schools. The curricular and syllabi for Grade IX and X are similar for each subject including general mathematics. In order to maintain the reliability of the observation data, the mathematics teaching either in grade IX or X were observed.

b) *Data collection*

i. *Classroom teaching observation*

Primary data was collected by observing the general mathematics classroom teaching either in grade IX or grade X of the two groups of teachers. The classroom observation was conducted using the observation checklist which is used as the "Teaching Practice Assessment Form" to assess the teacher trainees' classroom teaching of the B.Ed. program. This original observation checklist had 20 items with a five point rating scale from 1 to 5 where 1 refers to poor, 2 refers to fair, 3 indicates good, 4 refers to better, and 5 for the best performance in the teaching behaviour. The original checklist had been modified and was consisted on 16 teaching behaviors under 05 (five) core teaching skills: preparation, teaching-learning activities, use of teaching-learning resources, evaluation, and time management and assignment.

The researcher either with the headmaster of the respective school of the observed teacher or the B.Ed. trainer of Dhaka Teacher Training College observed each classroom teaching. The classroom teaching sessions were videotaped for subsequent qualitative analysis of the teacher participants' classroom teaching.

ii. *Interviews*

Semi-structured interviews with the participant trained and untrained teachers, two school headmasters (one from public and one from private schools), the Principal and two B.Ed trainers of Dhaka Teachers' Training College were employed to validate the findings of the classroom teaching observations. The interviews with the trained and untrained teachers were conducted on the same day as the observation, on-site in a quite location, and were digitally recorded with permission from teacher participants. Each interview took about 25 minutes were conducted in Bangla and began with a brief explanation of the purpose, confidentiality, interview procedures, consent to conduct and digitally record the interview and the interview questions developed for the study.

For the trained teachers, the interview schedule were associated with the motivation for participating in the B.Ed. training, effects of this training in mathematics teaching, problems encountered in implementing the gained knowledge or skills. In the interviews, the untrained teachers were asked to give their opinions about their intention and the reasons for enrolling in the B.Ed. program and the problems encountering in teaching mathematics. The school headmasters expressed their perceptions regarding the differences in pedagogical skills among the trained and the untrained teachers teaching in their schools and the issues with

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applying the implementing the gained knowledge or skills of the B. Ed program in classroom teaching.

c) Data analysis

The collected data was analyzed both quantitatively and qualitatively. As for quantitative analysis, descriptive statistics were computed using the SPSS version 22.0. Pearson Product Moment Correlation (Pearson Correlation and Kruskal-Wallis H-test) was used to find out the significant correlation between teachers' personal characteristics (age, teaching experience, academic attainment and the type of institute they serve) and their teaching practice. The transcripts of the interviews were analyzed qualitatively.

VII. Interpretation of the Results

a) Particulars of the sample

The demographic data of all the 38 teachers included their gender, age, academic background, type of institute, experiences in teaching. Table 4 describes there are 38 teachers in which 74% were male and 26% were female.

Table 4: Gender of the teachers

Gender	Frequency	Percent	Cumulative Percent
Male	28	74	74
Female	10	26	100
Total	38	100	

Table 5 describes that the majority of the teachers (58%) are below 40 years while 32% teachers were 41-50 years. A few teachers (10%) are older than 50 years.

Table 5: Age of the teachers

Age	Frequency	Percent	Cumulative Percent
Below 30	9	24	24
31-40	13	34	58
41-50	12	32	90
51-60	4	10	100
Total	38	100	

In the sample of the study, it can be seen form Table 6 that majority of the teachers had the Master's degree in the academic qualification which can be assumed a plus point for secondary education sector of Bangladesh. The rest of the teachers either had honors or graduation degree.

Table 6: Academic qualification of the teachers

Qualifications	Frequency	Percent	Cumulative Percent
Hons./Pass	14	37	37
Masters	24	63	100
Total	38	100	

In the sample of the study, most of the teachers were related to private schools and only 20% were from the government schools (see Table 7). In Bangladesh about 98% secondary schools are private and 97% teachers are from public secondary schools (BANBEIS, 2014).

Table 7: Type of schools

Institute	Frequency	Percent	Cumulative Percent
Public	8	20	20
Private	30	80	100
Total	38	100	

Table 8 depicts the mathematics teaching experiences of teachers. Majority of the teachers had 11-20 years of teaching experience in mathematics. 5 untrained teachers were novice who had less than 1 year experience. Most likely only 2 teachers (1 trained and 1 untrained) had more than 30 years of mathematics teaching experience (see Table 8).

