Exploring the Impact of Campus Natural Environment on Academic Performance and Mental Well-being: A Study on Students of Rajshahi College

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Abstract

This study investigates the influence of the natural environment at Rajshahi College on students' academic performance and mental wellbeing. Using a descriptive and quantitative research design, data were collected from 200 students via structured questionnaires. Results indicate that students perceive the campus's green spaces, trees, and open areas as highly beneficial for enhancing concentration, encouraging longer study hours, and reducing psychological stress. Key features such as shaded pathways and open fields were found to be mentally soothing. However, issues like noise pollution, waterlogging, and inadequate maintenance were noted as detractors. The findings align with established theories such as Attention Restoration Theory and Stress Recovery Theory. The study concludes that the natural environment plays a critical role in fostering positive educational and psychological outcomes and provides recommendations for campus improvements to maximize these benefits.

Keywords: College Campus, Mental Well-being, Natural Environment, Academic Result

Introduction

The physical environment of an educational institution is widely recognized as a critical factor influencing students' academic achievement, psychological well-being, and social engagement. A growing body of research highlights that exposure to green spaces enhances concentration, alleviates psychological stress, and fosters positive social interaction (Kaplan & Kaplan, 1989; Ulrich, 1984). Rajshahi College, one of the oldest and most prestigious higher educational institutions in Bangladesh, is distinguished by its rich natural surroundings. Despite this, there has been limited systematic inquiry into how this environment contributes to students' educational outcomes and mental health. This study seeks to fill this gap by examining the extent to which the natural environment of Rajshahi College supports students' academic performance and promotes their mental well-being.

Objectives

The overarching objective of this research is to examine the influence of Rajshahi College's natural environment on students' academic performance and mental well-being. The specific objectives are:

To identify and describe the key features of the natural environment at Rajshahi College.

- To assess the positive and negative impacts of this environment on students' academic engagement and outcomes.
- To investigate the contribution of the natural environment to students' mental health, with emphasis on stress reduction, improved concentration, and positive outlook.
- To explore students' perceptions and recommendations for improving the college's natural environment.

Statement of the Problem

Research consistently shows that natural surroundings reduce stress, enhance concentration, and support psychological health. Despite these benefits, the influence of campus natural environments remains underexplored in many developing countries, including Bangladesh. Rajshahi College possesses a rich natural environment, yet little empirical evidence exists regarding how these features affect students' learning outcomes and psychological well-being. At the same time, students often face academic pressure and mental health challenges, making this issue highly relevant. This study provides evidence-based insights to inform sustainable educational policies and practices.

Literature Review

Natural Environment and Education

Ulrich's (1984) Stress Recovery Theory posits that nature contact reduces mental stress, creating a favorable learning environment. Kaplan & Kaplan's (1989) Attention Restoration Theory argues that natural environments help restore focus, directly affecting academic performance. Empirical studies, such as those by Taylor et al. (2001) in the US and Wu et al. (2014) in China, corroborate that green settings enhance

focus and academic success. In Bangladesh, Rahman (2018) found that campus greenery at Dhaka University increased academic effectiveness and reduced study pressure.

Natural Environment and Mental Health

Pretty (2004) demonstrated that physical activities in green environments reduce mental stress and foster positive mental health. Hartig et al. (2014) noted the effectiveness of green environments in reducing student anxiety and depression. Nisbet & Zelenski (2011) found that connection with nature correlates with higher happiness and lower stress, while Evans (2003) linked urbanization and lack of nature to depression. In Bangladesh, Islam & Hossain (2020) confirmed the crucial role of the natural environment in reducing mental stress among university students.

Student Perceptions and Development

Keniger et al. (2013) argued that natural environments improve mental health and enhance social relationships. Students often view green campuses as "stress-free zones" that aid concentration. In Bangladesh, Ahmed et al. (2021) showed that students have a positive attitude toward environmental development, believing it improves educational quality and preserves mental health.

Methodology

Research Design

This study adopted a descriptive and quantitative research design with analytical elements. The descriptive method identified features of the natural environment and student perceptions, while the quantitative method measured its influence using numerical data. The

analytical approach interpreted findings in the context of existing literature.

Population and Sampling

The target population was undergraduate and postgraduate students of Rajshahi College. A convenience sampling method was used, surveying 200 students. The sample comprised mostly students aged 20-25 (94%), with 54% male and 46% female. The majority were Honors students (95.5%), and most spent 1-5 hours on campus daily (85%).

Data Collection and Analysis

Data was collected using structured questionnaires (physical and digital) with demographic sections, Likert-scale items, which were arranged on a five-point Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree), and open-ended questions. Secondary data came from books, journals, and reports. Data analysis involved descriptive statistics (frequencies, percentages, mean, standard deviation) via SPSS and thematic analysis for open-ended responses.

Results

Table 1

Demographic data

Particular		No. of Respondent (N=200)	Percentage (%)
Age of Respondents	17-19	4	2
	20-22	75	37.5
	23-25	112	56
	26-28	9	4.5
Gender	Male	108	54
	Female	92	46
Class of Respondents	Hons 1st Year	44	22
	Hons 2nd Year	40	20
	Hons 3rd Year	62	31
	Hons 4th Year	45	22.5
	Masters	9	4.5

Particular		No. of Respondent (N=200)	Percentage (%)
Duration of time in campus	1-3 Hours	80	40
	3-5 Hours	90	45
	Less than 1 hour	25	12.5
	More than 5 hours	5	2.5

The sample consisted of 200 students, with the majority aged 20-25 (93.5%) and enrolled in undergraduate programs (95.5%). The gender distribution was relatively even (54% male, 46% female). Most students (85%) reported spending 1 to 5 hours on campus per day.

