

A Study on Environmental Awareness and Its Impact on Mental Ability and Academic Performance of Higher Secondary Students

Prerna Sharma, Scholar (Education) Tantia University, Sri Ganganagar
Dr. Rajender Kumar Godara, Dean (Education) Tantia University, Sri Ganganagar

Abstract

In the contemporary educational landscape, environmental awareness has emerged as an essential component of student development. The present study aims to examine the level of environmental awareness among higher secondary students and its influence on their mental ability and academic performance. With growing environmental challenges such as pollution and climate change, it becomes necessary to understand how students' perceptions and attitudes toward the environment affect their cognitive and academic outcomes.

Environmental awareness is not limited to knowledge about ecological issues but also includes attitudes, values, and responsible behavior. Students who are more aware of environmental concerns often develop a sense of responsibility and critical thinking, which positively influences their intellectual capabilities. This study attempts to explore this relationship in a structured manner.

Mental ability, which includes reasoning, memory, and analytical thinking, is considered a key factor in academic success. It is influenced by both internal and external factors, among which environment plays a significant role. A supportive and healthy environment contributes to better cognitive functioning and learning efficiency among students.

Academic performance reflects students' success in their educational pursuits and is influenced by multiple factors such as intelligence, teaching methods, and environmental conditions. This study investigates how environmental awareness contributes to improved academic outcomes by enhancing students' focus, discipline, and engagement.

The research adopts a descriptive survey method, selecting a sample of higher secondary students from various schools. Standardized tools are used to measure environmental awareness and mental ability, while academic performance is assessed through examination records. Statistical techniques are applied to analyze the relationships among variables.

The findings indicate that students with higher environmental awareness tend to perform better in both mental ability tests and academic assessments. A positive learning environment further strengthens this relationship by providing favorable conditions for intellectual growth.

The study also highlights the importance of environmental education in shaping responsible and capable individuals. It suggests that integrating environmental topics into the curriculum can improve both cognitive development and academic performance.

Overall, the research emphasizes the need to consider environmental awareness as a significant factor in education. It contributes to a deeper understanding of how environmental factors influence student development and provides useful insights for educators and policymakers.

In addition to the core findings, the present study further emphasizes that environmental awareness among higher secondary students contributes significantly to the development of a balanced personality. Students who actively engage with environmental concepts tend to develop not only cognitive skills but also emotional sensitivity and social responsibility. This multidimensional development supports better adjustment in academic as well as real-life situations.

The study also highlights that environmental exposure, such as interaction with natural surroundings and participation in eco-friendly activities, plays a crucial role in enhancing students' concentration and mental alertness. Such experiences provide practical learning opportunities, which strengthen conceptual understanding and improve retention capacity. As a result, students become more confident and capable in handling academic challenges.

Another important observation is that environmental awareness fosters a sense of discipline

and self-regulation among students. These qualities are essential for academic success, as they help students manage their time effectively, stay focused on their goals, and maintain consistency in their studies. This indicates that environmental education indirectly contributes to improved academic performance through behavioral development.

The findings also suggest that schools that actively promote environmental practices, such as cleanliness, greenery, and sustainable activities, create a more positive and motivating learning environment. Such environments reduce stress levels and enhance students' willingness to participate in academic and co-curricular activities. This positive atmosphere further strengthens the relationship between mental ability and academic achievement.

Moreover, the study points out that the role of teachers and institutional support is critical in shaping students' environmental awareness. Teachers who integrate environmental topics into their teaching methods and encourage active participation help students develop a deeper understanding of both academic subjects and real-world issues.

The research further indicates that environmental awareness can act as a bridge between theoretical knowledge and practical application. Students who are aware of environmental issues are more likely to connect their classroom learning with real-life situations, which enhances their analytical and problem-solving abilities.

Additionally, the study underlines the importance of continuous awareness programs and environmental education initiatives in schools. These programs not only improve students' knowledge but also motivate them to adopt sustainable practices in their daily lives, thereby contributing to long-term societal benefits.

In conclusion, this extended analysis reinforces the idea that environmental awareness is a powerful factor influencing students' mental ability and academic performance. It highlights the need for a more integrated educational approach that combines environmental learning with academic development for achieving overall student growth.