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Table 8: Mathematics teaching experience of the teachers

Experience	Frequency	Percent	Cumulative Percent
Below 1 year	5	13	13
1-10	10	26	39
11-20	12	32	71
21-30	9	24	95
Above 30	2	5	100
Total	38	100	

According to the demographical characteristics of both the untrained and the trained teachers, a significant difference was observed only with relation to the age and teaching experience between the trained and the untrained groups. In regard to the teachers' age, computing the independent *t*-test at 5% significance level, it was found that the received *p* value was 0.037 (less than the predetermined alpha 0.05) where *t* value was 2.163. For the teaching experience, the *p* value was found 0.045 and the *t* value was 2.079.

b) Classroom teaching observation

The mean score obtained by the trained and untrained teachers in 16 items under five core teaching practices are shown in Figure 1.

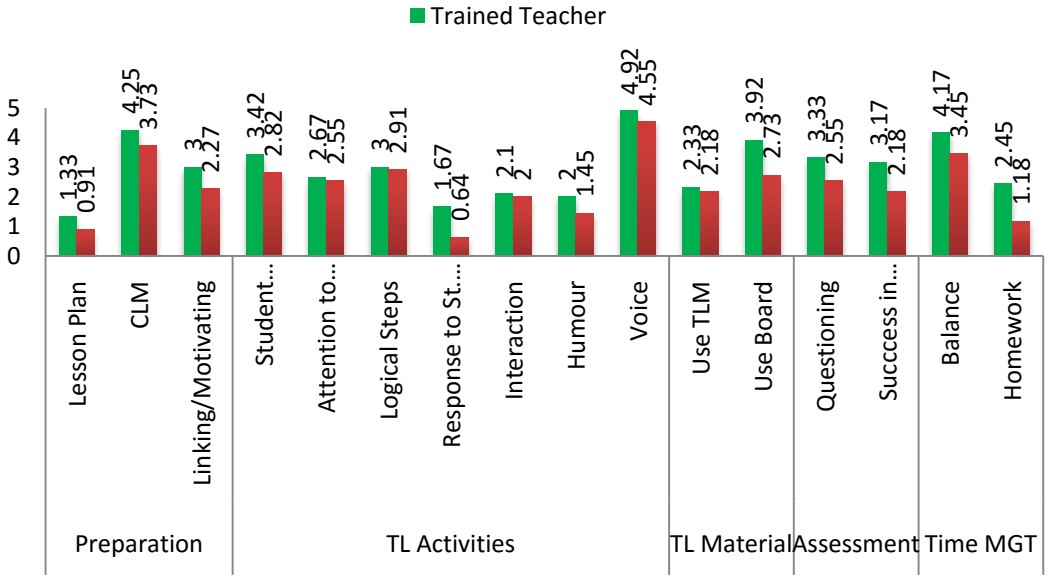

Figure 1: Comparison between Trained and Untrained teachers' mean score in teaching practices.

From Figure 1, it can be seen that the trained teachers' were better in the teaching practices than the untrained teachers in all the aspects. The subsequent sections present the comparison between the trained and untrained teacher for the 16 teaching behaviours under five broad teaching skills (i.e. preparation, teaching leaning activities, use of teaching-learning material, evaluation, time management and assignment). For this comparison, the qualitative findings along with the descriptive statistics were used to demonstrate the difference between the performance of the trained and untrained teachers and the degree trained teachers implemented the skills (gained through the B. Ed program) into their teaching practices.

i. *Preparation*

a. *Lesson plan*

Though lesson plan is strongly emphasized and the trainees are taught how to prepare an effective lesson plan in the B.Ed. program, half of the trained teachers (50%) were found have the structured or written lesson plan in the classroom. Among the untrained group, only one teacher (7%) had structured lesson plans for the session and more than half of the teachers (58%) did not have any sort of lesson plan. Thus, the mean score of the lesson plan for the trained teachers (*M= 1.33*) was ahead of the untrained teachers (*M= 0.91*) and not surprisingly the trained teacher's lesson plan was more finely structured than that of the untrained teacher. However, the findings also showed

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that 'lesson plan was found as one of the weakest areas for the trained teachers as well as for the untrained teachers. It was noteworthy that in the study only one trained teacher (8%) prepared the lesson plan following the B.Ed. structure and the reason for preparing the lesson plan was due to the strict supervision of the school administration.

b. *Classroom management*

In the study both groups of the teachers used classroom management and controlling capacity in class. The students in the observed classrooms were found well-disciplined and controlled; it may be due to the reason that almost all classes were found to be teacher-centered. To compare, the trained teachers (*M= 4.25*) showed better performance in this area than their counterpart (*M= 3.73*) as 92% trained teachers (92%) used 'better' (i.e. 4 in the 5 Likert scale) classroom management skills and untrained teachers were just 54% who used the same level of management skills.

