

Impact of Teacher-Gender on Primary Students' Achievement: A Case Study at Bangladesh Standpoint

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Abstract: This study attempts to find the impact of gender in primary teaching profession on student achievement. The quantitative method of research was used for this study. This research uses test scores of primary grades for five consecutive years which is obtained from a school in Bangladesh. This study engages a total of 1 school, 20 classes, 20 teachers and 504 students. The overall finding in this study is that men are slightly better to teach in primary when the test scores are analyzed. Although there are some differences in the breakdown analysis, the combined result analysis do not find strong evidence to claim whether students have to be taught by teachers of same or alternative gender. The findings of this study provide important information for the policy makers and especially for the primary teachers' recruiters in primary schools of Bangladesh.

Keywords: teacher-gender; primary school; student achievement

1.1 Background of the study

The bulk of statistics around the world consistently confirms that teaching profession is predominantly held by the feminine gender. Congruently, growing concerns assert that boys have been continuously under performing in schools as compared to girls. This pattern of results led to the assumption that boys' underperformance is due to the underrepresentation of men in the teaching profession. As such, policies have being recommended to increase recruitment of male teachers in countries like UK, Australia, USA, Finland and New Zealand (Carrington, Francis, Hutchings, Skelton, Read, & Hall, 2007). As a result, research in education and gender which were previously much focused on gender differences in student achievement, has been diverted to the effect of teacher gender on student achievement. The present study is a contribution to the existing researches on the impact of teacher gender on student achievement examining the fundamental question of whether men or women are more suitable to teach in primary grades.

Despite the many challenges Bangladesh has made remarkable achievements in meeting local and international standards in terms of education. Early childhood care and education has been expanded, primary education has been universalised, secondary education has seen marked growth, illiteracy has been nearly eliminated, and higher secondary opportunities have been expanded by establishing several schools in the city (MOE, 2011). Moreover, Bangladesh has been successful in achieving the Millennium Development Goals far ahead of the target year (Planning Commission, 2009). Like most of the south-Asian countries, statistics for Bangladesh show that the number of males in the teaching profession far outweighs the number females. Based on statistics available (World Bank, 2010), there are a total of 365925 primary teachers in the country out of which 152956 are females. This represents 41.80% of the total teachers. Looking into the share of teacher gender in primary schools, it is found that 59.20% of primary teachers are still males. The government has taken initiative to give female more than equal opportunity having provision of 60% quota reservation for female teachers. This is because women are considered backward citizen and under the section 28(4) and 29(3) of the constitution, they deserve the special privilege. Immediately after this initiative since 1990, the number of female teachers has been increasing dramatically in primary schools.

Table 1.1 Numbers of Teachers and Percentage of Female Teachers in Government Primary Schools:

Year	Total	Male	Female	Female (%)
1990	160,869	127,777	33,092	20.57
1991	160,098	126,341	33,757	21.1
1992	156,480	122,700	33,780	21.6
1993	157,633	120,104	37,529	23.8
1994	159,149	119,325	39,824	25.0
1995	158,658	115,950	42,708	26.9
1996	161,458	116,250	45,208	28.0
1997	158,057	113,655	44,402	28.1
1998	153,247	105,392	47,855	31.2
1999	158,317	105,072	53,245	33.6
2000	158,216	104,588	53,680	33.9
2001	162,090	101,082	61,008	37.6
2002	157,236	98239	58,997	37.5
2003	162,114	100,159	61,955	38.22

Source: Primary Education Statistics in Bangladesh, 2003

The increasing trend shows that the number of female teachers will soon outweigh the number of male. The primary education is a sensitive issue for a country. To ensure the quality of education should be the priority rather than providing the platform for the backward section of people. That is because only quality teachers can ensure the quality education (Hoque et al., 2010).

Recently, there have been several arguments that boys' under achievement in education is due to female dominance in the teaching profession (Driessen, 2007;

Carrington & McPhee, 2008; Skelton, 2002). The underlining argument for this is that lack of male role models could have negative consequences for the achievement and behaviour of boys (Driessen, 2007). If the argument is true, it indicates that immediate steps are necessary in order to ensure gender equity in education. As the statistics for gender representation in teaching profession and also the gender gap in student achievement in Bangladesh is consistent with the rest of the world, it became necessary that such a study be conducted in the context of Bangladesh.

Owing to what has been explained in the preceding discussion, it is logical to appeal for policy recommendations that were put forward in the western countries. As such, a gender related study is significantly important before implementing such policies. Hence, the purpose of this study is to examine if the gender of the teacher has any impact on student performance in the primary. Although inspired by a good intention, due to limitations in time and resources, the study does not stand to generalize the results.

1.2 Objectives

The specific objectives intended to achieve by this research are:

- To find out whether there is any difference in the performance of men and woman in teaching to primary grades.
- To examine if matching or differentiating the gender of the students from that of the teachers would bring in any significant change in student performance.

1.3 Research Questions

In order to achieve the objectives of the research two fundamental research questions (RQs) have been deployed. The first research question compares the average marks of the classes against teachers' gender. The second research question compares the average of each group of students (i.e., boys and girls separate) against teachers' gender.

1. Is there any difference between male and female teachers based on students' test results?
2. Is there any difference between male and female teachers based on students' test as compared to their gender?