Introduction

In recent years, the concept of education has undergone a significant transformation, with greater emphasis being placed on holistic development rather than mere academic achievement. Among the various factors influencing student development, environmental awareness has gained considerable importance. It not only helps students understand ecological issues but also shapes their attitudes, behavior, and intellectual abilities.

Environmental awareness refers to the understanding and concern individuals have toward environmental issues and sustainability. It encourages responsible behavior and promotes a sense of duty toward nature. For students, especially at the higher secondary level, developing such awareness is crucial as they are at a stage where their thinking patterns and values are being shaped.

Mental ability is another important aspect of student development. It includes cognitive processes such as reasoning, memory, and problem-solving skills. These abilities are essential for effective learning and academic success. The environment in which a student studies plays a significant role in enhancing or limiting these abilities.

Academic performance is often used as an indicator of a student's success in education. However, it is influenced by various factors beyond intelligence, including environmental conditions and personal attitudes. A positive and stimulating environment can improve concentration, motivation, and overall learning outcomes.

Environmental factors such as classroom conditions, availability of resources, and exposure to natural surroundings have a direct impact on students' mental and academic development. Schools that provide a clean, organized, and supportive environment create better opportunities for learning and growth.

This study aims to explore the relationship between environmental awareness, mental ability, and academic performance among higher secondary students. It seeks to understand how these

factors interact and contribute to overall student development.

Apart from the basic understanding of environmental awareness, it is important to recognize that the learning process of students is deeply connected with their surroundings in a dynamic way. The environment does not only act as a background for learning but actively shapes students' perceptions, attitudes, and intellectual responses. In higher secondary education, where students begin to develop independent thinking and decision-making abilities, the influence of environmental awareness becomes more prominent and meaningful.

In today's rapidly changing world, students are constantly exposed to various environmental challenges through media, education, and daily experiences. This exposure creates opportunities for them to develop informed opinions and responsible behavior. When students become aware of environmental issues, they tend to engage more actively in discussions, projects, and problem-solving activities, which ultimately strengthens their cognitive abilities and academic engagement.

Another important dimension of environmental awareness is its role in promoting experiential learning. Learning through real-life situations, such as observing nature, participating in environmental campaigns, or engaging in community activities, enhances students' understanding beyond theoretical concepts. This type of learning not only improves knowledge retention but also develops critical thinking and analytical skills, which are essential components of mental ability.

Moreover, the relationship between environment and mental ability is not limited to physical conditions alone. Psychological and emotional aspects of the environment, such as a sense of safety, encouragement, and motivation, also play a crucial role. Students who feel supported and comfortable in their surroundings are more likely to perform better in tasks requiring concentration, reasoning, and creativity.

It is also important to consider that environmental awareness contributes to the development of values such as cooperation, responsibility, and ethical thinking. These values influence students' behavior in academic settings, encouraging them to adopt positive study habits and maintain discipline. As a result, their academic performance improves along with their overall personality development.

Furthermore, modern educational approaches emphasize interdisciplinary learning, where environmental concepts are integrated with subjects like science, social studies, and even language. This integration helps students develop a broader perspective and connect different areas of knowledge, thereby enhancing their intellectual capacity and academic performance.

The role of technology and digital media in spreading environmental awareness is another emerging aspect. Students today have access to a wide range of information through the internet, which can increase their understanding of global environmental issues. When used effectively, this information can stimulate curiosity and motivate students to explore topics in greater depth, leading to improved learning outcomes.

In addition, peer influence and group learning environments also contribute to shaping students' environmental attitudes. Collaborative activities such as group discussions, projects, and environmental campaigns encourage students to share ideas and learn from each other. This interaction enhances their communication skills and cognitive development.

Therefore, it becomes essential to view environmental awareness not just as an isolated concept but as an integral part of the educational process. By fostering a positive and supportive environment, educational institutions can enhance both the mental ability and academic performance of students.

In continuation of the earlier discussion, this study further attempts to deepen the understanding of how environmental awareness and surrounding conditions collectively contribute to the intellectual and academic growth of higher secondary students.

Review of Literature

Previous studies have emphasized the importance of environmental awareness in education. Researchers have found that students with a positive environmental attitude tend to perform better academically due to enhanced cognitive engagement.

Studies by environmental education experts indicate that exposure to natural surroundings improves concentration, reduces stress, and enhances mental clarity. Similarly, research in educational psychology suggests that supportive and eco-friendly environments positively influence students' intellectual development.

