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## THE ROLE OF ENVIRONMENTAL AND GEOGRAPHICAL FACTORS IN THE EDUCATION PROCESS

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### ABSTRACT

Throughout history, humans have learned and acquired knowledge from their surroundings. The importance of a suitable and standardized educational environment for effective learning and teaching is widely acknowledged. The educational environment significantly affects students' learning processes, necessitating a thorough understanding of the environmental and geographical factors that impact it. This Research aims to investigate the role of environmental and geographical factors in the educational process. It seeks to explore how these factors influence learning outcomes and analyze the factors contributing to the creation of optimal educational spaces. The research employs a comprehensive methodology to examine the impact of environmental and geographical factors on the educational process. It focuses on studying children's behavioral patterns in educational environments, with particular attention to elements such as classroom size and lighting. The research findings highlight the significance of environmental and geographical factors in shaping the learning process. Specifically, factors like classroom size and lighting have been identified as crucial elements that enhance learning outcomes. The study emphasizes the importance of creating educational environments that cater to learners' needs. By considering environmental and geographical factors, such as classroom size and lighting, educators can design optimal learning spaces. The findings underscore the necessity of improving the structure of education to foster the physical, mental, emotional, and social development of students.

**Keywords:** environment, education, school, teacher, geography, university.

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### INTRODUCTION

Enhancing environmental awareness and promoting sustainable practices is crucial for addressing the challenges faced by educational organizations. Education plays a fundamental role in shaping the social and cultural future of individuals and societies, necessitating the provision of appropriate resources and infrastructure to facilitate the education process and create a positive impact on societies (Prainsack & Buyx, 2018). Understanding the influence of environmental and geographical factors on education is essential for optimizing the educational process and improving learners' performance (Malinen et al., 2013).

Various environmental and geographical factors can significantly impact the education system. The availability of educational facilities and equipment in a learning environment can enhance the ability to learn and positively affect learners' performance (Jamieson et al., 2006). Moreover, the geographical location of an individual's place of residence can influence their access to schools and educational resources, posing challenges for those living in rural and remote areas (Mahdavi Ardestani et al., 2023).

Cultural diversity is another factor that affects the education process. Environments with high cultural diversity can present challenges in interpersonal and cross-cultural communication, thereby impacting the learning process (Liu et al., 2022). Additionally, the natural environment of an area can influence educational programs, with rural and mountainous areas facing unique challenges related to accessing educational resources and transportation (Mustafa et al., 2018). Weather conditions, such as extreme temperatures or inclement weather, can also directly impact education by affecting factors like ventilation, heating, or cooling systems in schools, ultimately influencing students' academic performance (Dakhili et al., 2019).

Furthermore, economic factors play a significant role in education. Limited resources and lack of access to books, educational tools, and modern technology can hinder learners from enjoying equitable educational opportunities (Hughes et al., 2022). The combined effects of these environmental and geographical factors can have both direct and indirect impacts on the education process (De Longueville et al., 2019).

To address the challenges posed by these factors, it is crucial to design appropriate educational environments that consider the unique needs of different regions. By providing equitable educational opportunities for all learners, the quality of education can be enhanced, and learner performance can be improved. This research aims to investigate the role of environmental and geographical factors in the educational process, to identify strategies to optimize educational environments, and promote effective learning outcomes (Grassini, 2023).

The research novelty lies in its comprehensive examination of the multifaceted influence of environmental and geographical factors on the education process. By addressing the existing gap in the literature, this study aims to contribute to the understanding of how these factors impact education and provide insights into designing optimal educational environments.

The scope of this research encompasses an analysis of various environmental and geographical factors, including resources, infrastructure, cultural diversity, natural environment, weather conditions, and economic factors. By addressing these factors, this study aims to highlight their significance and provide recommendations to improve the education process. This introduction establishes the importance of understanding environmental and geographical factors in education. It highlights the need for optimized educational environments and equitable educational opportunities for all learners. By addressing the research gap and providing novel insights, this study aims to contribute to the enhancement of the education system.

