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A Case Study on the Factors Contributing to Unsatisfactory Academic Performance at Secondary Level: Evidence from Rajuk Uttara Model College, Bangladesh

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ABSTRACT

This case study explores the underlying factors contributing to unsatisfactory academic performance among Business Studies students at Rajuk Uttara Model College (RUMC), one of the most prestigious higher secondary education institutions of Bangladesh. Despite its strong academic reputation, particularly in the Science stream, RUMC faces a consistent disparity in results between Science and Business Studies students in the Secondary School Certificate (SSC) examinations. Employing a quantitative research approach, data were collected from 532 students through a structured questionnaire. The collected data were analyzed using SPSS (version 25) employing descriptive statistics, correlation, and regression analysis to identify significant variables impacting academic outcomes. The findings reveal a complex interplay of academic, socioeconomic, institutional and psychological factors. The results indicate a significant correlation among visiting one's native home, family income, and time management during examinations. The findings demonstrate systemic issues, such as a 69% decrease in the chance of receiving a good SSC score for each unit drop in the perception of class efficacy. Moreover, students from higher-income families who experience greater stress or lack self-motivation are approximately 71% less likely to achieve good SSC results under time pressure during written examinations compared to students from lower-income backgrounds. Besides providing evidence-based insights into the academic underperformance of RUMC, this study holds wider implications for pedagogical advancements and policy changes at other similar institutions in Bangladesh.

1. Introduction

Academic performance at the secondary level serves as a crucial determinant in shaping students' future educational and professional trajectories. In Bangladesh, particularly in prestigious institutions like Rajuk Uttara Model College, a top-tier education institution, the expectation for academic excellence is high. Despite the prominence of a reputed institution and resource availability, there exists a growing concern over unsatisfactory academic performance among a segment of students, namely Business Studies students, warranting an in-depth exploration of the underlying causes. Existing literature identifies a complex interplay of multitude of factors influencing students' academic achievements, including socio-economic background, parental education and involvement, institutional environment, teaching methodology, institutional support, and student motivation (Farooq et al., 2011; Hijazi & Naqvi, 2006), (Naqvi, 2006). Farooq et al. (2011) underscore that academic performance is influenced not only by students' abilities but also by family income, parental involvement, and school infrastructure. Similarly, Hijazi and Naqvi (2006) highlight the role of psychological, economic, and environmental variables in shaping students' academic outcomes in private institutions (Naqvi, 2006). A recurring theme in studies across South Asia and beyond is the impact of socio-economic status (SES). Researchers consistently find that students from lower SES backgrounds face challenges such as limited access to educational resources, poor nutrition, and insufficient academic support at home, which negatively affect

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academic performance (Esen & Adıgüzel, 2023; Islam & Khan, 2017; Razzaq et al., 2024). These findings suggest that both personal and contextual variables work interactively to affect students' success.

In the context of Bangladesh, multiple researchers have attempted to assess these variables through empirical evidence. Alam and Islam (2022) revealed that both economic instability (financial hardship) and poor institutional practices (lack of academic support) contribute significantly to students' academic struggles in public universities — a trend often rooted in earlier educational stages (Markos et al., 2022). Similarly, Ahmmed and Salim (2018) found that inadequate academic support services, low teacher engagement, and lack of structured feedback mechanisms in private universities also hinder students' learning progression (Rahman et al., 2022). These challenges are not exclusive to tertiary education. At the secondary level where students are transitioning to adulthood and facing national public examinations, such issues may manifest even more intensely.

The method of instruction also plays a pivotal role. Traditional rote-learning practices prevalent in many Bangladeshi schools have long been critiqued for failing to foster critical thinking and deep understanding. In contrast, recent experimental studies advocate for more interactive approaches, like design thinking have demonstrated a more positive influence on students' learning compared to traditional rote-learning methods, offering promising alternatives for improving student performance (Ekvitayavetchanukul et al., 2025).