2.0 LITERATURE REVIEW

Since mid 1990s the studies were found to be increasing focused on the concerns of feminizing the education especially in the primary which led to such arguments as under representation of male teachers lead to lack of male role models in education and hence lower boys' performance (Driessen, 2007). In this section, the findings of these studies are presented under three subheadings- (1) those studies which focused on finding the effect of matching teacher and student gender, (2) those which focused on teacher's gender and its impact on student achievement, and (3) those which focused on gender differences in the types of relationships between teachers and students.

2.1 The gender match

The vast majority of studies in this line of research are concentrated in Britain due to the recommendation of the policy makers to increase recruitment of male teachers owing to the assumption that boys' under achievement in education is caused by underrepresentation of men in teaching. Almost all studies, however, find contrary evidence to the policy recommendation that matching students with the gender of the teachers does not necessarily bring in any positive outcomes in student performance.

The study by Carrington et al., (2007) reported results which are contrary to the famous policy recommendation. In this qualitative study, the researchers interviewed 300 elementary school students in England in order to understand their perception of better teachers – whether males or females. The study revealed that the gender of teachers had little apparent effect on the academic motivation and engagement of either boys or girls. Instead, students value teachers who were consistent and supportive regardless of their gender. Research with similar types of designs in Holland confirmed that teacher sex has no affect whatsoever on the achievement, attitudes or behaviour of pupils (Driessen, 2007). The policy of recruiting more men into primary education to ensure demonstration of male role models has also been criticized by Jones (2003). By exploring the views of female teachers in the primary, the study concluded that recruiting more males should not necessarily improve boys' performance.

The researchers postulated that the recruitment process should rather be focused on selecting the "right kind of men". Similarly, the study by Skelton, (2002) also reported that both students and teachers reject the notion that students perform better when matched by the teacher's gender. Moreover, it was reported that the abilities of the individual teacher is more important than gender and sort of student teacher relationships (Francis, Skelton, Carrington, Hutchings, Read, & Hall, 2008). Although the majority of the researches report that gender matching does not necessary improve student performance, there are yet some studies which indicate positive impacts of gender matching. The study by Carrington & McPhee (2008) examined the commonly held belief that the gender gap in achievement stems from the shortage of male role models in teaching, especially at primary level. The researchers were much attracted by the existing literature on the influence of teacher gender on classroom interaction and educational outcomes which argue that students perform better when taught by teachers of the same gender. The (Carrington & McPhee, 2008) study found that the majority of those interviewed believe that increasing the number of male teachers would ultimately serve to reduce the gender gap in achievement by increasing boys' academic engagement.

Other studies also found results supporting positive effects of gender matching. It has been reported that assignments of a same gender teacher significantly improves the performance of both boys and girls (Lam et al., 2010). The study by Dee (2007) investigated the prevailing beliefs that gender gap in student

outcomes is a result of interactions between teachers and students. The study reported that matching gender of the teacher with that of the students is associated with better student performance.

2.2 Teacher gender and student achievement

Quite a number of studies have been conducted in this line of research. In this regard, after a collaborative study of 180 struggling boy readers in Grades 3 and 4 over a 10-week period, four professors from the University of Alberta and the University of Winnipeg (Canada) concluded that these students performed better when taught by a female teacher (O'Regan, 2007). Although it is concluded as such the authors also highlighted some of the other factors such as the teaching materials used, the interest level of the students towards the subject, the family background and socio-economic status of the students and so on which could have some impact on student performance.

Interestingly, all the 180 students who were chosen to participate in this programme were from low socio-economic status backgrounds, improved their performance regardless of teacher's gender although students from the female teachers were found to be more confident in reading. Karieg (2005) explored the impact of student and teacher gender differences on standardized tests using a large set of data on a longitudinal basis. This study reported three interesting findings: (1) boys perform worse and obtained less scores on maths, reading and writing as they move from third grade to fourth grade, (2) students of male teachers perform worse as compared to those of female teachers regardless of students' gender, (3) there is no significant difference between the performance of boys and girls of male teachers. Out of these findings, the final one is in strong support of what has been largely found by the researches on the impact of gender matching.

After interviewing with a number of students (Myhill & Jones, 2006) found out that on one hand teachers of either gender tend to treat boys negatively as compared to girls while on the other and they also expect girls to perform better both in terms behaviour as well as academics. Based on this, it is more logical to appeal that boys' underperformance is due to differential treatments between boys and girls rather than being taught by a female teacher. The study also found out that male teachers tend to be biased by gender whereas female teachers are perceived to be less influenced by gender expectations. A large scale study done in Hong Kong with 148 primary teachers and 4867 grade 4 pupils found that students of both gender perform better when taught by woman (Lam et al, 2010). This study found contrary evidence to those studies which report that boys perform better when taught by men. The findings of a longitudinal study in Mexico showed results consistent with many other researches that there is evidence that students of female teachers perform comparatively better than those of males (Luschei, 2011). The researcher, however, argue that this does imply that male teachers are less effective - rather it could be due to some other related factors.

After examining data from longitudinal studies (Ehrenberg, Goldhaber, & Brewer, 1995) reported that test scores of white female students in mathematics and science did not increase more rapidly when the teacher was a white woman than when the teacher was a white man. The study, however acknowledged that white female teachers evaluated their female students more highly than did male teachers.