## **METHOD**

This research is conducted using a descriptive-analytical method, specifically a literature review approach. The aim of this study is to utilize recent articles and sources in order to summarize the findings. The findings are based on the experiences of others, as mentioned in various articles. The focus of this research is to provide a concise overview of the role of geographical factors in education. The relevant points are summarized in the findings section. The novelty of this research lies in its exploration of the positive and negative impact of geographical and physical environments on the education and development of students. This research aims to assist teachers and university professors in selecting an appropriate environment for effective instruction.

## **RESULT AND DISCUSSION**

### **Components of Educational Geographic Environment**

This article discusses the effectiveness of physical factors on teachers and students in the school environment. Factors such as temperature, light, air quality, and excessive noise negatively affect concentration, mood, well-being, health, attendance, and success (Higgins et al., 2005), (Edgerton & McKechnie, 2023). Many studies have been conducted regarding the effect of physical factors in educational spaces on learners' attendance, absence, and well-being (Earthman, 2004). The best guidelines for designing educational environments emphasize the influence of specific elements of spatial quality and physical factors (including space, light, color, sound, materials, etc.) on student progress and learning (Berris & Miller, 2011).

Based on research on vertical space, such as height, studies have shown that low ceilings harm children's cooperative performance and sense of participation. On the other hand, high ceilings promote diverse experiences and social information exchange (Dai et al., 2022). The lighting should be suitable for the intended activity, and the space should provide both natural and artificial light to accommodate different tasks and needs. Color can also create a sense of place, exchange information, and create spatial orientation cues (Willard et al., 2008).

#### **The light**

The type of interior lighting and the intensity of the light are also essential and depend on the color. Research shows that the visual environment significantly impacts the learner's ability to comprehend visual stimuli. Also, lighting conditions can affect a person's mental attitude and performance (Peng et al., 2022). According to studies, lighting conditions that harm mental attitude and performance can weaken performance. In contrast, lighting conditions with a positive effect can improve performance (Higgins et al., 2005). Having natural daylight in the classrooms is vital for students' learning processes. Natural light and windows on both sides of the classroom provide the opportunity to see outside the classroom walls and give the eyes a chance to rest (Nolé et al., 2021). However, it is necessary to be careful that the light should not be dazzling, and the reflection of the light should not bother the users' eyes.

#### **Color**

Color is an essential factor in both physical and virtual learning environments, as it significantly impacts the success of learners and the performance of teachers and staff. When discussing color in schools and educational spaces, choosing color is essential from a functional and aesthetic perspective (Sarkio et al., 2023). Research shows that vibrant colors are more suitable for young learners, while muted colors are more appropriate for teenagers. Research in the field of color psychology and its effects yields contradictory results. Therefore, further studies in this area are recommended (Higgins et al., 2005). For example, research has shown that the color of classroom walls can affect efficiency and accuracy. Experiments have shown that fewer errors occur in classrooms painted with the student's preferred color, and the time to complete tasks changes imperceptibly.

Therefore, it is essential for schools to carefully select the colors of spaces and educational equipment, considering the heightened sensitivity of children and teenagers (Siebelink et al., 2017).

### **Heat**

Providing thermal comfort as a physical and mental necessity is crucial in educational environments. This field has also attracted much research (Kim & Brown, 2022). In this regard, (Earthman, 2004) identified the amount of heat, heating, and air quality as crucial factors for learners' success. Two separate studies have also highlighted the significance of these factors. A report discussing the specific requirements of American schools (Jamieson et al., 2000) also highlighted the beneficial impact of these factors on students' Behavior and performance (Higgins et al., 2005). Therefore, heat, the heating system, and air quality are essential components in the school's physical environment, which significantly impact students' success (Earthman, 2004).

