Factors Effects on Students' Results: A Study on Char Areas in Faridpur District in Bangladesh

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ABSTRACT

The study aims to identify the factors that affect primary-level student results and the factors that affect secondary-level student results. For this study responses were collected randomly from 501 primary level students and 165 secondary level students by administrating two interview schedules. In this study, IBM SPSS statistics were used for the chi-square test. The study revealed that at the primary level age of the student, gender of the student, presence in a month, illness in a month, father's occupation, number of family members, number of siblings, opportunity to use internet, use of mobile phone, read a textbook in a day (time), distance from home to school, way to go to home to school, got book early in the year, go to school with school dress, methods of teachers take class were the important factors that effect on students result. And in the secondary level the study found, student present in a month, illness in a month and got book early in the year were the important factors that affect student results. Further, necessary suggestions were given to improve education in char area of Faridpur district.

Key Term: Last exam result, Factors, primary level, secondary level, char area

INTRODUCTION

Countries are repetitively facing challenges such as economic, social, environmental, etc. for globalization. To overcome these challenges education helps to develop new knowledge and high skills (OECD, 2019). On the way to gathering knowledge and skills, ICT become essential for educational institutions worldwide (Hsu & Huang, 2006). In this continuation, Bangladesh is working tirelessly for the development of its education sector, especially in remote area. Similarly, in the char area of Faridpur district, the Bangladesh government and local administration have provided assistance to make the students and teachers skilled. The local administration of Faridpur has arranged engine-driven boats for the students and teachers of char area. In addition, various types of educational materials are being provided, including infrastructural development, and stipends for meritorious students. Apart from this, *"We Make Mistake*" contest is organized through a Facebook page to promote English education. Therefore, this research will try to find out whether such cooperation, especially the development of information technology, is contributing to the academic performance of the students or not.

However, various studies have been conducted previously and found various factors have affted students academic performance. Low-income students appear to experience specific forms of motivational decline during adolescence, so they perceive studying as less and less meaningful about their goals, values, and identities (Alivernini et al., 2023). In addition, considering the relationship between the educational resources of the schools and the academic achievement as a whole, there are negative and significant relationships between the SBS scores of the students, and the average service length of the teachers, the lack of qualified science teachers, and the lack of the laboratory technicians (Savasci & Tomul, 2013)**.** Further**,** overall school resources have an insignificant impact on the academic achievement while school resources do not influence much the student learning and subsequent academic achievement of students. The availability of school resources is very low and this varies from school to school (Tahira et al., 2016). In addition, a broad range of

resources were positively related to student outcomes, with effect sizes large enough to suggest that moderate increases in spending may be associated with significant increases in achievement (Greenwald et al., 1996).

However, a strong relationship was found between educational materials, cumulative spending, preprimary school attendance and student performance on the science and mathematics (Dey, 2010). Further**,** educational resources are indeed positively related to improved student achievement (Archibald, 2006). Improvement in the quality of educational systems does not necessarily require an increase in school resources (Altinok, 2010). On the other side**,** the teacher student ratio has a significant positive relationship with students' average scores in each school. The improvement of teacher-student ratio is beneficial to achievement of student (Liu, 2022).

Therefore, students located in schools in Metropolitan locations achieve significantly higher results when compared to students in all other geographical areas. The study also found, consistently significant differences in the achievement of students in rural schools when compared to their peers in metropolitan schools for a number of countries (Panizzon, 2015). Student previous achievement predicted current Portuguese and math academic achievement, yet significant differences in determinants according to the subject were found (Nunes et al., 2023). Parental income and wealth, find a declining association with children's school grades across the distribution of school grades (Wiborg & Grätz, 2022). Moreover**,** parents' as well as teachers' influence was more significant in the Portuguese language than in Math (Nunes et al., 2023).