c. *Establish relation/creating motivation with the lesson*

To motivate students for the lesson or to link previous knowledge with the present lesson, trained group (*M = 3*) had showed more expertise in either applying more motivational activities or asking some relevant questions from previous topic/chapters than the untrained teachers (*M= 2.27*). 34 % trained teachers and 19% untrained teachers were found asking questions/formulas from the previous content and linking with the new topic, showing/mentioning verbal examples or pictures or figures on the blackboard to establish relation/creating motivation with the lesson before commencing the main topic. Such activities were suggested by the researchers (Brophy & Good, 1986; Rosenshine & Stevens, 1986) as an effective teaching practice to enhance student learning outcome. However, most trained (58%) teachers had moderate effort (i.e. 2 to 3 in the 5 Likert scale) in this area and 8% of them seemed to have difficulty as they started their lessons without providing any aim of learning the lesson to students.

ii. *Teaching-learning activities*

a. *Presenting lesson maintaining logical steps*

In maintaining logical steps in lesson delivery, trained teachers (*M=3.00*) showed better performance than their counterparts (*M= 2.91*). 42% trained teachers made the topic clearer and followed the steps according to the difficulty level. While demonstrating the lesson, this percentage of trained teachers (42%) were conscious about mentioning in details all steps of the mathematical problem, maintained the difficulty level by linking up the formulas or calculation with the problem. In addition, they also stated some common errors students generally made in the exam and advised students to be careful about these errors. However, 8% trained teachers failed to make the topic clear and did not maintain the steps according to the difficulty level. They skipped the clear steps of the solution process or did not well link up the formula with the problem. On the other, 36% untrained teachers showed the similar characteristics in demonstrating the lesson in order to make the topic clearer and in guiding the students about the common errors. 9% untrained teachers failed to make the topic clearer similar to that of the 8% trained teachers.

b. *Student involvement*

Research (Borg, 1979; Good, Grouws & Beckerman, 1978; Hafner, 1993; Herman & Klein, 1996) has consistently emphasized on student involvement to learning tasks and activities during the lesson as for the positive relationship between student achievement and with student engaged time or time-on-task. In the study, 58% trained teachers and 37% untrained teachers involved their students in the lesson both verbally and non-verbally while the rest involved the students either by verbal or non-verbal method. In case of the verbal approach, teachers engaged the whole class in verbal responses by asking questions/formulas individually or asking students for oral presentations for the whole class while solving the problems on the blackboard. In the non-verbal approach, students were engaged to note down the solution from the blackboard or to solve the given problem. Students in 75% trained teachers' (*M= 3.42)* and 55% untrained teachers' *(M= 2.82*) sessions were found somehow active with the lesson while in the 8% trained and 9% untrained teachers' sessions, students sometimes became inactive such as sitting idle, not responding to teacher and so forth.

c. *Response to students' questions*

Research has showed that 'questioning' is the mostly used form of teacher-pupil interaction and is an important aspect of effective teaching (Brophy & Good, 1986; Creemers, 1994; Mortimore, Sammons, Stoll, Lewis & Ecob, 1988). Research (Cornbleth, 1975; Taboada & Guthrie, 2006) showed that student generated questions can also contribute to the enhancement of student learning outcome.

In the study, 33% trained and 64% untrained teachers did not invite any questions from their students and the teachers who invited, were not able to make or encourage their students to generate questions. However, the common strategies to raise student questioning were asking them "*Do anyone have any problem*?" or "*Have you understood this solution*?" and in respond to such questions students preferred remaining silent in most cases. As a consequence, student generated questions were rare to observe and the observers had limited opportunity to evaluate the teacher competency in handling student questions. Thus, this area of teaching practice including encouraging students to ask questions was revealed as the weakest performed area for the trained teachers

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(*M= 1.67*) and the untrained teachers (*M=0.64*). On contrary, one trained teacher in a session of trigonometry was affectionately and repeatedly asking his students to raise their hands or stand up if anyone had any problem in understanding the lesson. As a result, students from all corners having problems in understanding the solution asked the teacher questions to have clear conceptualistion.

d. *Attention to students*

In the study, comparing the performance in "attention to all students" including the "movement inside classroom" of the checklist, no significant differences was found between the trained teachers (*M*=2.67) and the untrained teachers (*M*=2.55). Only, 33% trained teachers were found attentive to students by maintaining eye contact while demonstrating the lesson during the whole session, moved around the class frequently and asked questions from almost all students in the class while 27% untrained teachers was attentive to students by showing the similar characteristics. On the other, 25% trained and 28% untrained teachers had rarely maintained eye contact with the students throughout the session and they did not move around the class or rarely moved. Nevertheless, both groups of teachers were found either attentive or careful in checking students' class work on their notebooks by moving throughout the classroom.

e. *Sense of humour (classroom appearance)*

The trained teachers appeared little friendlier (*M =2.00*) with the students in the class; however, it did not seem adequate to make the class friendly. Only 45% trained teachers used smiling faces and some of them addressed their students as "Learner Friends". Smiling faces was found rare among the untrained teachers *(M=1.45)* and they never addressed their students as "Learner Friends". The trained teachers tended to use body language in their sessions which was also rare among the untrained teachers. However, all teachers were dressed appropriately.