Furthermore, psychological and gender-based factors have been shown to influence academic performance. Parajuli and Thapa (2017) highlight significant gender differences in academic outcomes, often shaped by sociocultural expectations and support systems. Additionally, Kapur (2018) emphasizes the role of students' attitudes, study habits, and motivation levels as critical contributors to success at the secondary level. While existing literature offers significant insights, there remains a gap in understanding how these multilayered factors play out within individual institutions, particularly those considered academically elite. This study aims:

- To address the contextual and institutional factors leading to unsatisfactory academic performance of Business Studies students at the secondary level.
- To identify socio-demographic factors contributing to lower academic achievement among Business Studies group students.

Thus, this case study aims to offer evidence-based recommendations for Rajuk Uttara Model College and other similar institutions that are facing analogous challenges by examining the dimensions in a specific and high-performing educational context.

2. Methodology

Study Design and Setting

This study followed a quantitative, cross-sectional case study design to examine the factors contributing to unsatisfactory academic performance of Business Studies group students at the secondary level. The research was conducted at Rajuk Uttara Model College, a renowned educational institution in Dhaka, Bangladesh.

Study Population and Sample Size

The target population consisted of higher secondary level students from both the Science and Business Studies groups, totaling 1490 students.

To determine the minimum required sample size, Cochran's formula was used, which is appropriate for large and finite populations. The formula is as follows:

$$n_0 = \frac{z^2 \times p\,(1-p)}{e^2}$$

Where:

- Z = 1.96 (Z-value for 95% confidence level)
- p = 0.5 (estimated proportion for maximum variability)
- e = 0.05 (margin of error)

$$n_0 = \frac{(1.96)^2 \times 0.5 \times (1-0.5)}{(0.05)^2} = 384.16$$

Since the population is finite (N=1490), the sample size was adjusted using the finite population correction formula:

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

$$n = \frac{384}{1 + \frac{383}{1490}} = 306$$

Therefore, the minimum required sample size was 306 students.

However, to enhance the precision and robustness of the analysis, data were collected from a total of 532 students, exceeding the minimum requirement.

Sampling Technique

A simple random sampling technique was applied to ensure that every student in the population had an equal and independent chance of selection. This method reduced sampling bias and improved the representativeness of the sample.

Sampling Unit

Individual student of Science and Business studies of RUMC is the unit of study.

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Data Collection Procedure

Data were collected through a structured and pre-tested questionnaire. The instrument was designed to gather relevant information on students' demographic characteristics, academic records, parental involvement, stress levels, time management and institutional characteristics. Ethical practices such as informed consent, voluntary participation, and confidentiality were strictly maintained.

Data Analysis Tools and Techniques

The collected data were analyzed using IBM SPSS Statistics software - version 25. The following statistical techniques were employed:

- **Descriptive Statistics**: To summarize demographic variables and academic performance distributions.
- **Correlation Analysis**: Pearson correlation was used to assess the relationships between academic performance and influencing factors.
- **Regression Analysis**: To identify the key predictors of unsatisfactory academic performance and evaluate their impact.

3. Results and Discussion

A total of 532 participants were included in this study. The gender distribution was nearly equal, with 262 males (49.2%) and 270 females (50.8%). Regarding educational background, a majority (62.6%) of the students were from the Science group while the remaining 37.4% was from the Business Studies group.

A higher percentage, 61.5% (n = 327), said they did not visit their home place on short holidays, whereas 38.5% (n = 205) mentioned doing so. Their opinions reflect the growing urbanization and diminished ties to rural or ancestral locations that have been seen in numerous Bangladeshi regions (Afsar, 2003). During the holidays, students who stay in cities could have easier access to academic resources like private tutoring or library services, which could affect their academic achievement. However, as regular family visits are proven to improve teenagers' mental health and emotional stability, losing ties to one's birthplace may also result in a decline in emotional well-being (Sadownik, 2023).