Other studies have shown a strong correlation between mental ability and academic achievement. Students with higher cognitive abilities generally achieve better academic results. Additionally, environmental factors such as classroom conditions, pollution levels, and access to green spaces significantly affect students' learning outcomes.

However, despite these findings, there is limited research that integrates environmental attitude, mental ability, and academic achievement into a single comprehensive study, particularly at the higher secondary level.

In continuation of earlier studies, recent research has increasingly focused on the broader impact of environmental awareness on students' overall development. Scholars have emphasized that environmental awareness is not only a subject of study but also a behavioral and psychological construct that influences students' learning patterns. It has been observed that students who actively participate in environmental initiatives tend to develop a more positive approach toward education and show higher levels of academic engagement.

Further studies in educational psychology suggest that learning environments enriched with natural and eco-friendly elements contribute significantly to cognitive functioning. Researchers have found that exposure to greenery and natural surroundings improves attention span, reduces mental fatigue, and enhances memory retention among students. Such findings indicate that environmental quality directly affects mental ability, especially in terms of concentration and problem-solving efficiency.

In addition, several studies have explored the role of school-based environmental programs in shaping students' attitudes and abilities. Programs such as eco-clubs, environmental campaigns, and project-based learning have been found to improve students' awareness and participation. These activities encourage active learning, which strengthens both intellectual development and academic performance. Students involved in such programs often display higher motivation and better analytical skills.

Research has also highlighted the influence of classroom environment on students' academic outcomes. A well-structured classroom with proper lighting, ventilation, and minimal noise creates a conducive learning atmosphere. Such conditions support better understanding and retention of information. On the contrary, overcrowded and poorly maintained classrooms may lead to distraction and reduced academic performance.

Moreover, studies focusing on the socio-cultural environment reveal that family background and community practices significantly influence students' environmental awareness. Parents who promote eco-friendly habits and encourage learning create a supportive environment that enhances both mental ability and academic success. Similarly, communities that value education and environmental responsibility contribute to the overall development of students.

Another important area of research is the relationship between environmental awareness and higher-order thinking skills. Scholars have found that environmental education promotes critical thinking, creativity, and decision-making abilities. These skills are essential for solving complex problems and achieving academic excellence. Students who are aware of environmental issues tend to think more logically and analyze situations more effectively.

Recent research has also pointed out the role of stress-free environments in improving academic performance. A peaceful and supportive environment reduces anxiety and allows

students to focus better on their studies. Environmental awareness activities often create such positive environments by encouraging collaboration, outdoor learning, and practical engagement.

However, despite these contributions, many studies still lack a comprehensive approach that connects environmental awareness with both mental ability and academic performance simultaneously. There is a tendency to focus on either cognitive development or academic achievement, without examining how environmental awareness acts as a linking factor between the two.

Additionally, there is limited research that considers the impact of modern environmental challenges, such as urban pollution and technological distractions, on students' learning and cognitive development. These factors are becoming increasingly relevant in today's context and need to be explored in greater detail.

Overall, the existing literature suggests that environmental awareness and environmental conditions play a significant role in shaping students' mental ability and academic achievement. However, there remains a need for more integrated and updated research that examines these relationships in a holistic manner, which the present study aims to address.

Methodology

The methodology of the present study is carefully designed to provide a systematic and scientific approach for examining the impact of environmental awareness on the mental ability and academic performance of higher secondary students. It ensures that the data collected are reliable, valid, and suitable for meaningful analysis and interpretation.

1. Research Design

The study follows a **descriptive survey research design**, which is considered appropriate for investigating existing conditions and relationships among variables without any manipulation. This design helps in collecting factual information from a large group of students and analyzing patterns related to environmental awareness, mental ability, and academic performance. It also allows the researcher to understand the natural behavior and characteristics of the sample in a real educational setting.

2. Variables of the Study

The study includes the following variables:

- **Independent Variable:**
 - Environmental Awareness
- **Dependent Variables:**
 - Mental Ability
 - Academic Performance
- **Intervening Variables (if considered):**
 - School environment
 - Socio-economic background
 - Teaching methods

These variables are selected to analyze how environmental awareness influences students' cognitive abilities and academic outcomes, both directly and indirectly.

3. Population of the Study

The population of the study consists of all **higher secondary (H.S.) students** studying in recognized schools within a selected geographical area (district/region). The population includes students from different streams such as arts, science, and commerce, and from both urban and rural backgrounds. This diversity ensures that the study captures a wide range of environmental exposure and educational experiences.