f. *Teacher - student interaction*

The learning environment in the classroom is a broad term encompassing a wide range of educational concepts including the way teacher and student interacts each other. (Creemers & Reezigt, 1999; Freiberg & Stein, 1999). Teacher-student interaction (Levy, Wubbels & Brekelmans, 1992) refers to the consistent flow of information related to teacher and student perceptions, attitudes and feelings about each other, and the learning activities at hand during a lesson (Burns, 1982; Rogers, 1982). In the study, the interaction between teachers and learners of the trained teachers (*M* = 2.1) indicated that the classrooms of the trained teachers were not adequately teacher-student interacted. To compare, similar performance was showed by the untrained teachers (*M*=2). 58% trained and 45% untrained teachers interacted with their students either verbally or non-verbally. Most of the untrained teachers (82%) occasionally praised their students for the correct answer or cooperating teacher during his/her presentation of the solution on the board while praised students was frequently observed in trained teachers' sessions. Also in the sessions of both groups, students were observed to be more interactive while solving problems in note books, being checked the solutions by the teacher, and cooperating teacher during his/her working out problem on the board.

g. *Audible voice*

Techers voice is considered as one of the most effective teaching (Keltie, 2011). In the study, to what extent the teacher's voice was audible and clear to the students was measured and was found as the strongest teaching skill area in the observation checklist for the two groups. All teachers had audible voice and intelligible. However, the trained teachers (*M=4.75*) had little better accent and audible voices in the sessions than the untrained group (*M=4.41*). However, in most sessions, the researcher found that the surrounding noises (such as construction work nearby, vehicles' sound and so forth) badly affected the concentration of both teachers and learners and as a result, students were having trouble to hear the teacher clearly.

iii. *Teaching Learning Material (TLM)*

a. *Use of TLM*

Observing the frequency of using TLM, proper timing of using and so forth, no significant difference was observed between the overall performance of the trained teachers (*M* = 2.33) and the untrained teachers (*M = 2.18*). Surprisingly, in some instances, some untrained teachers had showed more expertise than the other teachers including the trained ones. For example, in the geometry classes, 27% untrained teachers used drawn pictures (diagrams) in big papers or showed real examples in addition to use of geometrical tools while to exhibit the similar performance only 25% trained teachers were found. But in the Algebraic problems, all the untrained teachers used only verbal real life examples whereas 25% trained teachers mentioned real life examples and used visual examples or models in addition. However, the mean performance of the trained teachers in this area reflects that only a few trained teachers (25%) used TLM adequately and appropriately.

b. *Appropriate use of board*

Through the research, it was found that the trained teachers (*M*= 3.92) had showed better performance in appropriate using of the board than the untrained group (*M*= 2.73) significantly. 33% trained teachers and only 9% untrained teachers used the blackboard appropriately as their writings into the blackboard were found visible, clear and easy to follow for the students. Most of the untrained (55%) teachers were not considerate to the convenience of the students following the writing of the board. The teachers wrote

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either in middle or right part of the board and their writings were found either small or got covered by the body while writing or were covered by the TLM. 8% trained teachers showed similar characteristics, thus, seemed to have problems in using the blackboard properly as suggested in the B.Ed. program.

iv. Assessment

a. *Strategies including questioning*

Assessment of student learning is an important part of teaching, and research findings have reported the significant contribution of formative assessment to student learning outcomes (Hattie, 2009). In the present study, teachers were observed to employ verbal (i.e. asking questions/formulas on the present topic) and non-verbal (e.g. posing problems to solve in the note books) to evaluate students learning outcome and significant differences were found between the trained group (*M = 3.33)* and the untrained group (*M = 2.55).* 64% trained teachers and 20% untrained teachers relied on both strategies (verbal and nonverbal) to evaluate the students' expected learning. On the other, single approach were employed by some trained (27%) and most of the untrained teachers (50%). In the cases of non-verbal approach, trained teachers often found to ask students to solve the given problem on the backboard but no untrained teachers, except one, utilized such an activity. In the verbal approach, 17% trained teachers were found to ask 'higher order cognitive questions" (Ozerk, 2001; Wilen, 1987) by incorporating "why is this answer?" in their questioning. However, 9% trained teachers and 30% untrained teachers just asked "Do you understand this?" for evaluating their student learning.

b. *Success in achieving expected learning outcome*

To what extent the teachers were successful in achieving expected student learning outcome, the focus was given on the ability of the students' to give correct answer against teacher's questions or given problems. Based on the criteria, in the present study 66% trained teachers and 54% untrained teachers were fully successful in achieving their expected student learning. 25% trained teachers were found partial successful as some of the students answered incorrectly and 9% trained teachers were not successful in this aspect. On the contrary, bigger percentage of untrained teachers (45%) failed to achieve students' expected output.