Table 1: Demographic Characteristics of Participants:

Demographic Characteristics of Participants		
		Frequency (%)
Gender	Male	262 (49.2)
	Female	270 (50.8)
SSC Group	Science	333 (62.6)
	Business Studies	199 (37.4)
Visiting native home during short vacation	Yes	205 (38.5)
	No	327 (61.5)
Family income (per month)	Less than 30k	45 (8.5)
	30k-50k	183 (34.4)
	>50k	304 (57.1)
Father's occupation	Businessman	184 (34.6)
	Government employee	88 (16.5)
	Others	260 (48.9)
Mother's occupation	Housewife	440 (82.7)
	Government employee	38 (7.1)
	Others	54 (10.2)
Results in SSC Examination (GPA)	Good(GPA-5)	438 (82.3)
	Average (Less than GPA-5)	94 (17.7)

In terms of monthly family income, over half of the participants (57.1%) came from families earning more than 50,000 BDT, while 34.4% reported a family income between 30,000 and 50,000 BDT, and 8.5% reported earning less than 30,000 BDT per month. Because of the availability of educational resources, stable home conditions, and parental support, previous studies have consistently demonstrated a favorable association between higher family income and improved academic achievements (Selvitopu & Kaya, 2021). However, economic variety is highlighted by the sizeable percentage (34.4%) from middle-income and 8.5% from low-income households. Low-income students frequently encounter obstacles including restricted access to digital learning platforms or private coaching, which can affect their academic performance and happiness (Glewwe & Kremer, 2006).

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Regarding father's occupation, 34.6% were businessmen, 16.5% were government employees, and 48.9% were engaged in other occupations. For the mother's occupation, the vast majority were housewives (82.7%).Long-standing cultural traditions in South Asian nations, where women are expected to run the home and males are usually the main breadwinners, are reflected in this trend (Ahsan et al., 2019). These gendered employment positions can impact pupils' educational objectives. Children of working mothers, particularly those in professional occupations requiring a high level of education, have been observed to have more academic ambition and career orientation (Gaikwad & Pandey, 2025). Nonetheless, the preponderance of mothers who are homemakers may also suggest that more time is spent monitoring children's academic progress and providing emotional support, particularly for younger pupils. Academic performance in the Secondary School Certificate (SSC) examination was also reported. A significant majority of the participants (82.3%) achieved a GPA of 5 (considered 'Good'), whereas the remaining 17.7% scored below GPA-5 and were categorized as having 'Average' results. This is encouraging and might be related to many respondents' greater socioeconomic level and supportive familial environments. Previous research has shown that academic motivation, household wealth, and parental participation are all powerful indicators of academic achievement in secondary school (Fan & Chen, 2001), (Akhter & Siddiky, 2024). The remaining 17.7% who had a GPA below 5 can be the result of personal struggles like stress or a lack of drive, disparities in the quality of the schools, or unequal access to resources.

3.1 Characteristics of Participants' Opinions

Table 2: **Characteristics of Participants' Opinions**

Variables		Frequency	%
How do you rate the teaching quality of your class?	Excellent	49	9.2
	Good	228	42.2
	Average	190	35.7
	Poor	65	12.9
Do students attend classes regularly?	Most students do	339	63.7
	Some students do	165	31.0
	Very few students do	28	5.3
Are the classes conducted by the teacher effective?	Always	157	29.5
	Often	217	40.8
	Rarely	141	26.5
	Never	17	3.2
I think my group choice was right during class IX admission.	Strongly agree	254	47.7
	Agree	178	33.5
	Neutral	67	12.6
	Disagree	13	2.4
	Strongly disagree	20	3.8
I think teachers in my group provide proper guidance for exam preparation.	Strongly agree	61	11.5
	Agree	217	40.8
	Neutral	168	31.6
	Disagree	47	8.8
	Strongly disagree	39	7.3
I think converting theory subjects to practical subjects can improve result.	Strongly agree	165	31
	Agree	196	36.8
	Neutral	114	21.4
	Disagree	32	6.0
	Strongly disagree	25	4.7
I think converting theoretical subjects examinations to CQs and MCQs can improve the results.	Strongly agree	94	17.7
	Agree	199	37.4
	Neutral	188	35.4
	Disagree	25	4.7
	Strongly disagree	26	4.8

