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The Role of Environmental and Geographical Factors in the Education Process

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ABSTRACT
In the course of human history, continuous learning has been a vital component of societal development, underscoring the crucial role of a standardized educational environment. The academic setting significantly molds students' learning experiences, necessitating a profound comprehension by teaching staff of environmental factors influencing this process. This article aims to investigate the impact of environmental and geographical factors on the educational process, exploring how these elements shape educational environments and conditions. The research employs a comprehensive approach, delving into the diverse characteristics of environmental elements and their role in creating meaning within learning spaces. The study also analyzes key factors such as classroom size and lighting, recognized for their critical impact on optimizing learning environments. Findings offer valuable insights into the influence of environmental and geographical factors on education, unveiling crucial contributing elements to the creation of optimal educational spaces. The study's outcomes provide a foundation for improving educational structures and enhancing learning experiences by emphasizing the need for tailored learning environments aligned with children's behavioral patterns.

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INTRODUCTION

enhancing environmental awareness and promoting sustainable practices can help improve this situation. As one of the fundamental institutions in every society, the education organization plays a crucial role in shaping the social and cultural future of individuals and societies (Prainsack & Buyx, 2018). This importance and fundamental role of education in societies requires the provision of appropriate resources and infrastructure to facilitate the education process entirely and without any new problems and to create a positive impact on societies. The role of the environment and geographical factors in education is considered necessary in influencing the educational process and learners' performance. Also, environments that need more educational facilities and equipment can help the ability to learn and positively impact learners' performance. The geographical factors of the place of residence also influence education. Rural and remote areas may face challenges in accessing schools and educational resources, which can negatively impact their education (Mahdavi Ardestani et al., 2023).

Cultural diversity: Environments with high cultural diversity can present challenges in the education process. Cultural differences may cause problems in interpersonal and cross-cultural communication, which can consequently impact the learning process (Liu et al., 2022).

The natural environment of the area may impact the educational programs. In rural and mountainous regions, learners may encounter challenges related to accessing educational resources and transportation (Shim et al., 2018). These issues can have a significant impact on various aspects of education. Weather: Weather conditions can have a direct effect on education. Schools may

encounter challenges in ensuring proper ventilation, heating, or cooling systems in regions with extreme and inhospitable weather conditions, such as hot and arid or cold and snowy areas. These issues can impact students' academic performance (Banda et al., 2023).

Economic factors can also play an essential role in education. The inability to provide books, educational tools, and modern technology can hinder learners from enjoying balanced educational opportunities. Environmental and geographical factors can have direct and indirect effects on the education process (Xu et al., 2024). Designing appropriate educational environments, considering the needs of different regions, and providing equitable educational opportunities for all learners can effectively enhance the quality of education and improve learner performance (Hughes et al., 2022).

The role of higher education is essential for providing future professionals with the necessary profiles to respond to the sustainability challenges in increasingly complex and global contexts. For that reason, the aim of (Eizaguirre et. al., 2019) is to determine which are the sustainability core competencies, considering three different geographical regions (Europe, Latin America, and Central Asia), and the perspective of four different stakeholders (graduates, employers, students and academics). The aim of (Szubert et. al., 2019) is to examine if the negative image of the Conurbation is grounded by the textbooks for geography for secondary schools in Poland. The results prove the role of the textbooks and the whole school education as factors shaping the image of particular places that people have also as adults. (Roszkiewicz et. al., 2019) attempt to summarize recent data regarding environmental factors, together with epigenetic markers and processes playing an important role in psoriasis. The correlation between pathogenesis of psoriasis and environmental risk factors, together with epigenetic alternations still require more investigation. The elaboration of environmental sustainability indexes (ESI) aims to describe the complexity between social, environmental and ecological health. These indexes play a crucial role by helping stakeholders during the decision-making process and by identifying possible sites that require practical sustainable actions. In this aim of (Couto et. al., 2020) to elaborate an ESI for hydrographic basins. It should involve knowledge about education for responsible consumption in order to care for the environment both individually and socially. Considering this, the purpose of (Estrada-Vidal et. al., 2020) is to find out whether there are differences in the level of awareness and the habits of future teachers of Early Childhood and Primary Education regarding sustainable social responsibility. They consider education to be the main factor for sustainability, while society is ranked as the least important, observing an evident disagreement in relation to environmental and economic factors (perception of collective responsibility; Early Childhood versus Primary Education students). The geographically weighted regression analysis shows that the economic development level, medical conditions, demographic structure, natural environment, and city attributes all affect the distribution of life expectancy, but that their effects have significant spatial heterogeneity (Huang et. al., 2020). For the eastern developed areas, special attention should be paid to environmental protection in the economic process, while striving to achieve high-quality development. (Thompson et. al., 2021) present an analytical framework theorising how geographical variations in (1) institutional frameworks, and (2) actor capabilities, dictate which institutions actors attempt to change. (Thompson et. al., 2021) show institutional change to be a geographical and contextual process that requires actors to match the right types of institutional work, with the right mechanism of institutional change, and a suitable target institution if they are to be successful in effecting change. Improving fertilizer use efficiency (FUE) is an effective means to reduce fertilizer use and environmental contamination. (Bai et. al., 2021) discuss the spatial distribution and characteristics. Many educational institutions have instructed their students through remote learning technologies to face the effect of local closures and promote the continuity of the education process. (Abumalloh et. al., 2021) examine how push, pull, and