Consequently**,** internet outlets for students include school ICT labs, mobile phones, internet facilities for families, and public internet cafes has influence on academic standards among students, and found as those with internet access have shown a higher improvement in academic performance than those without (Amponsah et al., 2022). The internet has a significant impact on student's academic performance since it enables them to access publications and articles that are otherwise unavailable in libraries. The study also identified the detrimental effects of internet use, which results in distraction as people spend more time on social media than studying (Ghoshal & Upadhyay, 2023). Majority of the respondents were computer literate and it was discovered that the students frequently access the internet from cyber café, and that they consult the internet in order to retrieve relevant academic materials. In addition, majority of the students rated the internet for academic pursuit to be on the average, E-journals and E-books were among the resources the students mostly used on the internet, for better prepared their examination (Ivwighreghweta & Igere, 2022). There is a significantly positive relationship between the level of internet usage and the level of academic performance of students. The researchers also came to know that the internet reduced the dependency of teachers. The result also showed that there is a strong gap between the student and teacher relationship. Majority of the respondents agreed that the additional source helped to enhance their academic performance and learning (Nawaz, 2021). Supplementary, there is a significant relationship between internet usage for academic work and students' academic performance. The role of the internet and academic performance is critical for students to attain high academic achievement independently (Ogheneakoke et al., 2018; Onwukanjo, 2021).

Nevertheless, academic achievement of the students who received computer assisted instruction practices was higher than those who received traditional instruction practices (Korucu & Gunduz, 2011). Furthermore, the experimental group that applied the computer-assisted teaching method was significantly observed to be more successful than the control group that applied the traditional teaching method (Imizuokena., 2022). Student of technology enhanced class room established student engagement and improved academic achievement (Carle et al., 2009). Additionally, minority students may have benefitted more from receiving free computers because of fewer alternatives for accessing home computers due to lower rates of computer ownership among family, friends, and relatives (Fairlie, 2012). Students use the computer at home, need to use it frequently to influence academic achievement, but when students use the computer at school, it will influence academic achievement positively (Simões et al., 2022).

Most of the respondents agreed that internet is powerful tool that facilitates their academic performance positively (Rodríguez; et al., 2022; Said, 2020). Students' social life is influenced by the internet. The use of the internet for study purposes and academic achievement is directly proportional to each other while inversely proportional to student social life. The number of hours spent on the internet will affect the students' social life unless the internet is used for learning/academic purposes (Shahibi, 2017; Soegoto & Tjokroadiponto, 2018). However, geographical factors such as weather, cold and heat, drought and humidity, forest and mountainous

areas, neighborhood physical and housing conditions, high density or low population density, air pollution, monsoon winds, village housing architecture, access to nutrition, high latitude, distant proximity to temperature, cultural norms, religious restrictions and dozens of other factors have an influence on students learning and teaching (Amiri, 2019). Self-efficiency is a stronger and more reliable predictor than the pressure connected with academic achievement (Cao et al., 2024).

On the other side, most (60.4%) had positive effect of internet on academics' performance, slightly less than one third (31.6%) had low GPA/poor results as an effect on internet usage on academic performance (Zamir et al., 2020). Similarly, ICT resources are negatively associated with student academic performance (Wang & Wang, 2023)**.** Another study revealed that there is no direct relationship between household asset ownership and academic performance but convincing evidence that assets are associated indirectly with academic performance (Ansong et al., 2015).

Objectives

- To know the factors effect on primary level student results.
- To know the factors effect on secondary level student results.

METHODS AND MATERIALS

Research Design

This study was explanatory in nature. For this study, quantitative research methods were used. Quantitative research is the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations (Pritha Bhandari, 2023). For this study, an interview schedule was developed and after data collection chi-square test was executed to find the research objectives.

Study Area

This study was conducted on the char area of faridpur district. Faridpur district consisted of 9 upazila. Among them 3 upazila (faridpur sadar, sadarpur and charbhadrason) were purposively selected. Among the chars of this region, Degree's Char, North Channel, Bhagwaner Char, Shalerpur Char, Narartek Char, and Matubbar Dangir Char are famous. In addition, 58 primary schools and 18 secondary schools are situated in these three upazila. Among the 58 primary schools, 12 primary schools were selected and among the 18 secondary schools, 4 secondary schools were rationally selected for this study.