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I think students of Business Studies get admitted with poorer results than those of Science students.	Strongly agree	123	23.1
	Agree	171	32.1
	Neutral	143	26.9
	Disagree	60	11.4
	Strongly disagree	35	6.5
The Business Studies syllabus is more difficult than that of the Science group.	Yes	84	15.8
	No	448	84.6
Business Studies has fewer practical subjects compared to the Science group, and more practical subjects often lead to better results.	Yes	377	70.9
	No	155	29.1
Business Studies students get less time per question in the written examinations while Science students get more time.	Yes	416	78.2
	No	116	21.8
Business Studies students get less time to complete all questions within the allocated time.	Yes	339	63.7
	No	193	36.3

The results of the study show that secondary students have differing opinions about the quality of instruction and the structure of the classroom. The majority thought their lessons were frequently successful (40.8%) and evaluated their instruction as good (42.2%). The majority of students concurred that teachers gave adequate advice for test preparation and felt secure about the group they were admitted to. Nonetheless, a lot of students think that employing creative question (CQ) and multiple-choice question (MCQ)-based tests or turning theoretical courses into practical forms might enhance academic achievement. Notably, a sizeable percentage of respondents voiced worries that students studying Business Studies are at a disadvantage when compared to those studying science. These concerns include perceived lower admission criteria, fewer practical courses, and stricter test schedules. These observations imply that in order to advance equity and improve learning outcomes, curriculum modifications and teaching method reforms are required.

Reforms to the present evaluation systems were preferred by a sizeable portion of pupils. In particular, they promoted the use of MCQs, CQs and hands-on techniques for theoretical teaching. In order to accommodate different learning styles and foster deeper knowledge, a variety of evaluation techniques and a trend towards more student-centered learning are being used globally in pedagogy (Black & Wiliam, 2009). While formative and diverse tests are thought to better enhance students' learning, traditional rote-based examinations are frequently criticized for not fostering critical thinking and application skills (Boud & Falchikov, 2006).

Concerns over structural disadvantages in comparison to their science counterparts were particularly raised by students in the Business Studies stream. Perceptions of tighter examination schedules, fewer possibilities for experiential or practical learning, and lower entrance criteria were among them. Disparities of this kind might impede motivation and success and even lead to feelings of academic inadequacy. This is consistent with earlier research on academic tracking and stream-based disparities, which found that students in non-science groups frequently had less access to academic opportunities and resources (Kim & Sunderman, 2005). These issues highlight how curricular frameworks need to be reviewed by Ministry of Education of Bangladesh in order to guarantee academic stream equity. All students must have equal access to high-quality instruction, impartial evaluation procedures, and chances for hands-on experience, regardless of their academic program, in order for education to be equitable (Rieckmann et al., 2017).

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3.2 Correlation

Table 3: Correlation Coefficient of Different Variables with Results in SSC Examination

Variables	Category	Results in SSC Examination		χ^2 value (p-value)
		Good (GPA-5)	Average (Less than GPA-5)	
Gender	Male	215	47	0.872
	Female	223	47	
Do you visit native home during short vacation?	Yes	168	37	0.001
	No	270	57	
Family income(monthly)	Less than 30k	35	10	0.027
	30k-50k	141	42	
	More than 50k	262	42	
Father's occupation	Businessman	142	42	0.005
	Public service	82	06	
	Others	214	46	
Mother's occupation	Housewife	357	83	0.410
	Public service	37	01	
	Others	44	10	
Monthly family income	< BDT 10,000	35	10	0.027
	BDT 10,000 – BDT 30,000	141	42	
	>BDT 30,000	262	42	
Rating teaching quality of teachers	Excellent	32	17	<0.001
	Good	172	56	
	Average	172	18	
	Poor	62	03	
Are the classes conducted by teachers effective?	Always	100	57	<0.001
	Often	186	31	
	Rarely	137	04	
	Never	15	02	
Business Studies students get less time per question in written examinations while Science students get more time.	Yes	331	85	<0.001
	No	107	09	
Business Studies students get less time to complete all questions within allocated time.	Yes	259	80	<0.001
	No	179	14	

