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Gender Disparities in Academic Performance: A Study of Secondary School Students in Ri-Bhoi District

Memjuklet Mallai[1], Agnes Humtsoe[2]

[1]Research Scholar, Department of Education, Assam Don Bosco University, India
[2]Assistant Professor, Department of Education, Mizoram University, Aizawl, India

Abstract
This study investigates the academic performance of secondary school students in Ri-Bhoi District, with a focus on gender disparities across four core subjects: Mathematics, Science, Social Studies, and English. Using a descriptive survey method, the academic achievement scores of 341 students were collected and analyzed through statistical methods, including t-tests. The results indicate that most (41%) of students reflected a low-performance category, while 28% represented high achievers. The remaining 31% fell into the middle-performance category. While no significant gender differences were found in cumulative academic performance, a notable disparity was observed in English, with female students outperforming their male counterparts. In contrast, performance in Mathematics, Science, and Social Science showed no significant gender-based differences. These findings highlight the potential need for targeted support and strategies to address the academic performance disparities in English while fostering an inclusive learning environment in Mathematics, Science, and Social Science.

Keywords: Academic Performance, Gender, Secondary School, Students.

Introduction

Academic performance is a critical indicator of a student's ability to meet educational goals. It encompasses various aspects such as earning good grades, engaging in class discussions, and clearly understanding course material. Academic performance can vary significantly among students, influenced by their backgrounds, parental support, and teacher guidance. Successful academic achievements can have long-term benefits as they prepare students for future challenges in an increasingly competitive world. In the 21st century, students need to prioritize their studies to navigate the complexities of modern life effectively. However, there are concerns about the declining academic performance among some students, which can be attributed to several factors. These may include a lack of self-determination, procrastination, and a mindset focused solely on obtaining certificates rather than genuinely learning. Encouraging a more profound commitment to education is crucial in fostering students' personal and academic growth.

Numerous scholars concur that a student's academic performance is fundamentally rooted in the learning process, shaped by the instructional strategies employed by teachers, and is also a product of the student's efforts (Lamas, 2015). From a humanistic viewpoint, Martinez (2007) describes academic performance as "the product rendered by the students, usually reflected in their school grades" (cited in Lamas, 2015, p. 353). This highlights that student performance is not merely a numerical representation but an intricate

outcome of their engagement and understanding. Delving deeper into the concept, Bhatnagar (1969) emphasizes that academic achievement, often referred to as student performance, is a crucial component of a student's overall behavioral development. Furthermore, Gupta and Kapoor (1969) argue that academic achievement is not a simplistic or singular phenomenon; instead, it is a multifaceted endeavor that entails various stages and dimensions of learning and evaluation (cited in Bhardwaj & Bhatt, 2014). In essence, secondary school academic performance is a comprehensive indicator of a student's success across a diverse array of subjects, reflecting their ability to grasp and apply knowledge in different academic fields.

Literature Review

In a comprehensive study conducted by Lamare (2010), the landscape of secondary education in the Jaintia Hills District of Meghalaya was meticulously examined. The research unveiled a concerning trend: the passing percentage of students in the Secondary School Leaving Certificate examination has experienced a notable decline in recent years. This study further illuminated the disparities in academic performance between students hailing from remote villages and those residing closer to their schools in villages or towns. Adding another layer to this discussion, Gegeleso and Ayodele (2023) uncovered a startling statistic where merely 49% of high-achieving students could qualify for advancement to higher classes or further education. This finding underscores a broader issue, suggesting that secondary school students' overall academic performance is below average and deteriorating over time. Delving into gender-based academic performance, Parajuli and Thapa (2020) conducted a detailed study on gender disparities among students. Their findings highlighted that female students consistently outperformed their male peers in academic settings. However, this perspective was challenged by Tron (2018), who researched science education in secondary schools across Meghalaya. Tron discovered a significant achievement gap in science subjects, with male students scoring notably higher than female students, which revealed a nuanced picture of gender performance. Furthermore, Humtsoe and Lapang (2024) examined various factors influencing academic performance. They reported significant differences not only between genders but also among students from urban and rural backgrounds and those attending government versus private secondary schools. Interestingly, this observation starkly contrasted the findings of Dutta, Chetia, and Rajkonwar (2020), who concluded that there were no discernible differences in academic performance between male and female secondary school students. This divergence in research highlights the complexity of academic achievement concerning multiple factors, including gender and geographical location.