Participants

For this study data were collected from both primary and secondary level students. From above mention schools students were selected based on specifications: (i) students must be enrolled in primary and secondary level school; (ii) the student must have at least one examination result; (iii) participants should be selected with gender parity. Considering the above criteria 501 students from the primary level and 151 students from the secondary level were selected for the final interview.

Data collection

For data collection, two interview schedules were developed, one for primary level and another for secondary level students. In addition, before going to the final data collection pretest was conducted, and after necessary modifications based on the pretest result interview schedule was finalized for data collection. Moreover, some trained data enumerators visited every selected school and collected data from the students. Before data collection parental assent and student consent were taken where appropriate for ethical consideration.

Data processing

Independent variable (Primary level)

The age of the participants was measured by years ranging from 7 to 13 years. The participants were divided into boys and girls. Students present in school (monthly) were measured by days ranging from 10 to 20 days. Further, student illness (monthly) was measured by days ranging from 0 to 4 days. Fathers, occupations were categorized into farmer, day labour, job holder, driver, aboard, business, and fisherman. However, students' family members ranged from 3 to 11 and the number of siblings from 2 to 9 were measured by person. Opportunity to use internet, opportunity to use computer/laptop, use of mobile phone was measured by yes and no. Read a textbook in a day measured by hours, ranging from 0 to 8 hours. Distance from home to school is measured by kilometer (KM), where the lowest is 0.10 KM and to highest is 5 KM. In addition, way to go home to school was categorized as feet, bicycle, trawler, and others. Moreover, got books early in the year, go to school in school dress, methods of teachers taking classes, eat enough food, schools have hygienic toilets or not were measured by yes and no.

Independent variable (Secondary level)

The age of the students was measured by years ranging from 12 to 16 years. The participants were divided into boys and girls. Further, students present in a month were measured by days where the lowest value was 15 days and the highest value was 25 days. In addition, student illness in a month was also measured by days where the lowest value was 0, and the highest value was 11 days. Student fathers' occupations were categorized into business, farmer, professional, aboard and day labor. Moreover, number of family members was measured in person ranging from 3 to 7. And number of siblings also measured in person ranging from 2 to 5. In addition, opportunity to use internet, opportunity to use computer/laptop, and use of a mobile phone were measured by yes and no. Read textbook in a day (time) was measured by hours ranging from 0.20 hours to 9 hours. Further, way to go home to school was measured in KM ranging from 0.10 KM to 5 KM. Way to go home to school was categorized into on feet, bi-cycle, trawler, and others. However, got book early in the year, and go to school in school dress were measured into yes and no. Again methods of teachers taking class were categorized into multimedia, board & marker, chalk & duster, and others. In addition, eat enough food and victim of eve teasing in the past 1 year were measured into yes and no. In this study sources of drinking water in school were categorized into tubewell, pond, rainwater, and no sources.

Dependent variable (primary and secondary level)

In this study, the academic result was measured by the student last exam results, which were categorized as, excellent, medium, and low.

Data Analysis

In this study, after collecting the quantitative data IBM SPSS software was used. For this study, to find out the research objectives inferential statistics were used. Further, to know the relation between dependent and independent variables chi-square test was conducted. Moreover, the MS Office package was used to write the entire report.

FINDINGS

Primary Level

To understand the factors related to student's results, Pearson's chi-square test was executed, along with Fisher's exact test when appropriate. The table shows that student age and gender were significantly related to the student's last exam result ($p < 0.000$ and $p < 0.096$). Further, the study focused on the present in month, illness in month and father occupation were highly significant with student results ($p < 0.000$; $p < 0.043$ and $p < 0.000$) respectively. Moreover, the study found a significant relation between number of family members and academic achievement ($p < 0.048$), where number of siblings and exam results were significantly related (p

<0.049). Further, the study found a significant relation between the opportunity to use in internet and with student's last exam result. However, there was no significant relation between the opportunity to use a computer /laptop and exam results (p> 0.373). Whereas the use of mobile phones was significant in student's last exam results.