This table employs the Chi-square (χ^2) test to examine the relationship between students' SSC scores (classified as 'Good' if their GPA is 5 and 'Average' if their GPA is less than 5) and other academic and demographic parameters. The variables and SSC results are statistically significantly correlated when the p-value < 0.05. We can observe both positive and negative correlations here. Not all of them have a strong correlation, while some have a modest one. Visit to one's native place, family income, the father's line of work, opinions on the caliber and efficacy of instruction, and time management during tests were among the factors that were shown to have a statistically significant correlation with SSC results.

This supports the body of research indicating that instructional clarity and teacher quality are critical for academic performance ("Teacher Quality and Student Achievement: A Review of State Policy Evidence," 1999). Strong academic performance is predicted by improved conceptual understanding, motivation, and student engagement, all of which are enhanced by high-quality instruction. Additionally, there was a substantial association between SSC results and time management in

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the examination. The likelihood of receiving a top mark was reduced for students who could not finish the test in the allotted time. This is consistent with research by Putwain (2009), (Högberg, 2021), who pointed out that performance is frequently affected by examination pressure and inefficient time management, especially in high-stakes testing settings like those in South Asia.

The findings show a positive correlation between SSC performance and father's employment and family income. Pupils who come from wealthier families or whose fathers hold steady jobs typically do better academically. This echoes more general socioeconomic theories that assert that access to learning resources, tutoring, and a nurturing family environment are all made possible by financial means (Sirin, 2005), (Musset et al., 2012). The occupation of mothers did not exhibit a statistically significant correlation which is interesting. This could be a reflection of the region's traditional family arrangements, where fathers are frequently the main providers and have a more direct contribution in how much money is spent on education, but mothers jobs might not have a direct impact on kids' academic performance or access to resources (Jeynes, 2014).
Nevertheless, there was no obvious association between the mother's gender and her line of employment. There was no statistically significant difference in SSC performance depending on gender, which is in contrast to other previous research. Although previous studies have discovered gender differences in the performance of particular subjects (Savva & Anastasiou, 2024), our results imply that gender could not be a significant factor when taking into account total GPA.

3.3 Logistic Regression Analysis and Their Coefficients

Table 4. Logistic Regression Analysis and Their Coefficients

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Do you visit native home during short vacation?	.309	.259	1.424	1	.233	1.361
	Family income (per month)	-.568	.191	8.843	1	.003	.567
	Father's occupation	-.067	.137	.239	1	.625	.935
	Are the classes conducted by the teachers effective?	-1.172	.187	39.304	1	<.001	.310
	Business Studies students get less time per question in the written examination while Science students get more time.	-.318	.444	.515	1	.473	.727
	Business Studies students get less time to complete all questions within the allocated time.	-1.220	.369	10.949	1	<.001	.295
	Constant	.448	.376	1.417	1	.234	1.565

This logistic regression model examines the relationship between a number of independent factors and the likelihood of receiving a good score (GPA-5) on the SSC examination. According to the coefficient for "Are the classes conducted by the teachers effective?" a one-unit drop in the perception of class effectiveness is linked to a 69% drop in the chances of getting a good score on the SSC examination, while keeping all other factors equal, such as visiting one's native home, family income, the father's occupation, and time management during exams. Students who do not find the classes beneficial are only 31% more likely to receive a GPA-5 than those who find the classes always effective, as indicated by Exp (−1.172) = 0.310.