mooring variables impact learners to switch to virtual and remote educational laboratories. In developed countries education has not played a prominent role in the design of risk prevention policies. The aim of (Morote et. al., 2022) was to identify the principal deficiencies that characterise the study of natural risks in non-university education and then to propose didactic activities for improving the teaching of the main processes associated with climate change (episodes of intense rains and droughts) that already affect the Spanish Mediterranean region.

METHOD

This research article uses reliable sources and quantitative and qualitative research methods to accurately examine the role of environmental and geographical factors in the education process. In the quantitative research method, researchers have utilized standard questionnaires and appropriate scales to analyze the experiences of individuals about the impact of environmental and geographical factors. Statistical analysis was conducted, and the data was carefully interpreted according to valid criteria. The qualitative research method has also been utilized to enhance the level of detail and depth in the research. Content analysis has been applied to books, scientific articles, and specialized resources related to the subject. This analysis has enabled the examination of patterns, concentrations, and effects of various environmental and geographical factors in education and training. In addition, in-depth interviews were conducted with specialists and experts to gather their opinions and insights in this field. For the information-gathering stage, library sources and scientific articles from reputable sources in education and geography have been utilized. The selection of sources has been carried out carefully, considering the significance of the research topic and the information required for a more precise interpretation of the results. By combining quantitative and qualitative research methods, researchers have comprehensively analyzed the role of environmental and geographical factors in the education process. The research results have been explained reliably and accurately.

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 (Edgerton & McKechnie, 2023). Many studies have been conducted regarding the effect of physical factors in educational spaces on learners' attendance, absence, and well-being. 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 (Altomonte et al., 2020).

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, information exchange, and spatial orientation cues.

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, while lighting conditions with a positive effect can improve performance. 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, and therefore, further studies in this area are recommended. 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 highlighted the beneficial impact of these factors on students' behavior and performance. Therefore, heat, the heating system, and air quality are essential components in the school's physical environment, which significantly impact students' success.

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, while stone, brick, and soft coverings with vibrant colors create a unique attraction for them (Fribus et al., 2024).

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

Proportions and scale

If the space size and its elements are suitable for the learners, 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. 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. 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.

Discussion

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, giving particular importance to the design of educational spaces facilitates critical thinking and active learning. The educational environment should be designed to generate greater interest and motivation in learners compared to other environments.

CONCLUSION

In this article, we have found that the foundation of every learner's interest in education and being in a school environment is established. If the environment does not align with the individual's expectations, it can create a feeling of repulsion and a lack of interest in learning for the learner. The shape and layout of classrooms, color, lighting, ventilation, educational facilities, interior decoration, and all other factors are effective in teaching and creating interest and motivation in learners. Therefore, with these interpretations, to facilitate effective learning, we must first establish a suitable and standardized environment.

This article focuses on the role of environmental and geographical factors in the educational process. It emphasizes that the learning environment is crucial for fostering learners' interest and engagement in education. Factors such as the physical environment (including classroom layout, lighting, and ventilation), geographical location (including accessibility), geographic infrastructure (including facilities and transportation), natural resources (utilizing the local environment), culture, local communities (adapting to local needs), and geographic diversity (tailoring education to different regions) all play significant roles in shaping the teaching and learning experience. The article suggests that paying attention to the relationship between the environment and human behavior is essential, especially in educational settings. It is recommended to design educational environments that foster critical thinking and active learning, ultimately creating interest and satisfaction among learners. The role of school administrators and teachers in shaping the environment is highlighted as crucial.

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