Rationale of the Study

Academic performance is a key indicator of student success and reflects the quality and inclusivity of an educational system. Despite advancements in education, gender disparities in academic performance remain a critical concern, as they can influence future educational and career opportunities. In the context of Ri-Bhoi district, understanding the nature and extent of these disparities is essential to ensure equitable access to quality education for all students. This study is motivated by the need to identify whether gender-based differences exist in key subjects such as English, Mathematics, Science, and Social Science and to explore the factors contributing to these disparities. By focusing on secondary school students, the study aims to address a pivotal stage in education where academic outcomes significantly impact students' academic trajectories and aspirations. The research is grounded in the belief that equitable educational practices can only be developed when disparities are clearly understood and addressed. Insights from this study will help educators, policymakers, and stakeholders create targeted strategies to promote gender

equity in education, foster inclusive learning environments, and contribute to the achievement of broader educational goals.

Research Questions

1. What is the overall academic performance level of the secondary school students in mathematics, science, social science and English subjects in the Ri-Bhoi district?
2. What is the academic performance level of male and female secondary school students in mathematics, science, social science and English subjects in the Ri-Bhoi district?

Objectives

1. To study the academic performance of secondary school students in the Ri-Bhoi district.
2. To assess gender disparities in the overall academic performance among male and female secondary school students in the Ri-Bhoi district.
3. To compare the academic performance of male and female secondary school students in mathematics, science, social science and English.

Hypotheses

1. There is no significant difference in the academic performance of male and female secondary school students in the Ri-Bhoi district.
2. There is no significant difference in the academic performance of male and female secondary school students in Mathematics, Science, Social Science and English in the Ri-Bhoi district.

Methodology

In line with the objectives of this study, a descriptive survey method was employed to assess the academic performance of secondary school students. The study targeted all secondary school students in Ri-Bhoi district, Meghalaya, which comprises 208 schools under the Meghalaya Board of School Education (MBOSE). To select the sample, the researchers utilized a stratified random sampling technique. First, two blocks from the Ri-Bhoi district were randomly chosen. Then, nine schools were randomly selected from the 208 schools within these blocks. A total of 341 students from these nine schools participated in the study. Academic performance data was collected from the SSLC examination records of the selected students.

Analysis and Results

The data has been analysed based on the objectives and are presented below

Table 1: Showing the Overall Level of Secondary School Students Academic Performance in English, Mathematics, Science, and Social Science Subjects in Ri-Bhoi District

Score Range	Level of Academic Performance	No. of Students	%	N	SD	P33	P66	Overall Mean Score
Above 206	High	96	28	341	39.92	174.9	206.9	191.1
Between 173-205	Average	106	31					
Below 174	Low	139	41					

Figure 1: Showing the Level of Academic Performance Scores of Secondary School Students in English, Mathematics, Science, and Social Science Subjects in Ri-Bhoi District