This is consistent with earlier studies that highlight how crucial high-quality instruction is in influencing student outcomes ("Teacher Quality and Student Achievement," 2000). Students who get effective classroom teaching are more motivated, grasp, and retain information better, all of which have a direct impact on exam

performance (Seidel & Shavelson, 2007). According to the current research, even in cases when other factors like family background and time management are advantageous, students who do not gain from classroom teaching are at a significant disadvantage.

Similarly, the variable "Business Studies students get less time to complete all questions within the allocated time" has a statistically significant negative coefficient of −1.220. This means that, after adjusting for other variables, students who experience time pressure during the written exam have a roughly 71% lower chance of receiving a good SSC result. According to Exp (−1.220) = 0.295, students who fail to finish the test on time have a 29.5% lower chance of receiving a GPA of 5 than those who do it in the allotted time.

This result is consistent with other research showing that time limitation can increase test anxiety and impair cognitive function under duress (Putwain, 2009). Sufficient time is crucial, particularly for descriptive and analytical courses where students are required to provide detailed explanations of their responses. Students who struggle with time management or who are disadvantaged by strict time constraints could not

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perform their best on tests, leading to less than ideal results.

However, the variable 'Family income (per month)' exhibits a significant negative correlation with SSC performance, with Exp(−0.568) = 0.567. This suggests that, when all other factors are held constant, the odds of scoring GPA-5 drop by roughly 43% for every unit increase in family income category. In contrast to their friends from lower-income homes, pupils from higher-income households are under more pressure or less self-motivated, according to this surprising discovery. According to earlier research conducted in Bangladesh, a lack of resources and guidance is linked to low performance, and familial financial and attitudinal support are significant determinants of SSC achievement (Habib & Mawa, 2022). Our surprising discovery could be the result of changed expectations, pressure, or a lack of inner drive in rich households, even though having more money is normally protective.

The pie chart shows that just 39% of respondents take short vacations to their hometown, while the majority (61%) of respondents said they seldom take short vacations there.

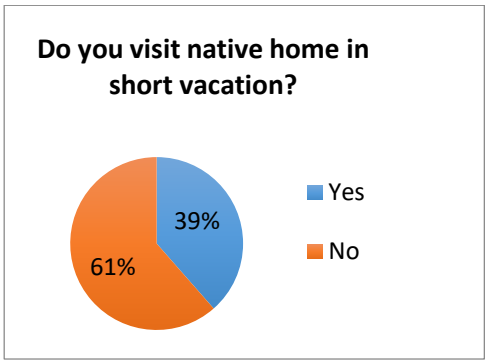

Figure 1: Pie chart

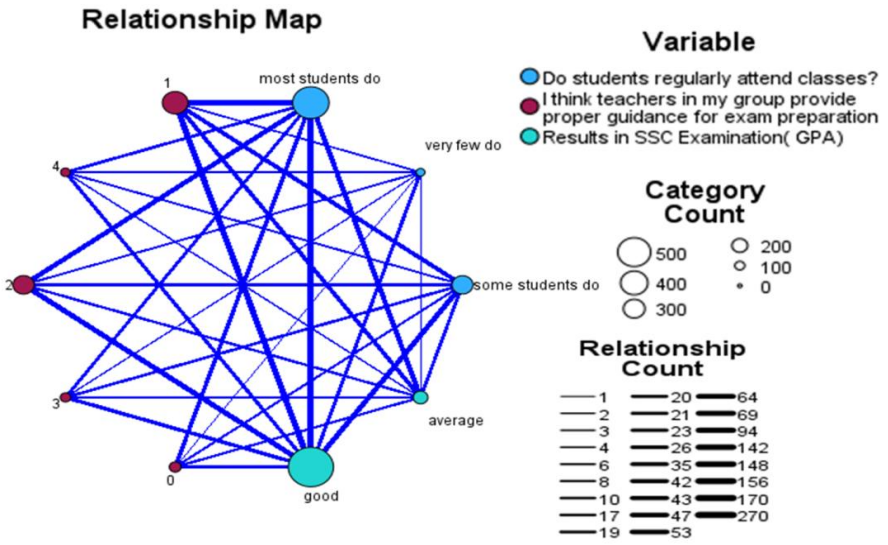

Figure 2: Relationship between attending classes regularly and result in SSC

The relationship map reveals that prior academic performance (SSC GPA), perceived teacher support, and class attendance are strongly correlated. Regular attendees who feel their teachers provide them with appropriate guidance are more likely to report higher SSC scores and give teaching quality higher ratings. The graphic emphasizes how important teacher support and attendance are in determining students' academic success.