The studies reviewed so far depict that females are somewhat better than males in teaching to primary students. Nevertheless, a fair number of studies have in fact found contrary evidence to this. A study conducted for year 3 elementary school pupils and their teachers revealed that both students and teachers perceive that the gender of the teachers does not matter as such with regard to student motivation and interactions, and consequently the performance of the students as well (Skelton, Carrington, Francis, Hutchings, Read, & Hall, 2009). The majority of the respondents believe that it is the traits and qualities of the teacher that play a more significant role than gender stereo-types.

2.3 Teacher gender and student-teacher interactions

The gender differences in the interactions between students and teachers have been an interesting line of research on the topic. The vast majority of existing literature suggests that male and female teachers demonstrate different behaviour in their classroom interactions with the students. In this regard, females are found to be more approachable, easy to communicate and supportive whereas male teachers are found to be more strict and authoritative (Meece, 1987). A study by (Rodriguez, 2002) which involved a survey of teachers indicates that male teachers are likely to select a more aggressive disciplinary approach toward boys. The study also reported that teachers of both gender tend to consider minor disruptive behaviour of girls than that of boys.

Hopf and Hatzichristou (1999) conducted a study to examine gender-related differences in student-teacher interactions in Greek classrooms focusing on teacher gender. Although the study was not an attempt to compare student results, it was found that teacher gender stereotyping has a greater impact on several factors such as perceptions, interactions, and expectations, as well as children's functioning and development. Carrington, Tymms, & Merrell (2008) studied empirical data from British primary education to test the hypothesis that male teachers produce more positive attitudes amongst boys and female teachers amongst girls. The results gave little support for those who advocate boys perform better when taught by male teachers and girls performs better when taught by female teachers. There have been a number of attempts to study the climate of the classroom as a means of student-teacher relationships. These studies depict mixed evidences. While many of these studies suggest that there is a gender biasness in such relationships – male teachers providing a more positive atmosphere for boys – some others report that female teachers provide a more positive climate overall. However, there are still some researches which found exactly the opposite – that male teachers tend to treat more equably whereas female teachers are biased in favour of girls.

An experimentally designed study of a group of boys and girls revealed that female teachers tend to give most of their sex-role connected rewards for feminine behaviour to both boys and girls while on the other hand male teachers rewarded more equably, masculine behaviours for boys, feminine behaviours for girls (McCandless, Bush, & Carden, 1976). On the other hand, after observing 11 female and 10 male elementary school teachers Stake & Katz (1982) concluded that female teachers were more positive than male teachers in their attitudes and behaviour towards their students – providing a more positive classroom atmosphere overall.

Responses from teachers who took part in the Hong Kong study suggest that male teachers are more authoritarian, prefer to control pupils' learning, engage pupils in whole-class reading and like to read passages aloud while pupils follow the text (Lam et al, 2010). The same study found contrasting styles of interactions from female teachers where they prefer to teach reading in groups, to group pupils according to reading ability, set tasks that suit pupils' stage of learning, allocate more time for pupils to read books and use the school library and encourage pupils to discover for themselves the meaning of new vocabulary encountered in text. This gives strong support to the argument that differences in student achievement is more due to differences in teacher abilities rather than the gender of the teacher as such.

The type of interaction between teachers and students is believed to have some impact on student motivation. This presumption is derived from the theories of social learning and gender stereotypic model according to which boys do better academically in classes taught by males and girls do better in classes taught by females. However, "academic motivation and engagement does not significantly vary as a function of their teacher's gender, and boys do not fare any better with male teachers than female teachers" (Martin & Marsh, 2005).

2.4 Hypotheses

Based on literature review the following null and alternative hypotheses are developed accordingly.

For Research Question 1

Ho : There is no significant difference between male and female teachers based on students' results.

Ha : There is a significant difference between male and female teachers based on students' results.

For Research Question 2

Ho: There is no significant difference between male and female teachers based on students' results, with regard to students' gender.

Ha : There is a significant difference between male and female teachers based on students' results, with regard to students' gender.

3.0 METHODOLOGY

3.1 Research Design

The quantitative method of research was used for this study. According to Creswell (2009) the quantitative methods determine whether the predictive generalization of a theory or hypothesis is accurate. With this regard, quantitative approach is any kind of research that is mainly used to test or verify theories or explanations. Thus, it identifies variables to study and relate those variables in questions or hypotheses by using statistical standards of validity and reliability, and employ statistical procedures for analysis (Creswell, 2009). A researcher who uses quantitative approach generally has a very clear idea about what is being measured before they start measuring it, and their study is set up with controls and a very clear outline (Keith, 1998). Since the aim of this research is to find out whether man or women are more suitable for teaching in primary schools, which is a gender comparison, T test was believed to be the most appropriate.

T test is used “when you have one “nominal variable” and one “measurement variable”, and you want to compare the mean values of the measurement variable. The nominal variable must have only two values, such as "male" and "female" (McDonald, 2009).