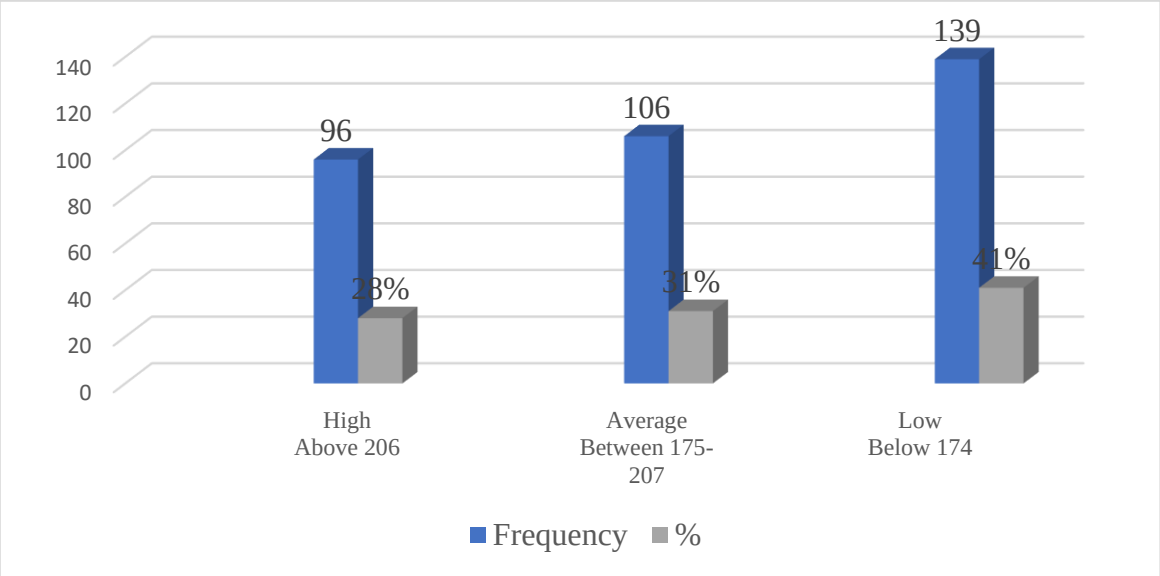

Table 1 reveals that the mean score for the academic performance of secondary school students in English, Mathematics, Science, and Social Science Subjects in the Ri-Bhoi district was 191.1, with a standard deviation of 39.92. This indicates that the average academic performance score of secondary school students in these four subjects is unsatisfactory, as it falls below 50% of the total marks, which is 400. Furthermore, the calculated standard deviation suggests a wide variation in the academic scores collected from students in the district. The computed P_{33} and P_{66} values were 174.9 and 206.9, respectively. It shows that 139 students (41%) scored below the P_{33} value of 174.9 out of 341 secondary school students. Conversely, around 96 students (28%) scored above the P_{66} value of 206, while the remaining 31% were in the middle category, as illustrated in Figure 1. This indicates a clear need for enhanced efforts in the curriculum delivery process to improve students' academic performance in the district.

Table 2: Showing the computed Means, SD, SE_D, and t-value concerning the Academic Performance of Secondary School Male and Female Students in Ri-Bhoi District in Meghalaya.

Group	N	Mean	SD	SE_D	DF	t-Value	Remark
Male	145	188.83	39.68	4.38	339	1.52	Not Significant at 0.05 level
Female	196	195.51	40.23				

Table 2 indicates that the computed t-value came out to be 1.52, which is lesser than the table t-value of 1.97 at a .05 level of significance; therefore, the computed t-value (1.52) has not been considered significant, and the formulated hypothesis that there is no significant difference in the academic performance of male and female secondary school students got retained. It means there is hardly any difference between the academic performance of male and female secondary school students in the Ri-Bhoi district of Meghalaya. Further, it has been found that the computed mean score of male and female students came out to be 192 and 194.7, respectively, which is considered a bit poor as the computed mean

score has been found even below the percentage of 50% concerning their academic performance in English, Mathematics, Science, and Social Science Subjects.

Table 3: Showing the Academic Performance of Secondary School Male and Female Students Subject Wise in Ri-Bhoi District in Meghalaya.

Subjects	Gender	N	Mean	Std. Deviation	Std. Error Difference	t-Value	Remarks
English	Male	145	49.17	10.54	1.16	2.32	Significant at 0.05 Level*
	Female	196	51.89	10.77			
Maths	Male	145	41.97	14.15	1.66	1.85	Not Significant
	Female	196	45.05	15.90			
Science	Male	145	52.71	13.71	1.56	.122	Not Significant
	Female	196	52.90	14.65			
Social Science	Male	145	44.96	11.12	1.13	.606	Not Significant
	Female	196	45.65	9.76			