However, the table showed that reading a textbook in a day (time) and distance from home to school were statistically significant with the last exam result (p <0.000 and p <0.000) respectively. On the other hand, the way to go home to school and get book early in the year was statistically insignificant with the student's last exam result (p >0.698 and p > 0.810) respectively. Therefore, going to school with school dress and methods of teachers taking class were statistically associated with student last exam results (p <0.004 and p < 0.002). Whereas the study found that eating enough food and hygienic toilets were insignificantly associated with student's last exam results (p >0.454 and p >0.311) respectively.

Table 1. Student Result and its covariates (Chi-square test) Primary Level (n=501)

Independent variable	**Dependent Variable (Last exam Result)**		
	$\chi^2_{(df)}$	***P value***	**Fishers exact test**
Age of the Student	68.810 (12)	0.000	
Gender of the students	4.678 (2)	0.096	4.660
Present in a month	65.652 (20)	0.000	-
Illness in a month	15.935 (8)	0.043	-
Father Occupation	39.383 (12)	0.000	-
Number of Family Member	23.849 (14)	0.048	-
Number of Siblings	23.786 (14)	0.049	-
Opportunity to use Internet	32.550 (2)	0.000	32.542
Opportunity to use computer/ laptop	1.972 (2)	0.373	1.718
Use of Mobile Phone	28.749 (2)	0.000	28.614
Read a text book in a day (time)	51.500 (20)	0.000	-
Distance from home to school	60.383 (26)	0.000	-
Way to go to home to school	2.205 (4)	0.698	2.101
Got book early in the Year	0.421 (2)	0.810	0.543
Go to school with school dress	10.895 (2)	0.004	11.049
Methods of teachers take class	17.484 (4)	0.002	17.498
Eat enough food	1.579 (2)	0.454	1.557
School have hygienic toilets or not	2.335 (2)	0.311	2.289

(Source: Filed survey 2024)

Secondary Level (n=165)

To understand the factors related to student results, the Pearson chi-square test was executed along with the Fisher exact test when appropriate. The table shows that student age and gender were statistically insignificant with the last exam result (p >0.107 and p >0.397). On the other side, presence in a month and illness in a month are statistically significant with the student's last exam result (p <0.073 and p <0.083). However, the table showed that the father's occupation, number of family members, and number of siblings had no significant relation with the student's last exam result (p > 0.290, p > 0.745, and p >0.109) respectively. Further, opportunity to use the internet, opportunity to use a computer/laptop, and use a mobile phone were insignificantly related to the student's last exam result (p >0.698, p >0.941, and p >0.530) separately.

In addition, read a textbook in a day (time), distance from home to school, and way to go home to school were statistically insignificant with the student's last exam result (p >0.691, p >0.123, and p >0.284) respectively. On the other hand, the study found that, got books yearly had a significant relation with student's last exam results (p <0.092). Moreover, the study showed that go to school in school dress, methods of teachers take class, and eat enough food had no statistical relation with students' last exam results (p >0.495, p >0.415, and p >0.510) respectively. Further, sources of drinking water and victims of eve teasing in the past 1 year had no relation with students' last exam results (p > 0.186 and p >0.716) respectively.