3.2 Population and Sampling

This research uses secondary data (test scores) of primary grades for five consecutive years which is obtained from a school in Bangladesh. Two classes from grade four and two classes from grade five for a period of five years were then selected by considering the gender of teachers who taught those classes. Thus, this study engages a total of 1 school, 20 classes, 20 teachers and 504 students. Several criteria were considered in selecting the sample. The very initial idea is to obtain data for minimum of five years to make the findings accurate. Then the gender was considered in a way that tests the hypothesis as accurately as possible where both male and female teachers contributed teaching in these twenty classes during the sampled period. Grades 4 and 5 were chosen particularly due to this reason as there were all female or male teachers for some of the grades during the sampled period. Out of the seven subjects taught in the primary, only mathematics marks is used in the research. This is so because on one hand teacher gender has to be made as proportional as possible and on the other hand because of the nature of this study.

3.3 Data Collection

The research is primarily based on quantitative method where secondary data or otherwise documented data is used to test the hypothesis. Merriam (1988) defines documents as any form of data not gathered through interviews or observations. As proposed by Neuman (2006) availability of document based data or the existing statistics are first analysed to creatively fit into the research context and is collected by considering the research questions and variables (set out for this particular research) in mind. Documented data inform research by

enhancing the credibility of the research findings and interpretations. Such data can be used to describe, understand and explain how things function at the sample sites (Merriam, 1998). The quantitative data collected for this research was obtained from a rural school located in the north province of People Republic of Bangladesh. The school principal was first approached through mobile phone to see the possibilities of obtaining the final mark sheets of their primary grades (levels 1 -5) for five years period along with the gender of the teachers who taught the specific subjects. Then, a phone call requesting for the data from the specified grades were made to make the inquiry more formal. The data was first provided for 2008, 2009 and 2010 due to unavailability of data in spread sheet format.

However, upon a further request for the scanned copies of the data for 2006 and 2007, was later forwarded through email after compiling them in the spread sheet format. A further request was sent to one of the leading teacher through another phone call and a reminder was sent through a mobile text message as the data lacks the gender of the teachers who taught the various subjects for the primary grades classes during the sampled time period, i.e. from 2006 to 2010. There are many advantages and disadvantages in using secondary data. The obvious advantages in this case were the cost and time. This study used the final mark sheets of the above school for a period of five years. Although the initial design was to include all primary scores, due to limitations in obtaining data the study was narrowed down to grades 4 and 5 and also to one subject, that is Mathematics. The school mark sheets were the 5 years records of their students' marks obtained in all the subjects - of which Mathematics marks were chosen - and there is no manipulation of the research setting necessary with this.

3.4 Data Analysis

Since the objective of the study is to see if there is any difference between male and female teachers in the mean scores of their respective classes, the statistical analysis employed in this study is the T test. T test is calculated using a formula that has the difference between the means (of the males and females) in the numerator denoted by X means. This makes the value of t get larger as the means get further apart. The denominator is the standard error of the difference in the means, denoted by S^2 , which gets smaller as the sample variances decrease or the sample sizes increase (McDonald, 2009). Thus, the t value gets larger as the means get farther apart, the variances get smaller, or the sample sizes increase. Consequently, a small t value indicates the difference is statistically not significant. In order to reject the null hypothesis the probability of significance is set to 5% ($p = .05$) which is the standard used in most of the researches in social science.

3.5 Validity and Reliability

Validity and reliability are two main characteristics of any set of data a researcher has to consider (Keith, 1998). The concept of validity is used to judge whether the research accurately describes the phenomenon that it is intended to describe. Since the primary aim of this research is to find out whether man or women are more suitable for teaching in primary schools, by considering the

academic achievement of the students and the gender of the teachers, the validity of the data is pursued as the data is documented for their own purpose. As suggested by Cohen, Manion, & Morrison (2007), the standards and criteria of validity and reliability is considered as *authenticity* and *credibility* of the data. The data (students test mark) obtained was produced from the students' test scores of various years which was printed in the students' progress report. In Bangladesh, primary schools provide students' marked answer scripts back to the students which they can take home where parents can go through and reflect and compare with the students' progress report. This pursues the issue of authenticity and credibility. In this context the data is very dependable as there is no manipulation and control of any variable as the data were produced and obtained for internal and official purpose of the school.

3.6 Limitations

As the research is basically conducted by analysing students, academic achievement and gender of the teachers who taught them, a very fore fronted limitation is that the research does not address the other factors that might influence students, academic achievement. This includes the ability levels of the selected students' sample, socio economic background of the students, competency level and pedagogical knowledge of the teachers, and instructional support by the grade supervisors. Another limitation of the research is that it does not consider the lower grades (grades 1 to 3). Moreover, there is no attempt made to relate it to the other subjects since it is only the marks of Mathematics which is taken into account. As such, the researchers do not claim to generalise the findings to other subjects and even to the primary schools.

3.7 Ethical consideration

The major ethical consideration with this research design was in the use of students marks. The school principal was first contacted in inquiring for the data and the purpose and how it would be used was explained during the first phone conversation. Later same information along with the people who would have access to the data was stated in the text-message inquiry. The confidentiality of the school was also ensured by not disclosing the name and their personal information in the research. Only relevant details that helped in answering the research questions were included.

4.0 FINDINGS

Two research questions have been set out to achieve the objectives of this study. The first question was targeted to examining class averages (boys and girls mixed) based on teachers gender. The second question was aimed at refining the finding by examining the impact of teacher gender on student performance (gender wise). This chapter reports the findings for each of these questions.