v. *Time Management and Homework*

In the secondary schools of Bangladesh, the time was usually allocated for the mathematics session was 35 minutes. According to the "Professional Studies" of B.Ed. training, the teachers are advised to allocate the 35 minutes for three activities: 5 minutes for preparation, 20 minutes for teaching/learning and 10 minutes for evaluation and review. To compare, significant difference was observed in maintaining proper time management between the trained (*M=4.17*) and untrained teachers (*M=3.45*). 84% trained teachers tended to follow the time management in their sessions while 16% trained teachers were found not having proper time management as most of the time was utilized for demonstrating solving the problems by him/herself on the board without considering the other major activities. Similarly, 36% untrained teachers were found planned in timing whereas 64% untrained teachers did not care about the time limitation of the session.

Providing homework is revealed as one of the effective teaching strategy in the reviews and meta-analysis (Cooper, 1989; Hattie, 2009). Through the present study, it has been found that a significant difference existed between the trained (*M=2.58*) and untrained teachers (*M=1.18*) in assigning homework. More than half of the trained teachers (58%) followed the accurate way to give the homework/assignment to students. They, in detail, wrote the problem on the board or dictated students to note down the problem in their note books followed by the instructions of B.Ed. training. On contrary, 82% untrained teachers did not use the proper method to give the assignment or homework and 9% untrained teachers finished the session without giving any homework or assignment while every trained teacher finished the lesson by giving an assignment either in the proper or improper method.

c) Interviews

i. *Interviews with trained teachers*

Findings from the responses of the trained teachers against three questions are presented in the subsequent sections.

a. *Motivation to undergo the training*

According to the views of the teachers, the main reason for undergoing the training was becoming a better and qualified teacher through improving their teaching strategies. Other reasons included fulfilling the conditions for the job confirmation and career development. Some others provided insight of having more understanding on the mathematical concepts to improve their teaching performance.

b. *Effects of the training*

Regarding effectiveness of the B.Ed. training the teachers expressed that: it increased their levels of teaching skills; they became more knowledgeable about different teaching strategies. As an effect of such enhancement, they became able to teach mathematics to students with more understanding and in a more enjoyable way.

c. *Implementation of gained training knowledge and skills in mathematics teaching*

The teachers claimed that although they had developed their teaching abilities, they could not fully implement those skills for several factors that included

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heavy class load, big class size, short class session, pressure of finishing the syllabus in due time, big gap among students' merit stages/levels, incontinent classroom environment. Also they expressed that they did not feel motivated to employ their skills fully due to the factors: absence of proper evaluation for teachers' promotion; low salary.

ii. *Interviews with untrained teachers*

Views and opinions of the untrained teachers against two questions are illustrated below:

a. *Problems/difficulties to teach mathematics*

The untrained teachers stated that they faced problems in teaching mathematics as they felt weakness in some of the content areas of mathematics such as geometry, real numbers and so forth. They also mentioned that the big class size, lack of students' basic knowledge in mathematics hindered them in implementing their expected teaching method.

b. Necessity to undergo the B.Ed. training

In this issue, each untrained teacher believed that there was no other alternative other than the training program to develop their professional ability. They wanted to participate in the B.Ed. training because they realized the limitation in their ability of applying appropriate strategies and skills in teaching mathematics. They stated that by undergoing the training, they would be able to learn necessary strategies to teach mathematics effectively and could have the complete guidelines of teaching methodology in the classroom.

iii. *Interviews with the Head Teachers*

The head teachers' perceptions received against the two aspects are presented below:

a. *Professional abilities of trained teachers and untrained teachers*

The two head teachers mentioned that the B.Ed. program was very important to develop the professional abilities of a teacher. From the training, teachers would be able to learn the teaching strategies and acquire the knowledge to implement the best strategy/strategies in his/her teaching. They shared their experiences that a novice or untrained teacher though being sincere or committed for their profession, lacked adequate teaching methods and knowledge and failed to achieve expected students' outcome. In contrast, trained teachers applying the effective methods learned from the training could attain the students' outcome: similarly, students enjoyed the classes of trained teachers more than the classes of untrained teachers.

b. *Implementation of training knowledge and skills in classroom teaching*

Although trained teachers had willingness or intention to implement the gained knowledge and skills in their classroom teaching, they could not fully implement those in their actual classroom teaching due to the reasons similar to some extent with the reasons mentioned by the trained teachers.

d) Relationship between teachers' personal characteristics with teaching practice

One of the purposes of this study was to find out any significant relationship between the two groups of teachers with regard to their personal characteristics (age, experience, qualification, and institution type) and their teaching practices.

i. *Correlation with teachers' age and experience*

The Pearson correlation (two tails) test at 5% level of significance was used to measure the correlation of teachers' age, experience with their teaching skills. The summary results are shown in Table 9. As shown in Table 9, it was revealed that there was no significant relationship between teachers' age and their experience with their pedagogical skills, content knowledge, and attitudes and beliefs.