### **Materials and Textures**

Providing diversity in textures and materials in educational environments is crucial and essential. When selecting materials, it is vital to consider the location of use and the environmental conditions in which the activities will take place (Chen et al., 2020). Soft textures are highly desirable, especially in areas intended for peace, quiet, or rest. On the other hand, hard surfaces are suitable for areas where learners engage in numerous activities, as they are less likely to deteriorate over time (Van der Linden et al., 2017). The use of soft textures and natural, diverse, and aesthetically pleasing materials helps students to relax and is appealing to them. For example, using wood creates a calm and pleasant environment for learners. In contrast, stone, brick, and soft coverings with vibrant colors create a unique attraction for them.

According to Edward, factors such as color, softness, roughness of surfaces, and other decorative elements significantly impact the performance of educational environments and the emotions and moods of learners. A small change in these factors can enhance educational environments, making them more appealing and desirable.

### **Spatial Organization and Arrangement**

One of the essential aspects of educational environments is the arrangement of students' desks and chairs, as it can have an impact. The research conducted by Vidal and his colleagues demonstrated that the arrangement of chairs and tables significantly impacts learners' accuracy and success. Additionally, these changes increase learners' participation in class discussions and questions (Bell & Foiret, 2020). Managing the arrangement of rooms is especially important due to their different purposes. Likewise, flexibility in classroom space design has also been emphasized as an essential factor in improving the quality of education. Parents play an essential role in assessing the atmosphere and emotions within it. Research shows that large spaces can allow learners to work individually and reduce noise (Tafjord, 2021). This suggests that flexibility in physical space can lead to positive interactions between teachers and learners (Higgins et al., 2005).

It is essential to consider different layouts and arrangements of educational environments flexibly to align with various learning goals and needs.

### **Proportions and scale**

Suppose the size of the space and its elements are suitable for the learners. In that case, they can efficiently utilize the spaces and equipment that are relevant to them. For example, the research conducted by Arntzen and Evans in 1984 demonstrated that classrooms with high ceilings may harm teachers' and students' intelligence and alertness (Gitschthaler et al., 2022). Furthermore, the height of the ceiling is a significant factor in determining teachers' satisfaction with the classroom. Due to

the variation in size among school students, it is essential to consider the suitability of furniture concerning the size of children. Green space and integrating the natural environment inside and outside of schools are among the most influential factors in improving student conditions and enhancing the school environment (Jin & Peng, 2022). Measures have already been taken in this direction, and it is essential to continue these efforts. Research shows that besides the positive spiritual and mental effects on students, the experience of growing plants and taking care of the soil can significantly benefit students' future lives. In this regard, it is crucial to integrate the external natural environment with the internal environment. With simple measures such as optimizing sun orientation, utilizing natural light to conserve energy, ensuring proper ventilation, and facilitating effective communication between indoor and outdoor spaces, the educational environment can foster green, healthy, and natural spaces (Andalib et al., 2022).

### **Physical Factors Affecting Learning**

The physical factors related to educational environments and their impact on learning are categorized and explained in the following sections (Jin & Peng, 2022).

1. Light and its related factors include the amount, intensity, and natural or artificial light.
2. The overall dimensions of the classroom, including the walls, doors, and floors, in terms of area and space per person.
3. Color and Its Effect on Education and Educational Environments.
4. Heating and ventilation of the workshop.
5. The voice and factors related to the organization and arrangement of the guild.

Continuing the previous material, these factors and their influence on the teaching-learning process were investigated.

Light and its related variables in the learning process. 83% of learning takes place through the sense of sight. Of course, we must remember that the amount of light needed varies depending on the activity (Dillon, 2001). The classroom is illuminated by natural light from windows, vents, and other sources. Therefore, the surfaces of the walls and ceiling of the classroom should be light in color, while the floor should be dark (Berris & Miller, 2011). A rectangular shape with a trapezoidal area is the most suitable design for the classroom layout. Therefore, when choosing a location for the class, it is essential to consider the class size and the number of students. C - Color and Its Effect on Education and Educational Environments

As an inseparable element of architecture, color significantly influences the spirit and Behavior of the occupants of spaces and buildings, impacting their psychological and emotional state (Cho & Suh, 2020). Humans observe the surrounding phenomena through color and react to them. These colors have a significant effect on controlling emotions and promoting mental well-being. In addition to creating a calming environment, they also help reduce potential student accidents. Warm colors, such as red, orange, and yellow, should be used in hallways, sports facilities, and dining areas (Schleifer & Tamir, 2023). The school provides an environment for developing students' talents and self-awareness. As students have diverse interests and talents, the educational environment should be designed to foster these talents and uphold the true essence of education.