4.1 Impact of gender on students' test results

In order to find the impact on students' test result, data was analyzed at two levels - first a grade wise comparison (grades 4 and 5 separately) and then comparing the aggregate results of the two grades.

4.1.1 Finding from grade 4 data

Table 1 shows the mean performance of those pupils taught by male teachers and female and also the mean for the whole group of students.

Table 4.1 Group Statistics (Grade 4)

Table 4.1.1. Mean marks and standard deviation

Teacher (Gender)	Mean	N	Std. deviation
Male	57.0000	6	8.64870
Female	50.2500	4	2.75379
Total	54.3000	10	7.49889

Based on table 4.1, the performance of male teachers is found to be better as compared to female teachers in which the mean for students taught by male teachers is 57.00 whereas for the female teachers it is 50.25. Moreover, the performance of female teachers is also found to be even less than the average for the whole sample (54.30) while on the other hand the average for the male teachers is higher.

Even though men are known to perform better when referring to the arithmetic means, it is also necessary to find that the difference is statistically significant. Independent sample t test was performed for this purpose and the result is shown in table 4.2. Since that significance value is .176 ($p > .05$) the null hypothesis has to be accepted. Therefore, there is no significant difference between male and female teachers based on the average of the class. Even though men are known to perform better when referring to the arithmetic means, it is also necessary to find that the difference is statistically significant. Independent sample t test was performed for this purpose and the result is shown in table 4.2. Since that significance value is .176 ($p > .05$) the null hypothesis has to be accepted. Therefore, there is no significant difference between male and female teachers based on the average of the class.

Table 4.2 Independent Sample T Test (Grade 4)

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig(2-tailed)	Mean Difference	Std. error Difference
AVGMARKS							
Equal variances Assumed.	5.251	0.051	1.485	8	.176	6.7500	4.54577
Equal variances not assumed		1.781	1.781	6.390	.122	6.7500	3.78979

b) Findings from Grade 5 Data

Table 4.3 shows the mean performance of those pupils taught by male teachers and female and also the mean for the whole group of students of grade 5.

Table 4.3 Group Statistics (Grade 5) - AVGMARKS

Teacher (Gender)	Mean	N	Std. deviation
Male	48.3333	6	5.50151
Female	34.7500	4	8.99537
Total	42.9000	10	9.64307

Based on table 4.3, the performance of male teachers is found to be better as compared to female teachers in which the mean for male teachers is 48.33 whereas the mean for female teachers is 34.75. As compared to the group average (42.90) male teachers are found to be doing better than that of female teachers.

Table 4.4 Independent Sample T Test (Grade 5)

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>df</i>	<i>Sig.(2-tailed)</i>	Mean Difference	<i>Std. error Difference</i>
AVGMARKS	.843	.385	2.998	8	.017	13.5833	4.53047
Equal variances Assumed.				4.514	.047	13.5833	5.02729
Equal variances not assumed			2.702				

The independent sample t test confirms that the observed difference in mean is statically significant as shown in table 4.4. Since the significance value is .017 ($p < .05$) the null hypothesis can be rejected. Thus, in case of grade 5, there is a significant difference between male and female teachers based on the average of the class. The independent sample t test confirms that the observed difference in mean is statically significant as shown in table 4.4.

Since the significance value is .017 ($p < .05$) the null hypothesis can be rejected. Thus, in case of grade 5, there is a significant difference between male and female teachers based on the average of the class. The independent sample t test confirms that the observed difference in mean is statically significant as shown in table 4.4. Since the significance value is .017 ($p < .05$) the null hypothesis can be rejected. Thus, in case of grade 5, there is a significant difference between male and female teachers based on the average of the class.

c) Finding from Combined data

Table 4.5 shows the mean performance of those pupils taught by male and female teachers and also the mean for the whole group of students (grades 4 and 5 combined).

Table 4.5 Group Statistics (Grade 4 and 5 combined) - AVGMARKS

Teacher (Gender)	Mean	N	Std. deviation
Male	52.6667	12	8.26090
Female	42.5000	8	10.32334
Total	48.6000	20	10.24130

According to table 4.5 the performance of male teachers is found to be better as compared to female teachers in which the mean for male teachers is 52.67 whereas for the female teachers the mean is 42.50. The mean for females is also found to be lower than the mean for the whole group (48.60). When independent sample T test was performed, as shown in table 4.6, it is understood that the reported difference in mean is also statistically significant (level of significance is .025, $p < .05$). Thus, the alternative hypothesis can be accepted meaning that there is a significant difference between male and female teachers based on the average of the whole group of sample.

Table 4.6 Independent Sample T Test (Grade 4 and 5 combined)

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>df</i>	<i>Sig.(2-tailed)</i>	Mean Difference	<i>Std. error Difference</i>
AVGMARKS	.559	.464	.2443	18	.025	10.1667	4.16203
Equal variances assumed.			2.332	12.771	.037	10.1667	4.35958
Equal variances not assumed							

4.2 Male or female teachers' performance based on students' gender

Results for this questions were also analyzed at two levels - a grade wise comparison (grades 4 and 5 separately) and then comparing the aggregate results of the two grades.

a) Finding from Grade 4 Data

Table 4.7 shows the mean performance of those pupils taught by male teachers and female and also the mean for the whole group of grade four students.