Table 2. Student Result and its covariates (Chi-square test) Secondary Level (n=165)

Independent variable	**Dependent Variable (Last exam Result)**		
	$\chi^2_{(df)}$	***P value***	**Fishers exact test**
Age of the Students	13.137 (8)	0.107	12.993
Gender of the students	1.846 (2)	0.397	1.856
Present in a month	29.809 (20)	0.073	-
Illness in a month	24.301 (16)	0.083	19.917
Father Occupation	9.654 (8)	0.290	9.076
Number of Family Member	5.113 (8)	0.745	5.132
Number of Siblings	10.407 (6)	0.109	8.729
Opportunity to use Internet	0.720 (2)	0.698	0.747
Opportunity to use computer/laptop	0.121 (2)	0.941	0.153
Use of Mobile Phone	1.269 (2)	0.530	1.362
Read a text book in a day (time)	42.649 (48)	0.691	44.723
Distance from home to school	25.065 (18)	0.123	23.519
Way to go to home to school	5.037 (4)	0.284	5.045
Got book early in the Year	4.771 (2)	0.092	4.720
Go to school with school dress	1.408 (2)	0.495	1.150

Methods of teachers take class	1.761 (2)	0.415	1.950
Eat enough food	1.346 (2)	0.510	1.362
Source of Drinking water in school	3.363 (2)	0.186	3.386
Victim of eve teasing in the past 1 year	0.668 (2)	0.716	0.755

(Source: Filed survey 2024)

DISCUSSION

Both in primary and secondary levels student age and gender were significantly related to the student's last exam. In other studies, Li et al. (2016) in their studies found that age had a significant impact on the academic performance of the students in China, *i. e.* older children scored higher in literacy skills, numeracy skills, and social skills than younger children. Besides, it was found that 15 years old students performed better than 13 years in schools (McConney & Perry, 2010; OECD., 2004, 2005). Moreover, Li et al. (2016) in their studies found that boys scored higher than girls in literacy skills, numeracy skills, and social skills. On the other side, it was found that females perform better than males in biology (Acar et al., 2015; Chertkova et al., 2014). In addition, both primary and secondary level students present in a month and illness in a month were statistically significant with the student's last exam. Further, in the primary section father's occupation was highly significant with student results whereas in the secondary level father's occupation had no significant relation with the student's last exam. In addition, it was shown that the father's employment had a positive relation with children's academic achievement (Pourfeiz & Mohammadi Behjoo, 2013).

However, at the primary level family members and the number of siblings had a significant relation with students' academic results whereas there is no relation of this variable at the secondary level. In Morocco, Bouiri et al. (2022) found that the effect of socio-familial characteristics had a partially significant relationship with school grades with a weak effect. Additionally, Bartolome (2021), found that a child's home arrangement has a significant impact on their academic performance. Further, students from two-parent families had higher or better academic accomplishments than students from single-parent families. Moreover, Suleman et al. (2012) show that students with fewer family members show excellent academic achievement. Further, Krejčová et al. (2019) in their study found that a higher level of academic self-efficacy was detected by older siblings and respondents with a longer age-distance between them and their siblings. Gurgand et al. (2024) the results indicated that there is a low negative correlation between number of siblings and academic achievement.

However, at the primary level, opportunity to use the internet had a significant relation but at the secondary level, opportunity to use the internet had no relation with student results. In Ghana, it was found that internet access influences academic standards among students, as those with internet access have shown a higher improvement in academic performance than those without (Amponsah et al., 2022). Further, the internet has a significant impact on students' academic performance since it enables them to access publications and articles that are otherwise unavailable in libraries (Ghoshal & Upadhyay, 2023). Further, daily use of the Internet to listen to music or search for information about other topics of interest can favor the maximization of educational outcomes, the use of social networks should be limited as much as possible to avoid hindering the educational process (Rodríguez; et al., 2022).

Further, in the area of opportunity to use a computer/laptop, there is no significant relation with student results both in primary and secondary levels. Compare these findings Akcay (2023); Barrios Aguirre et al. (2021) found computers and the internet at home had a positive impact on English language performance. Additionally, at the primary level mobile phone use had a significant relation but at the secondary level, it had no relation with student academic results. Studies found that Kaur (2018); Sunday et al. (2021) mobile phone usage negatively affects the academic performance of students as they stuck to this device during their classes. Further, students who were not using their mobile phones wrote down 62% more information in their notes,

took more detailed notes, were able to recall more detailed information from the lecture, and scored a full letter grade and a half higher on a multiple choice test than those students who were actively using their mobile phones (Kuznekoff & Titsworth, 2013).