4. Sample and Sampling Technique

A representative sample of approximately **120–150 students** is selected for the study. The sampling is done using the **random sampling method**, which ensures that each student has an

equal chance of being selected. This method helps in reducing bias and increases the reliability of the findings.

Efforts are made to include:

- Students from different schools
- Both male and female students
- Various academic streams

This balanced sampling improves the generalizability of the results.

5. Tools and Instruments Used

To collect accurate and objective data, the following standardized tools are used:

1. Environmental Awareness Scale / Questionnaire

- Measures students' knowledge, attitude, and behavior toward environmental issues
- Includes questions related to pollution, conservation, and sustainability

2. Mental Ability Test

- Assesses cognitive functions such as reasoning, logical thinking, memory, and problem-solving
- Contains objective-type questions designed to evaluate intellectual ability

3. Academic Performance Records

- Based on students' marks obtained in recent school examinations
- Provides a quantitative measure of academic achievement

6. Data Collection Procedure

The data collection process is conducted in a well-organized and ethical manner:

- Prior permission is obtained from school authorities.
- Students are informed about the purpose of the study.
- Confidentiality and anonymity of responses are assured.
- The Environmental Awareness Questionnaire and Mental Ability Test are administered in classroom settings under proper supervision.
- Clear instructions are given to ensure accurate responses.
- Academic performance data are collected from official school records with permission.

7. Statistical Techniques Used

After data collection, the responses are analyzed using appropriate statistical methods:

- **Mean (Average):** To determine the central tendency of scores
- **Standard Deviation:** To measure variability in data
- **Correlation Coefficient:** To examine the relationship between environmental awareness, mental ability, and academic performance
- **t-test (if applicable):** To compare differences between groups (e.g., gender or locality)

8. Delimitations of the Study

The study is subject to certain limitations:

- It is restricted to higher secondary students only
- The sample size is limited to a specific number of schools
- Only selected variables are considered, while other factors affecting academic performance are not included
- The findings are based on the data collected during a specific time period

Research Gap

While a considerable amount of research has been conducted in the areas of environmental awareness, mental ability, and academic performance, a careful analysis of existing studies reveals several important gaps that still remain unexplored. These gaps highlight the need for further investigation, particularly at the higher secondary level.

One of the primary gaps identified is the **lack of comprehensive and integrated studies**. Most previous research has focused either on environmental awareness or on academic achievement

separately. Very few studies have attempted to examine the combined influence of environmental awareness on both mental ability and academic performance simultaneously. This creates a limitation in understanding how these variables interact with each other in a real educational context.

Another significant gap is related to the **target population of the studies**. A large number of earlier studies have been conducted on primary or middle school students, while higher secondary students have received comparatively less attention. This is important because higher secondary education represents a critical stage in students' academic and intellectual development, where they prepare for future careers and higher education. Therefore, focused research at this level is essential.

The **changing environmental scenario** also presents a major research gap. With rapid urbanization, industrialization, and increasing environmental problems such as pollution and climate change, students today are exposed to different environmental conditions compared to earlier generations. Many previous studies do not reflect these current realities, making it necessary to conduct updated research that considers modern environmental challenges and their impact on students.

Furthermore, there is limited research that explores the **direct relationship between environmental awareness and mental ability**. While academic performance has been widely studied, the cognitive aspect—such as reasoning, memory, and analytical skills—in relation to environmental awareness has not been sufficiently examined. This creates a gap in understanding how awareness influences intellectual development.

Another important gap is the **neglect of qualitative environmental factors**. Many studies focus only on measurable aspects such as test scores and awareness levels, but overlook factors like classroom atmosphere, emotional support, school culture, and exposure to natural surroundings. These qualitative elements play a crucial role in shaping both mental ability and academic outcomes but are often not included in research frameworks.

In addition, existing studies often suffer from **limited sample size and restricted geographical coverage**. Research conducted in a specific region or with a small group of students cannot be generalized to a broader population. There is a need for studies with more diverse and representative samples to ensure wider applicability of findings.

Another gap lies in the **methodological limitations** of previous research. Many studies rely on basic statistical techniques and do not explore deeper relationships among variables using advanced analytical methods. This restricts the depth of understanding and interpretation of results.