Table 4.7 Group Statistics - cross gender (Grade 4) - AVGMARKS

Teacher (Gender)	N	Mean	Std. deviation	Std error Mean
Boysavg: Male/Female	6 4	54.1667 51.0000	11.51376 4.69042	4.70047 2.34521
Girlsavg: Male/Female	6 4	58.6667 49.5000	7.11805 7.72442	2.90593 3.86221

From the above table it shows that when compared against the average of boys, male teachers' performance was better than female teachers' where the performance of males is 54.16 and that of females is 51.00. Similarly, when the averages for girls are compared it is also found that male teachers perform better with an average of 58.67 whereas the mean for female teachers is 49.50. Hence, when the teachers' performance is measured against the difference in achievement of boys and girls, in both the cases male teachers do better than female teachers. There is no indication that the average performances of the students when taught by teachers of alternative gender are better than the average performances of the students when taught by the teachers of corresponding gender.

Although differences were observed in the arithmetic means, the t test results for the data show that the existing differences are not statistically significant (Table 4.8). Since the significant value for boys is .621 ($p > .05$), the null hypothesis has to be accepted. Thus, there is no significant difference between male and female teachers when the boys' performance is considered. Similarly, since the significant value for girls is .089, $p > .05$, the null hypothesis has to be accepted. Therefore, there is no significant difference between male and female teachers when the girls' performance is considered

Table 4.8 Independent Sample T Test - cross gender (Grade 4)

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>df</i>	<i>Sig.(2-tailed)</i>	Mean Difference	<i>Std. error Difference</i>
BOYSAVG Equal variances Assumed. Equal variances not assumed	4.997	.056	.514 .603	8 7.069	.621 .565	3.1667 3.1667	6.16117 5.25304
GIRLSAVG Equal variances Assumed. Equal variances not assumed	.004	.951	1.932 1.897	8 6.171	.089 .105	9.1667 9.1667	4.74525 4.83333

The t test was also performed to see if matching teachers' gender with students' results in any significant difference. In order to do this, the results of boys and girls are compared against the teachers' gender. Table 4.9 shows the results of this comparison.

Table 4.9 Independent Sample T Test - same gender (Grade 4)

		Levene's Test for Equality of Variances	t-test for Equality of Means					
Teacher gender		F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. error Difference
Female	Equal variances assumed	0.952941	0.366672	0.33197	6	0.751202	1.5	4.518481
male		2.348266	0.156426	-0.8143	10	0.434434	-4.5	5.5262

As seen from table 4.9, there is no significant difference between boys and girls irrespective of teachers' gender. When taught by female teachers the significance value is .75, $p > .05$ and for male teacher it is .43, $p > .05$. Hence, there is no significant difference between male and female teachers whether teach to students of same gender or otherwise.

b) Findings from Grade 5 Data

Table 4.10 shows the mean performance of those pupils taught by male and female teachers and also the mean for the whole group of students.

Table 4.10 Group Statistics - cross gender (Grade 5)

Teacher (Gender)	N	Mean	Std. deviation	Std error Mean
Boysavg: Male/Female	6	45.1667	6.70572	2.73760
	4	35.5000	6.13732	3.06866
Girlsavg: Male/Female	6	51.8333	7.90991	3.22921
	4	41.2500	1.25831	.62915

Table 4.10 shows that when compared against the average of boys, male teachers' performance is better with an average of 45.17 whereas female teachers produced an average of 35.50. Similarly, when the averages for girls are compared it is also found that male teachers perform better with an average of 51.83 while the mean for female teachers is 41.25. Hence, when the teachers' performance is measured against the difference in achievement of boys and girls, in both the cases male teachers perform better than female teachers.

Table 11 Independent Sample T Test - cross gender (Grade 5)

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>df</i>	<i>Sig.(2-tailed)</i>	Mean Difference	<i>Std. error Difference</i>
BOYSAVG Equal variances Assumed. Equal variances not assumed	.026	.877	2.304	8	.050	9.6667	4.19470
			2.351	7.011	.051	9.6667	4.11231
GIRLSAVG Equal variances Assumed. Equal variances not assumed	4.534	.066	2.602	8	.032	10.5833	4.06704
			3.217	5.374	.021	10.5833	3.28993

The results of t test when the indicated mean differences are analysed are shown in table 4.11 which shows that the significant for boys is .05, $p = .05$ and that for girls is .032, $p < .05$. Therefore, there is a significant difference in average performance of boys and girls when taught by teachers of alternative gender. As seen from table 4.12, there is no significant difference between boys and girls irrespective of teachers' gender. When taught by female teachers the significance value is .89, $p > .05$ and for male teacher it is .15, $p > .05$. Hence, there is no significant difference between male and female teachers whether teach to students of same gender or otherwise.

Table 4.12 Independent Sample T Test - same gender (Grade 5)

<i>Teacher gender</i>		Levene's Test for Equality of Variances		t-test for Equality of Means				
		<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>df</i>	<i>Sig.(2-tailed)</i>	Mean Difference	<i>Std. error Difference</i>
<i>Female</i> <i>male</i>	<i>Equal variances assumed</i>	0.376045	0.562237	-0.13775	6	0.894947	-0.75	5.44799
		0.16113	0.696562	-1.57475	10	0.14639	-6.66667	2.76608

c) Finding from Combined data

Table 4.13 shows the mean performance of those pupils taught by male and female teachers and also the mean for the whole group of students (grades 4 and 5 combined).