At the primary level, read a textbook in a day (time) and distance from home to school were significantly related but at the secondary level, read a textbook in the day (time) and distance from home to school were insignificantly related with student last exam result. Abid et al. (2023); Ali et al. (2023) in their study showed a strong positive relationship among reading habits, study skills, and academic achievement in English. Also, textbooks were very much used in teaching and learning as well as in the library and a positive correlation exists between textbook use and academic achievement (Attakumah, 2020). Further, Oneya and Onyango (2021) in their study imply that longer distance obstructs the smooth learning environment for students and, hence may lead to low performance. Moreover, there was a significant relationship between the students' distance to school and their academic performance in Math (Peteros et al., 2022; Zeragaber et al., 2024). Further, both in primary and secondary levels, the way to go home to school was insignificantly related to student results. Peteros et al. (2022) in their study found no significant relationships between the student's mode of transportation, house accessibility to the road, and their academic performance. In addition, Lutz et al. (2024) found a significant inverse correlation between school bus transportation and academic achievement for Grade 10 literacy.

Moreover, at the primary level getting a book early in the year was statistically insignificant but at the secondary level getting a book early in the year had a significant relation with a student's last exam result. In comparison to these findings, Attakumah et al. (2015); Prasetya (2018) in their study found a strong positive correlation between textbook availability and academic achievement in public senior high schools. At the primary level, go to school with school dress and methods of teachers take class were significantly related but at the secondary level, it had no relation to student's last exam results. Other studies found that school uniforms are supposed to help stop issues of cliques, prevent gangs from forming, and help students concentrate on their studies (Agarwal, 2015). Another study found a negative effect of uniforms on student academic achievement (Brunsma & Rockquemore, 1998). On the other hand, Anthony et al. (2023) strongly agree that when using a professor's educational strategy, the learner simply absorbs what the instructor is teaching because all assistance and knowledge is provided by the teacher. Supplementary, Farooqi; et al. (2023) in their study found lecture method is frequently used by teachers as the top selection. The discussion method is their second and book reading is on third rank.

Both at the primary level and secondary level, eat enough food had no relation with students' academic results. Burrows et al. (2017) in their study found moderately significant positive associations between diet and academic achievement, including breakfast, regular meal consumption, and meeting national recommendations for fruit intake. Whereas, students who consume balanced, nutritious food and drink perform better in areas of participation, behavior, and attendance and get their assigned tasks done more completely than students who do not eat well (Dodsworth, 2010). Further, at the primary level, hygienic toilet was insignificantly associated with student's last exam results. In addition, at the secondary level, sources of drinking water and victims of eve teasing in the past 1 year had no relation with students' last exam results.

CONCLUSION AND SUGGESTIONS

The study found a significant relation between academic results and factors both at primary and secondary levels. At the primary level, the study found the age of the student, gender of the student, presence in a month, illness in a month, father's occupation, number of family members, number of siblings, opportunity to use internet, use of mobile phone, read a textbook in a day (time), distance from home to school, way to go to home to school, got book early in the year, go to school with school dress, methods of teachers take class were significantly related students result. Further, at the secondary level the study found that students present in a month, illnesses in a month, and got a book early in the year had a significant relation with student's last exam result.

Suggestions to improve education in char area

- Take necessary steps to increase student attendance.
- Increase parents'/guardians' consciousness about their children's education.
- Increase internet facilities in the char area.
- Set up a computer lab in school.
- Develop roads and provide bicycles for the students.
- Provide notebooks/pens early in the year.
- Set up a multimedia classroom.
- Available soap in the washroom.
- Scheduling and monitoring of student activities as per daily routine.
- Arrange pure drinking water.
- Take necessary steps to stop child marriage.

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