Table 9: Correlation of teachers' age and experience with teaching practice

Variables	Teachers Age	Teaching experience
Teaching practice	$\|r\| = 0.404$ $p=0.056>.05$	$\|r\| =0.400$ $p=0.059 > .05$

i. *Correlation with qualification and type of the institute*

The Kruskal-Wallis H-test at 5% level of significance was used to observe the relationship. The summary results are shown in Table 10. According to the results in depicted in Table 10, it was found that there was no significant relationship between teachers' qualification and the type of the institutes they served with their teaching practice.

Table 10: Correlation of qualification and the type of the institute with teaching practice

Variables	Teacher Qualification	Type of Institute
Teaching practice	$H= 0.651$ $p=0.42>.05$	$H= 0.126$ $p = 0.722 >.05$

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VIII. Discussion of the Findings

a) *Research question 1: Is there any difference between trained and untrained mathematics teachers in their teaching practices of mathematics within Dhaka, Bangladesh?*

It was found in the comparative analysis that the trained teachers performed better than the untrained teachers in all of the 16 teaching beahviours of the observation checklist and were significantly ahead in most of the areas than their counterpart. Interviews with the trained and the untrained teachers supported the findings. As stated by the trained teachers, by joining the B.Ed. training, they became more competent and more efficient in conducting the teaching sessions with more students participating in the lesson and were able to apply effective teaching–learning strategies; on the contrary, the untrained teachers stated that they felt lacking of strategies and skills in teaching mathematics successfully and effectively. Also the outsiders' (headmasters') perceptions (stated in interviews) confirmed that the trained teachers could apply more effective teaching strategies in classroom than the untrained teachers could.

b) *Research question 2: What is the level of application of the developed teaching skills (if any) by the trained teachers in their classroom teaching?*

As far as the implementation of gained teaching skills through participating in B. Ed training in the actual classroom setting by the trained teachers, it was noticed that the trained teachers did not implement fully as the outcomes of the B.Ed. program. In nine cases of the classroom teaching – "Lesson plan", "Attention to all students", "Competent handling of student's questions", "Interaction", "Sense of humor", "Use of appropriate and adequate TLM", "Homework" trained teachers performed poorer (less than 3) than the other areas of the teaching checklist.

As an additional finding, the study based on the views and opinions of the interviews had identified the subsequent factors that might have link with the issue of the implementation. Most of the identified factors were supported by relevant studies conducted by public and private organizations (e.g., ADB 2004, CPD 2001, JBIC 2002, MoE 2004).

i. *Lack of supervision and monitoring:* Teachers' sessions are not properly monitored. Their classes are seldom supervised and monitored. For example, in this study had found in regard to prepare the lesson plan following B.Ed structure, for the strict supervision of the school administration the one trained teacher (8%) did so. MoE (2004) stated

"Academic supervision has been one of the weakest areas of secondary education. The present inspection system has been established long ago, has not been able to add to the quality of education or to be a source of guidance to the teachers." P.33

i. *Not motivated:* Teachers are not motivated due to their low salary and inadequate promotion facility. There are no real incentives for rewarding teaching effort and excellence (CPD 2001, MoE 2004). These hamper their motivational level towards their profession.

ii. *Lack of sincerity and professional commitment:* One of the most important factor mentioned by the headmasters and instructors for not implementing the acquired knowledge and skills from the training is that lack of sincerity and lack of professional commitment. According to their views, considering all favorable factors, trained teachers were found to teach without applying the techniques/guidelines of the training; they lacked sincerity in this regard. Teachers' sincerity or cordiality can mostly ensure effective implementation of their developed abilities.

iii. *Class factors:* Big class size, overload of classes, short duration, substantial higher student-teacher ratio cause not to follow the guidelines of the B.Ed. training such as preparing lesson plans for each class, arrangement of teaching learning resources, attention to all students and so on. Lack of resources inside the classroom and unfavorable classroom environment also obstruct the teachers to implement developed abilities in the session. Also, for the pressure to finish the course in due time; thus, the teachers do not feel comfortable with the B.Ed. strategies under this pressure. These factors had been mentioned in several reports and studies conducted in Bangladesh (MoE 2004, JBIC 2002, CPD 2001) cause the poor quality of education at secondary level.

c) *Research question 3: Is there any relationship between teacher's personal characteristics and teaching practices?*

In this study, significant differences were found between the age and teaching experiences in the two groups of teachers. Nevertheless, the differences did not have any impact on the differences found in pedagogical skills between the two groups of teachers since it was found that their age and teaching experience did not have any significant relation. No relationship was also found between teachers' academic qualification and the type of institutes they served. The older age, longer teaching experience and higher academic qualification did not guarantee better teaching skills. Whether the teachers worked in either a pubic or a private institute, it did not have any impact on those professional aspects.