Table 4.13 Group Statistics (Grade 4 and 5 combined)

Teacher (Gender)	N	Mean	Std. deviation	Std error Mean
Boysavg: Male/Female	12	49.6667	10.13844	2.92671
	8	43.2500	9.70640	3.43173
Girlsavg: Male/Female	12	55.2500	8.01277	2.31309
	8	45.3750	6.75991	2.38999

According to the table, the average performance of boys when taught by male teachers is 49.67 and the mean is 43.25 when taught by females. This indicates that by arithmetic mean male teachers are better in teaching to boys. When comparing the averages for girls it is again found that male teachers are doing better with an average of 55.25 whereas the mean for female teachers is 45.38. Hence, in the case of both boys and girls, male teachers perform better than female teachers. Another indication is that girls have performed better than boys when taught either by teachers of corresponding or alternate gender.

Table 4.14 Independent Sample T Test - cross gender (Grade 4 and 5 combined)

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig(2-tailed)	Mean Difference	Std. error Difference
BOYSAVG Equal variances Assumed. Equal variances not assumed	.000	.998	1.410	18	.176	6.4167	4.55187
			1.423	15.626	.174	6.4167	4.51026
GIRLSAVG Equal variances Assumed. Equal variances not assumed	.050	.825	2.865	18	.010	9.8750	3.44622
			2.969	16.848	.009	9.8750	3.32602

The table 4.14 shows the significant for boys is .176, $p > .05$ and the significant for girls is .010, $P < .05$. Therefore, there is a no significant difference between males and females when the average performance of boys is considered, but there is a significant difference between the genders when the girls' average is taken into account.

Table 4.15 Independent Sample T Test – same gender (Grade 4 and 5 combined)

Teacher gender		Levene's Test for Equality of Variances	t-test for Equality of Means					
			F	Sig.	t	df	Sig(2-tailed)	Mean Difference
Female	Equal variances assumed	1.140377	0.303641	-0.50813	14	0.619271	-2.125	4.181966
		1.100753	0.30549	-1.4967	22	0.14868	-5.58333	3.73042

As seen from table 4.15, there is no significant difference between boys and girls irrespective of teachers' gender. When taught by female teachers the significance value is .62, $p > .05$ and for male teacher it is .15, $p > .05$. Hence, there is no significant difference between male and female teachers whether teach to students of same gender or otherwise.

4.3 Total Findings

Table 4.16 displays the summary of all the levels of analysis that were carried out in the study with an indication whether there was any difference that is statistically significant. As per the table, the impact of gender on student performance depicts some mixed evidences. For RQ1, the combined results show that the finding - that males are better - is statistically significant. However for RQ2, there is no strong evidence to claim for gender differences.

Table 4.16 Summary of the results

Grade level	Research Questions	Level of analysis	significance
4	RQ 1	Class average	No
	RQ 2	Cross gender	No
		Same gender	No
5	RQ 1	Class average	Yes
	RQ 2	Cross gender	Yes
		Same gender	No
COMBINED	RQ 1	Class average	Yes
	RQ 2	Cross gender	For boys 'No', For girls 'Yes'
		Same gender	No

5.0 DISCUSSIONS

5.1 Gender issue in primary teaching profession

5.1.1 Impact of gender on the test result of grade 4 students

For the research question one which was aimed at studying if there is any difference between male and female teachers when their performance is measured in terms of the class averages, the results show that although men seem to be performing better as compared to women, this difference is not

statistically significant. Our results for this part are in contrary with many other studies around the world. Many of the previous researches found that females are better in teaching to primary for both boys and girls (Karieg, 2005; Lam et al, 2010; Luschei, 2011). It is anticipated that this difference in finding is due to other factors which might affect student achievement rather than the teachers' gender itself. In fact a number of researches which found that females do better also admitted the fact that it may not be the gender which is the key factor having the most impact on student performance, rather other factors such as teaching materials used, interest level of the students towards the subject, family background and socio-economic status (ORegan, 2007).

One of the most important factors which could override the gender differences that is reported by the referred studies is the teacher qualification. Since in the data collection there was no attempt made to collect information on teacher qualification and experience, it is not possible to relate this to our findings. However, it is quite clear that in this study - despite the female dominance in the teaching field elsewhere - the number of male teachers is more than the females. As such, the performance of female teachers is less significant due to their underrepresentation in number.

As for the second research question, when the student results were analyzed gender wise it is found that both boys and girls perform better when taught by the male teachers. However, the statistical analysis proved that the difference is not significant. This is to say that there is no difference in the performance between male and female teachers with regards to the students' genders. Although the difference is not statistically significant, our findings stand against the advocates that male primary school teacher has been variously regarded as morally suspect (Tubbs, 1946), out of place (Kaplan, 1947), or someone who should be actively dissuaded from making such a career choice (Levine, 1977). When tested for the effect of same gender treatment, the study did not show any significance between males and females meaning that the gender of the teacher has no significant effect whether teaching to the students of the teachers' gender or otherwise.