*Significant at 0.05 Level

Table 3 reveals that the computed t-value for the academic performance of male and female students in English is 2.32, which exceeds the critical t-value of 1.97 at the 0.05 level of significance. This indicates a statistically significant difference in the English performance of male and female secondary school students, leading to the rejection of the null hypothesis. In contrast, the computed t-values for Mathematics (1.85), Science (0.122), and Social Science (0.606) are below the critical value of 1.96. Therefore, no significant difference was observed in the academic performance of male and female students in these subjects. The mean scores of male and female students are as follows: English (49.17 and 51.89), Mathematics (41.97 and 45.05), Science (52.71 and 52.90), and Social Science (44.96 and 45.65), respectively. These scores indicate generally below-average performance across all subjects.

The analysis shows a significant gender-based disparity in academic performance in English, with female students outperforming their male counterparts. However, no significant differences were found in Mathematics, Science, and Social Science performance. Overall, the academic performance in all subjects remains below satisfactory levels, emphasizing the need for targeted strategies to enhance student performance across genders and subjects.

Major Findings

From the above analysis and discussions, the findings of the study can be summarized as:

1. About 139 (41%) secondary students performed below average academically, while 96 students (28%) achieved good academic performance, and 31% demonstrated average academic performance.
2. No significant difference was found between male and female secondary students in their cumulative academic performance.
3. Academic performance in English showed notable gender disparity, with female students outperforming males.

- Performance in Mathematics, Science, and Social Science showed no significant gender-based differences.

Discussions

The current study explores academic performance in the core school subjects among secondary school students in the Ri-Bhoi district, highlighting a troubling reality: many of these students fail to meet the expected academic standards. This alarming trend resonates with the findings of Gegeleso and Ayodele (2023), who investigated the academic achievements of secondary students and observed a worrisome decline in performance over time. Their research emphasizes the myriad challenges that secondary students face within their educational journeys, which have detrimental implications for their performance in crucial assessments, such as the Junior and Senior Certificate examinations.

Intriguingly, the analysis of academic performance indicates no substantial differences between male and female students in terms of their academic results. This outcome suggests a level of parity in educational achievement that contradicts common assumptions about gender disparities in academic performance. Supporting this narrative are the findings of Dutta, Chetia, and Rajkonwar (2020) and Dewaraju (2023), who similarly concluded that male and female students display comparable academic capabilities. This finding contradicts Suvarna and Ganesha Bhata (n.d.), which reveals a significant difference in academic achievement among secondary school students concerning gender.

However, this study uncovers a notable exception to the general trend: female students consistently excel in English, outshining their male counterparts in this subject. This significant difference underscores female students' strengths in language arts, prompting educators to investigate further the underlying factors contributing to this gender-based distinction. This revelation aligns with previous studies, such as those conducted by Parajuli and Thapa (2020), which found that female students outperformed males and identified pronounced gender differences in academic performance.

Conversely, when examining subjects such as Mathematics, Science, and Social Science, the study reveals no significant differences in performance based on gender. This suggests a landscape where both male and female students achieve similar levels of success in these areas. Overall, the findings present a nuanced portrayal of academic performance, shedding light on the existing areas of equality and the distinct gender dynamics that permeate the educational landscape.

Conclusion

From an analytical perspective, with 41% of students performing below average, schools must implement remedial programs to address foundational skill gaps through personalized teaching strategies and additional instructional time. The overall academic performance highlights the need for evaluating and enhancing teaching methodologies, especially in English, Mathematics, Science, and Social Science, with professional development programs focusing on innovative, student-centered approaches. Targeted interventions are needed to support male students in English, where significant gender disparity exists, while gender-sensitive teaching practices can help bridge this gap. Although no gender-based differences were observed in Mathematics, Science, and Social Science, improved instructional techniques, including interactive and experiential learning, are essential to address low performance. Differentiated strategies, such as integrating technology and extracurricular activities, can further support students. Regular formative assessments and robust feedback systems are vital for continuous improvement. Lastly, district-wide initiatives and capacity-building workshops for teachers are necessary to standardize teaching quality and address underperformance and gender disparities effectively.

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