Observing the personal characteristics of the teachers participated in this study, it was seen that, 17 (73%) teachers from the age range between 25 and 40 and 7 teachers (44%) from the age range between 41

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and 57 possessed master level qualifications. Therefore, it is noteworthy to mention that more teachers with higher academic qualifications enter the secondary schools as teachers currently than earlier days; the reason may be due to the rising unemployment in Bangladesh. It was showed in Table 3 that, 26% untrained teachers were over 41 yrs of age and 74 % were below 40. The reasons may be due to the effective implementation of educational reforms by the Bangladesh government regarding the increase of the trained teachers' percentage in secondary schools. This was clear from the percentages of trained teachers in the years 2003, 2004, 2005 which were 48.6%, 50.5%, 53.6% respectively (BANBEIS, 2006).

IX. Future Directions

The recommendations for the future research in this area of study include:

a) In order to generalize the findings of the study to the target population in Bangladesh, a random sample of both the trained and the untrained teachers representing all other areas in Bangladesh should be employed in future research;
b) In order to ascertain the effectiveness of the B.Ed. program on students, the study should consider the impact of the B.Ed. program on students' achievement;
c) As the new B.Ed. curriculum has been with effect from 2006-2007, future research should be directed towards measuring the effectiveness of the new B.Ed. program on the secondary education in Bangladesh;
d) Further research should be done to measure the difference in the level of intended, implemented and attained curricular of the B.Ed. training and the reasons behind the difference (if any). Training provided by the private TTCs and its effectiveness should be studied in further research comparing those training programs with the ones conducted by the public TTCs.

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References Références Referencias

1. Ahmed, M., Nath, R., Hossain, A., & Kalam, A. (2006). Education Watch 2005, *The state of secondary education: Progress and challenge*. Dhaka, Bangladesh: Campaign for Popular Education (CAMPE).
2. Andaleeb, S. (Ed.). (2007). *Political culture in Bangladesh: Perspectives and analysis*. Dhaka, Bangladesh: Bangladesh Development Initiative.
3. Asian Development Bank (ADB). (2002). *Technical assistance to the People's Republic of Bangladesh for preparing the teaching quality improvement in secondary education project.* Retrieved from http://www.adb.org/sites/default/files/project-document/ 71019/r178-02.pdf
4. Asian Development Bank (ADB). (2004). *Report and recommendation of the President to the board of directors on a proposed loan to the People's Republic of Bangladesh for the teaching quality improvement in secondary education project*. Retrieved from http: // www. adb. org/ sites/ default/ files/project-document/71019/r178-02.pdf
5. Bambico, T. (2004). *Effectiveness of in-service teacher training for elementary mathematics in Philippines.* Unpublished master's thesis, Hiroshima University.
6. Bangladesh Bureau of Educational Information and Statistics (BANBEIS). (2006). *Basic educational statistics, Bangladesh and Time series data*. Retrieved from official website www.banbeis.gov.bd.
7. Bangladesh Bureau of Educational Information and Statistics (BANBEIS). (2014). *Basic educational statistics, Bangladesh and Time series data*. Retrieved from official website www.banbeis.gov.bd
8. Bangladesh Bureau of Statistics (BBS). (2016). Total population, Bangladesh. Retrieved from official website www.bbs.gov.bd
9. Borg, W. (1979). Teacher coverage of academic content and pupil achievement. *Journal of Education Psychology*, 71, 635-645. doi: 10. 1037/0022-0663.71.5.635
10. Brophy, J., & Good, T. (1986). Teacher behaviour and student achievement, In M. Wittrock (Ed.), *Third handbook of research on teaching* (pp. 328-375). New York: Macmillan.
11. Center for Policy Dialogue. (2001). Policy Brief on "Education Policy" CPD Task Force Report, Election 2001, National Policy Forum.

© 2017 Global Journals Inc. (US)