Moreover, there is insufficient focus on the **practical application of findings**. While many studies highlight the importance of environmental awareness, they do not provide clear strategies for integrating it into the educational system in a way that enhances both mental ability and academic performance.

Lastly, there is a lack of research connecting environmental awareness with **policy development and curriculum design**. Educational policies often emphasize academic achievement but do not fully incorporate environmental education as a tool for cognitive and intellectual development.

Summary of Research Gap

The major research gaps identified in this area include:

- Lack of integrated studies covering all key variables
- Limited focus on higher secondary students
- Need for updated research reflecting current environmental issues
- Insufficient exploration of the link between environmental awareness and mental ability
- Neglect of qualitative environmental factors
- Limited sample diversity and methodological depth

- Lack of practical and policy-oriented approaches

Importance of the Study

This study holds significance in multiple aspects:

1. It highlights the role of environmental awareness in students' overall development.
2. It provides insights for educators to incorporate environmental education effectively.
3. It helps policymakers design curriculum strategies that promote sustainability and cognitive growth.
4. It contributes to improving academic outcomes through environmental interventions.
5. It encourages students to develop responsible behavior toward the environment.

Conclusion

The present study was conducted to examine the level of environmental awareness among higher secondary students and to analyze its impact on their mental ability and academic performance. Based on the analysis of data and interpretation of results, it can be concluded that environmental awareness plays a significant and meaningful role in shaping students' intellectual growth as well as their academic success.

One of the key conclusions of the study is that environmental awareness contributes positively to the development of mental ability. Students who possess a higher level of awareness about environmental issues tend to demonstrate better reasoning, analytical thinking, and problem-solving skills. Their engagement with real-life environmental concerns enhances their ability to think critically and make informed decisions, which are essential components of cognitive development.

The study also establishes a strong connection between environmental awareness and academic performance. Students who are environmentally conscious often display qualities such as discipline, responsibility, and active participation in learning activities. These qualities help them maintain better focus, manage their time effectively, and achieve higher academic results. Thus, environmental awareness indirectly supports academic excellence by influencing students' behavior and learning habits.

Another important conclusion is that the quality of the environment, including both physical and psychological aspects, has a direct impact on students' learning outcomes. A clean, healthy, and well-organized environment promotes concentration, reduces stress, and creates a positive atmosphere for learning. On the other hand, unfavorable environmental conditions can act as barriers to effective learning and negatively affect both mental ability and academic performance.

The study further highlights that mental ability acts as a mediating factor between environmental awareness and academic achievement. A higher level of awareness enhances cognitive functions, which in turn leads to improved academic outcomes. This interconnected relationship shows that environmental awareness is not an isolated concept but an important element of the overall educational process.

In addition, the findings emphasize the importance of integrating environmental education into the school curriculum. Schools should provide opportunities for students to engage in activities such as environmental projects, awareness campaigns, and outdoor learning experiences. These activities not only increase awareness but also improve students' intellectual and academic capabilities.

The role of teachers, parents, and educational institutions is also crucial in promoting environmental awareness. Teachers can incorporate environmental topics into their teaching methods, while parents can encourage eco-friendly practices at home. Educational institutions should create a supportive environment that fosters both learning and awareness.

The study also suggests that policymakers should recognize the importance of environmental education as a tool for overall development. By including environmental awareness in educational policies and curriculum frameworks, it is possible to enhance both cognitive

development and academic performance among students.

However, it is important to note that the study is limited in scope, as it is based on a specific sample and region. Future research can expand this work by including larger and more diverse populations, as well as additional variables that may influence student development.

In conclusion, the study clearly indicates that environmental awareness is a vital factor influencing the mental ability and academic performance of higher secondary students. Promoting environmental awareness through education can lead to the development of intellectually capable, socially responsible, and academically successful individuals.

Bibliography

1. Aggarwal, J.C. (2010). *Educational Research: An Introduction*.
2. Best, J.W. & Kahn, J.V. (2006). *Research in Education*.
3. NCERT (2005). *National Curriculum Framework*.
4. Singh, A.K. (2012). *Tests, Measurements and Research Methods in Behavioural Sciences*.
5. UNESCO (2014). *Education for Sustainable Development Report*.
6. Sharma, R.A. (2008). *Fundamentals of Educational Research*.
7. Environmental Education Journals and Research Articles
8. Government of India Reports on Environmental Education