Table 2

Descriptive Statistics for Campus Natural Environment

Item	Mean	Std. Deviation
I like the trees and green environment on campus.	4.53	.776
Open spaces and fields provide peace of mind.	4.42	.786
Adequate light and air increase attention in class.	4.29	.860
The noise pollution on campus disrupts my concentration.	3.08	1.615
The natural environment of the campus relieves me from fatigue.	4.32	.866
The shade of trees, open spaces, and walking paths are mentally soothing.	4.46	.722
Do you find the environment of Rajshahi College suitable for spending some time relaxing outside of studies?	4.20	.926
Valid N (listwise)		

Table 2 shows students held highly positive views of the campus environment. The highest ratings were for appreciation of trees and greenery (M=4.53) and the mental soothing effect of shaded areas (M=4.46). The lowest rating concerned noise pollution (M=3.08), indicating it is a neutral-to-moderate concern with considerable variation in student experiences.

Table 3

Descriptive Statistics for Academic Performance

Item	Mean	Std. Deviation
The campus environment makes me focus on class.	4.17	.894
The green and open environment encourages me to study longer.	4.15	.895
I feel comfortable studying in the campus environment outside of the classroom.	4.08	1.011
The campus environment has had a positive impact on my academic results.	3.88	1.176

Table 3 shows that students perceived the campus environment as beneficial for academic engagement, noting improved focus (M=4.17) and motivation to study longer (M=4.15). However, agreement was lower regarding a direct positive impact on academic results (M=3.88), suggesting students differentiate between the environment's effect on study habits and its direct effect on grades.

Table 4

Descriptive Statistics for Mental Wellbeing

Items	Mean	Std. Deviation
Green and natural environments help reduce stress.	4.31	.829
Being in nature reduces my anxiety/worries.	4.27	.872
I feel more positive when I spend time in natural surroundings.	4.35	.843
I feel mentally healthy when I am in contact with nature.	4.35	.750
The natural environment keeps me more active and energetic.	4.29	.798

Table 4 reveals strong consensus on the mental health benefits of the natural environment. Students reported feeling more positive (M=4.35) and mentally healthy (M=4.35) in nature and acknowledged its role in reducing stress (M=4.31) and anxiety (M=4.27).

Discussions

The findings confirm that the natural environment at Rajshahi College significantly supports both academic engagement and mental well-being, aligning with established theoretical frameworks.

Academic Engagement and the Natural Environment

Students reported that the green, peaceful campus helps maintain focus and encourages longer study periods, consistent with Kaplan & Kaplan's (1989) Attention Restoration Theory. The finding that students who spend more time on campus (3-5 hours daily) experience these benefits directly underscores the environment's role. This aligns with national research by Rahman (2018) and international studies like Taylor et al. (2001). The lower agreement on direct impact on academic results suggests other factors (e.g., teaching quality, curriculum) may be more directly tied to grades, though the environment provides essential foundational support.

Mental Wellbeing and the Natural Environment

The strong positive perceptions regarding stress reduction, positivity, and mental health directly reflect Ulrich's (1984) Stress Recovery Theory and are consistent with the work of Pretty (2004) and Islam & Hossain (2020). The campus serves as a therapeutic landscape, offering students a respite from academic pressures.

Limitations and Negative Impacts

Despite overall positive perceptions, students noted drawbacks such as waterlogging, inadequate maintenance, and insufficient rest areas. These issues, as Evans (2003) argued, can

create psychological discomfort and diminish the potential benefits, highlighting that the mere presence of nature is insufficient without proper upkeep.

Student Recommendations

Student suggestions for improvement, including planting more trees, improving drainage, creating rest areas, and ensuring cleanliness, are practical and align with the findings of Ahmed et al. (2021). These recommendations provide a clear roadmap for institutional action.

Conclusion

This study concludes that the natural environment of Rajshahi College is a vital asset that significantly enhances students' academic focus and mental wellbeing. The greenery, open spaces, and shaded pathways contribute to reduced stress, increased positivity, and improved concentration. However, to fully realize these benefits, infrastructural challenges such as waterlogging, noise pollution, and lack of maintenance must be addressed. By implementing the recommended improvements, the college can strengthen its role as a nurturing and effective educational space.

Recommendations

Based on the findings, the following recommendations are proposed:

- **Infrastructure and Greenery:** Increase tree planting in empty spaces and develop eco-friendly rest areas with shelters and seating.
- **Maintenance:** Implement regular cleaning schedules and improve the drainage system to address waterlogging.

- **Student Involvement:** Encourage student participation in environmental preservation and tree-planting initiatives.
- **Wellbeing Programs:** Introduce mental health support programs, such as counseling, yoga, and open-air cultural events, leveraging the natural setting.
- **Future Research:** Conduct longitudinal studies with larger, more diverse samples to deepen the understanding of the long-term impacts.

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