Therefore, as far as the analysis from the fourth grade is concerned the gender of the teacher seems to be having no significant effect in student performance. This is supported by some studies that there is no need to struggle to improve male recruitment since solid evidence is not established on this ground (Carrington et al, 2008). In the past two decades many researchers have advocated that men should play a role in primary teaching in order to counter the "feminized" environment (Brophy & Good, 1973) or to help break down traditional gender stereotypes by acting as role models (Greenburg, 1977). According to Connell (1996) this provides a conceptual framework derived from research into the education of boys which clearly points to the need for such male role models in primary schools. However, our study did not support such arguments.

5.1.2 Impact of gender on the test result of grade 5 students

Unlike the widely held beliefs and most of the research findings in this area, the results of the grade 5 data in this research show a significant difference between the performances of the students in relation to teachers' gender. This research shows that performances of male teachers are better than females for both boys and girls. One such contrary findings to this research as highlighted in the literature reveals that female teachers' performance is better than male teachers in standardized tests (Karieg, 2005). Another study done in Honhg Kong by Lam et al. (2010) also shows that students' performances are better with female teachers.

However, a study conducted by Skelton et al (2009) proves that the teachers' gender does not make any difference to the students' performances as there is no gender influence on student motivation and interactions inside the classroom. They further said that teachers' personality and quality are largely considerable than gender stereo-type in the achievement of the students (Skelton et al, 2009). The results show that average performances of boys are better with the teachers of corresponding gender. This finding is quite similar to the findings of Carrington & McPhee (2008) who found that boys interact better with male teachers leading to reduce the gender gap in academic achievement.

The results of t-test which show a significance value of .050 for boys and .032 for girls can be interpreted as there is a significant difference between the average performance of boys and girls when taught either by male or female teachers. A corresponding result was produced from the views of primary teachers by Jones (2003) is concluded as improvement in boys' performance is not with man but may be with the "right kind of men". This could be due to the way boys and girls interact with teachers are different where teachers are more tally with their students of corresponding gender (Carrington et al, 2007).

In association with students' gender and teachers' gender, results of t-test show that there is no significant difference between the gender match among teachers' and students' with the students' achievements. Similarly, Skelton (2002) has found that gender match does not make any difference in student performance. The study by Dee (2007) investigated the prevailing beliefs that gender gaps in student outcomes are a result of interactions between teachers and students. Alternatively, the study by Carrington et al (2007) revealed that the gender of teachers slightly impact the students of sexes in terms of their academic, motivation and engagement in studies.

5.1.3 Better classroom performer

As for the first research question, when analysed for the gender differences while combing the results of both the grades, it is found that male teachers actually perform better than female teachers with a statistical significance of .025, $p < .05$. This is completely opposite to all the studies which have been revised for the purpose of this study. This finding is inconsistent with most of the previous findings. Although some studies reported that men are better in such matters as disciplining students (Rodriguez, 2002) most of the other studies

found that in general females are better in teaching to primary (ORegan, 2007; Karieg, 2005; Luschei, 2011).

According to the findings of the present study, it could be said that although women might be better in certain kind of relationships and being with children due to their mother nature, they might not do so in terms of academic achievement of students. However, it is also acknowledge the fact that although in this study men are found to do better, it cannot be argued that it is the gender which had the greatest impact but rather other factors of teaching and learning could have had a greater impact (ORegan, 2007). The finding from grade four results stand in strong support of this argument where it is shown that there is no significant difference between male and female teachers. The combined analysis shows that in case of boys there is no significant difference between male and female teachers. However, in case of the performance of girls, it is found that they perform better when taught by male teachers.

When analyzed for the effect of same gender on student achievement, the results show that matching teachers' gender with that of the students does not results in a significant change in student achievement. This means that it does matter whether boys are taught by women or girls are taught by men. The finding is consistent with the finding of many other previous studies, all of which reported that there is no need to struggle hiring male teachers just to compensate for boys under achievement (Carrington et al, 2007; Driessen, 2007; Jones, 2003; Francis et al, 2008; Skelton, 2002). Therefore, it would be better to focus on teacher qualities and school facilities which enhance students' understanding rather than merely debating about teachers' gender. Both genders are motivated equally in liking children, being willing to serve the school system (Seifert, 1985), but in this situation male teachers produced more productive result in the students' performance rather than female teachers.

6.0 CONCLUSIONS

Since the statistics for teacher gender in Bangladesh is similar to the pattern around the world it was anticipated that the findings of the study will also be similar to other findings where the majority of literature on gender differences in teaching to primary grades show that females are better as compared to males. However, comparing the test scores this study found that men are better in teaching to primary. Despite this contrary evidence, when the data was analysed for the impact of same or opposite gender the study revealed mixed evidences. So it does not support any of the prevailing arguments whether students have to be taught by teachers of same gender or opposite gender. Base on the various analyses, it is concluded that teacher gender is of less importance than other factors as far as student achievement in test scores are considered. This is supported by a number of similar studies. In this regard, Jones (2003) concluded that instead of debating on teachers' gender as such, it is more logical to focus on choosing the "right kind of candidates". Moreover teacher' personality and quality are largely considerable than gender stereo-type in the achievement of the students (Skelton et al., 2009).

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