12. Cooper, H. (1989). Synthesis of research on homework. *Educational leadership*, 47, 85-91.
13. Cornbleth, C. (1975). Student Questioning Strategies. *Social Studies Journal*.
14. Creemers, B. (1994). *The effective school*. London: Cassell.
15. Creemers, B., & Reezigt, G. (1999). The role of school and classroom climate in elementary school learning environments. In H. Freiberg (Ed.), *School climate: Measuring, improving and sustaining healthy learning environments,* (pp. 30-47). London: Falmer Press.
16. Farooq, M. & Shahzadi, N. (2006). Effect of teachers' professional education on students' achievement in mathematics. *Bulletin of Education & Research*, University of the Punjab, Lahore, Pakistan, *28*, 47-55.
17. Freiberg, H., & Stein, T. (1999). Measuring, improving and sustaining healthy learning environments. In H. Freiberg (Ed.), *School climate: measuring, improving and sustaining healthy learning environments,* (pp. 11-29). London: Falmer Press.
18. Good, T., Grouws, D., & Beckerman, T. (1978). Curriculum pacing: Some empirical data in mathematics. *Journal of Curriculum Studies*, 10, 75-83. doi:10.1080/0022027780100106.
19. Guarino, C., Hamilton, L., Lockwood, J., & Rathbun, A. (2006). *Teacher qualifications, instructional practices, and reading and mathematics gains of kindergartners (NCES 2006-031*). Washington, DC: U.S. Department of Education, National Center for Education Statistics.
20. Hafner, A. (1993). Teaching-method scales and mathematics-class achievement: What works with different outcomes? *American Educational Research Journal*, 30, 71-94. doi: 10. 31 02/ 00 028 312030001071.
21. Hattie, J. (2003). *Teachers make a difference: What is the research evidence?*. Paper presented at the Australian Council for Educational Research Annual Conference on Building Teacher Quality, Melbourne.
22. Hattie, J. (2009). *Visible Learning. A synthesis of over 800 meta-analyses relating to achievement*. Oxon, OX: Routledge.
23. Herman J., & Klein C. (1996). Evaluating equity in alternative assessment: an illustration of opportunity-to-learn issues, *Journal of Educational Research*, 89, 246-256. doi: 10. 10 80/ 002 20 671. 1996.9941209
24. Japan Bank for International Cooperation (JBIC). (2002). *Bangladesh Education Sector Review*. JBIC Sector Study, Final Report.
25. Keltie, N. (2011). *Teacher tips: How to use your voice as an effective teaching tool.*
26. Levy, J., Wubbels, T., & Brekelmans, M. (1992). Student and teacher characteristics and perceptions of teacher communication style. *Journal of Classroom Interaction*, 27, 23–29.
27. Ministry of Education (MoE) (2004). Development of Education, National Report of Bangladesh. Retrieved from http: // www. ibe. unesco. org/ International/ICE47/English/Natreps/reports/bangladesh.pdf
28. Ministry of Education (MoE) (2016). National education policy 2010, Bangladesh. Retrieved from www.moe.gov.bd
29. Mohsin, M. (2004). *Effectiveness of PTIs' training program for Primary Mathematics in Bangladesh,* Unpublished doctoral dissertation. Hiroshima University, Japan
30. Mortimore, P., Sammons, P., Stoll, L., Lewis, D., & Ecob, R. (1988). *School matters: The junior years*. Somerset, UK: Open Books.
31. Nath, S., Haq, N., Begum,S., Ullah, A., Sattar, A., & Chowdhury, A. (2007). *Education watch 2007: The state of secondary education quality and equity challenges.* Dhaka, Bangladesh: Campaign for Popular Education (CAMPE).
32. Ozerk, K. (2001). Teacher-student verbal interaction and questioning, class size and bilingual students' academic performance, Scandinavian Journal of Educational Research, 45, 353-367. doi: 10. 1080/00313830120096761
33. Palardy, G., & Rumberger, R. (2008). Teacher effectiveness in first grade: The importance of background qualifications, attitudes, and instructional practices for student learning. Educational Evaluation and Policy Analysis, 30, 111-140. doi:10.3102/0162373708317680
34. Rahman, M., Hamzah, M., Meerah, T. & Rahman, M. (2010). Historical development of secondary education in Bangladesh: Colonial period to 21st century. *International Education Studies*, 3, 114-125.
35. Rosenshine, B., & Stevens, R. (1986). Teaching functions. In M. Wittrock (Ed.), *Handbook of research on teaching* (pp. 376-391). New York: Macmillan.
36. Rowley, J. (2002). *Teacher effectiveness in the education of gifted students: a comparison of trained, trainee and untrained teachers of gifted and talented students.* Unpublished doctoral dissertation, University of New South Wales, Sydney, Australia.
37. Stronge, J. (2007). *Qualities of effective teacher (2nd edn.*). Alexandria, VA: Association for Supervision and Curriculum Development.
38. Taboada, A., & Guthrie, J. (2006). Contributions of student questioning and prior knowledge to construction of knowledge from reading information text. *Journal of literacy research*, 38, 1-35.
39. United Nations Educational, Scientific and Cultural Organization (UNESCO). (2007). *Secondary education regional information base: country profile-*

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Bangladesh. Bangkok: UNESCO. Retrieved from http://www.uis.unesco.org/Library/Documents/Bangladesh.pdf

40. Wilen, W. (1987). Effective questions and questioning: A classroom application. In W. Wilen (Ed.), *Questions, questioning techniques, and effective teaching*, (pp. 107-134). Washington, DC: National Education Association.

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