Crucially, the connection map emphasizes how perceived teacher support and attendance interact. Students who see their teachers as encouraging and who attend lessons on a regular basis perform noticeably better academically. The self-determination hypothesis, which holds that meeting fundamental psychological needs including feeling competent, encouraged, and independent encourages intrinsic motivation and perseverance in learning, lends credence to this study (Deci & Ryan, 2000). Consistent attendance reinforces the learning process through involvement and reinforcement, while teacher support increases students' emotional stability in the classroom.

These results have lasting impacts for Bangladeshi secondary education. In addition to delivering the curriculum, efforts to boost academic achievement should also include building solid teacher-student bonds and promoting consistent attendance. To improve supportive teaching practices, school administrators might introduce mentoring programs or workshops for teacher development. Academic achievement can be supported by policies that address barriers to regular attendance, such as transportation or health issues, or that provide incentives for attendance.

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4. Conclusion

The case study meticulously investigated and identified manifold factors contributing to unsatisfactory academic performance among secondary level students of Rajuk Uttara Model College. The findings reveal that several key determinants like visiting one's native home, family income, and time constraint during examinations have emerged as significant impediments to optimal student achievement. Addressing these challenges necessitates a holistic and multi-pronged approach involving collaborative actions from parents, teachers, education policymakers and students. Implementing training programs for teachers, fostering a supportive academic setting for students both at home and school along with more active engagement of parents in the academic journey of the students are essential. Psychological factors, including examination anxiety and a lack of intrinsic motivation further intensified the problem. Moreover, curricular reforms that balance theoretical and practical subjects might help reduce students' stress and enhance learning outcomes. Unsatisfactory academic performance at the secondary level at RUMC is not attributable to a single cause but rather a complex interplay of academic, socioeconomic, institutional and psychological factors. To further understand the intricate dynamics affecting student performance, future research could expand the scope of this study by including multiple institutions. Such initiatives would contribute to creating more effective and inclusive educational policies in Bangladesh.

5. Recommendations

Based on the findings of the study, several academic reforms are recommended to address the issues causing unsatisfactory academic performance at the secondary level in the Business Studies stream at Rajuk Uttara Model College:

1. Curriculum Adjustment for Subject Balance:
   The inclusion of more practical-oriented courses in place of excessive theoretical subjects is advocated. This adjustment can align the Business Studies curriculum more closely with the cognitive talents of the students, who may perform better in practical-based examinations rather than theory-based assessments.
2. Increase the Number of Multiple Choice Questions (MCQs):

   The number of multiple-choice questions in each subject may be increased in order to promote greater syllabus coverage and enhance objective evaluation. This approach can improve students' conceptual understanding and they can better prepare for more difficult competitive tests.
3. Introduce More Practical Subjects for Skill Development:
   Whereas the inclusion of practical subjects is suggested, theoretical subjects should not be entirely excluded. Instead, new practical subjects relevant to the Business Studies domain may be added introduced to promote real-life application skills and boost student engagement.
4. Reduce the Number of Broad Questions from 7 to 5:
   In alignment with the Science stream's examination format, reducing the number of descriptive questions from seven to five can lessen students' cognitive burden during examinations and can help students concentrate more intently on selected topics. This change might help in improving time management during evaluations and reduce examination-related stress.

Implementation of these recommendations can potentially create a more equitable academic environment across different streams and significantly enhance students' academic performance at the secondary level.

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