Environmental and geographical factors in education play a significant role in shaping the teaching and learning process. Below, we will outline some of the roles and effects of these factors (Cavanagh et al., 2023). The Effect of the Physical Environment: Educational environments, such as

schools, universities, classrooms, and laboratories, can have a significant impact on learning and the overall educational experience (Jin & Peng, 2022). For example, calm and pleasant environments can help learners to focus and learn better. The Influence of Geographical Location: The location of schools and educational institutions also plays a vital role in learners' and educators' access to educational environments. Environmental resources such as nature, gardens, farmland, and natural areas can help create unique learning experiences. The influence of culture and local communities: The culture and values of local communities also play a role in shaping educational programs. Adapting educational programs to the culture and needs of the local community can foster a stronger connection between learners and the educational environment (Van Eck et al., 2021).

The geographic diversity of different regions plays a vital role in determining the opportunities and challenges in teaching and learning. Educational programs should be designed according to the needs and conditions of different regions to enhance the quality of education and create optimal learning experiences (Owens et al., 2019).

The environment, as mentioned, refers to the living space of humans or, in other words, the physical space surrounding human beings. From the obtained data, several issues related to the quality of educational buildings have emerged, focusing on the interaction between the environment and the building's users (Appolloni et al., 2020). In this context, the following physical components were mentioned: light, color, sound and acoustics, heat, materials and texture, spatial organization, arrangement, proportions, scale, green space, and integration of the natural environment indoors and outdoors. Therefore, physical components in an educational environment are powerful tools that can indirectly and imperceptibly affect the Behavior of learners, teachers, administrators, and other employees (Levandoski & Zannin, 2022).

Therefore, particular importance is given to designing educational spaces to facilitate critical thinking and active learning. The educational environment should be designed to generate greater interest and motivation in learners compared to other environments.

## **CONCLUSION**

This Research highlights the significance of environmental and geographical factors in the educational process. It emphasizes that the learning environment plays a crucial role in fostering learners' interest and engagement in education. Factors such as the physical environment, geographical location, infrastructure, natural resources, culture, local communities, and geographic diversity all contribute to shaping the teaching and learning experience.

The findings of this study indicate that learners' interest in education and their motivation to learn can be influenced by the alignment of the learning environment with their expectations. Factors such as the shape and layout of classrooms, lighting, ventilation, educational facilities, interior decoration, and other environmental elements are essential in creating interest and motivation among learners. Therefore, it is crucial to establish suitable and standardized environments to facilitate effective learning.

It is recommended that educational environments be designed to foster critical thinking and active learning, considering the relationship between the environment and human behavior. This can be achieved by paying attention to factors such as classroom design, lighting, ventilation, accessibility, infrastructure, and cultural diversity. The role of school administrators and teachers in

shaping the environment is highlighted as crucial, as they have the opportunity to create an environment that supports learners' interest and satisfaction.

While this study provides valuable insights into the role of environmental and geographical factors in education, there is a need for further research in specific areas where the impact of these factors is not yet well understood. Future research should focus on exploring the specific mechanisms through which environmental and geographical factors influence the educational process and identifying strategies to optimize educational environments accordingly.

It is important to acknowledge the limitations of the current study. For example, the research may have been limited in terms of sample size or geographical scope. Additionally, the findings may be influenced by various contextual factors specific to the study's settings. Future research should aim to address these limitations and conduct more extensive investigations to enhance our understanding of the complex relationship between environmental and geographical factors and education. This Research underscores the importance of environmental and geographical factors in education. By considering these factors and designing suitable educational environments, we can foster learners' interest, engagement, and satisfaction in the educational process, ultimately leading to improved learning outcomes.

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