

Parental involvement and natural education environment

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Received: 5 January 2024

Available Online: 2 March 2024

Revised: 1 February 2024

DOI: 10.5861/ijrse.2024.24610

Accepted: 10 February 2024



ISSN: 2243-7703
Online ISSN: 2243-7711

OPEN ACCESS

Abstract

This study investigates the relationship between the natural environment, learning efficiency, and demographic factors among participants in an educational context. The primary objective is to discern the influence of the natural environment on learning efficiency and to analyze how demographic variables shape these perceptions. The study employs a quantitative analysis of survey data. The sample comprises 350 participants, predominantly parents, females, aged 36 to 45, and possessing a college degree. The study reveals that the majority of respondents, particularly parents, females, and individuals with a college degree, exhibit more favorable assessments of the natural environment. Academic and physical dimensions receive the highest mean scores, indicating robust positive perceptions. However, the social dimension, while still in the realm of agreement, scores lower, suggesting areas for improvement in fostering positive social interactions. Similarly, the cognitive and emotional dimensions of learning efficiency receive positive evaluations, with the social and emotional dimensions indicating potential areas for enhancement. Significantly, there is a moderate direct correlation between the natural environment and learning efficiency. It underscores the importance of creating and maintaining positive learning environments to improve overall educational outcomes. The study contributes to professional practice by guiding educators and administrators in developing targeted strategies for enhancing the learning experience. Recommendations include fostering social interactions, implementing social-emotional learning initiatives, and optimizing natural surroundings. Theoretical implications center on the importance of considering demographic variables in understanding perceptions, while managerial implications emphasize the need for continuous improvement and collaborative communication between stakeholders. Scholars and practitioners can draw insights from the study to inform evidence-based educational practices and policies, promoting a more effective and inclusive learning environment.

Keywords: natural environment, learning efficiency, parents, educators

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1. Introduction

In modern society, with the acceleration of urbanization and the development of science and technology, children have less and less contact with nature, and the impact of the natural environment on them is gradually weakening. This leads to insufficient knowledge and understanding of nature and weak educational value of environmental protection awareness. Natural environment education is an important part of kindergarten education. Through personal experience of the natural environment, it helps children develop the habit of loving and cherishing nature and promotes their all-round development. The active participation of parents plays an important role in promoting children's natural environment education. This article will explore the importance of parents' participation in natural environment education and how to guide parents' participation reasonably and effectively. Provide parents with more educational theory and practical experience, and contribute to family education and the all-round development of children.

Nature education develops rapidly but is unstable. It lacks the guidance of system theory, has no clear definition of concepts, and has not formed clear certainty. The subject system is confused with concepts such as environmental education, popular science education, and scientific research and tourism. Yan Shuangying has affected the quality of nature education. high level of development. Therefore, nature education has great research value and research potential. The study will explore the concept and connotation of parents' participation in nature education. By defining the concept of nature education, the meaning and methods of parents' participation in nature education are clarified. At the same time, the importance of parents' participation in nature education was analyzed, and the positive impact of parents' participation in nature education on children's development was discussed.

The study will explore the specific ways and methods for parents to participate in nature education. There are many ways for parents to participate in nature education. They can cultivate children's understanding and interest in nature through family outdoor activities, visiting science museums and nature museums, reading popular science books, and developing scientific experiments and observation plans. The effectiveness of these methods and implementation strategies will be discussed in detail in this study. The study will also analyze the challenges and countermeasures for parents to participate in nature education. Parents' work pressure and time constraints, parents' insufficient knowledge reserves, children's low interest in natural sciences, family environment and resource constraints, and coordination issues between school education and family education are some of the challenges that parents face when participating in nature education. This study will propose corresponding countermeasures to help parents overcome these difficulties and better participate in their children's nature education.

The study will conduct an empirical study on parents' participation in nature education through questionnaires, interviews and other research methods to verify the impact of parents' participation in nature education on children, and put forward corresponding suggestions and improvement measures. Through the discussion of the above research content, this study aims to provide effective methods and strategies for parents to participate in nature education, promote children's all-round development, cultivate environmental awareness, and provide a reference for the combination of family education and school education.

Objectives of the Study - The study aimed to know how does parental involvement impact the natural education environment? The objectives of this study are as follows: Determine the respondents profile variables as to: Age, Sex, Length of Service and Educational Background. Examine the benefits and outcomes of parental involvement in the natural education environment. Identify the factors that influence parental involvement in the natural education environment. Test significant relationship of parental involvement impact when grouped

according to profile variables. Test significant difference of the parental involvement and the natural involvement when group according to profile variables. Create plan of action for the Natural Education environment for Students.

2. Methods

Research Design - The research design employed in this study is a mixed methods approach. This approach allows for a comprehensive understanding of parental involvement in natural education environments by combining quantitative data from surveys with qualitative data from interviews and observations. The use of both quantitative and qualitative data provides a more holistic and in-depth analysis of the research question.

Participants of the Study - Smic Beijing School was established in 2005 and after years of development and transformation, the school has continued to expand and become a complete school with education from kindergarten to high school and has become an education group. The school has two kindergartens with 930 children. There are 93 first-line teachers, as well as other positions.

Instrument of the Study-- The instrument used in this study will consist of a survey questionnaire "WENJUANXING" (China's most widely used platform for online surveys, exams, assessments, and voting). The survey questionnaire will be designed to measure the level of parental involvement in natural education environments. It will include items related to parental participation in school activities, communication with teachers, and support for children's learning at home. The interview guide will be used to gather more in-depth information about parents' experiences and perspectives on parental involvement in natural education environments. The observation checklist will be used to document and analyze parental involvement behaviors observed during school visits.

Data Gathering Procedures - The data gathering procedure in this study involved the collection of data from the respondents using a validated survey questionnaire with rating scales. An online survey questionnaire was prepared using "WENJUANXI," the largest online platform for surveys, exams, assessments, and voting in China. The questionnaire consisted of three parts. The questionnaires were distributed to the eligible in-service principals and vice-principals who met the research criteria with the consent of the personnel from the BEIJING City Education Bureau. Data collection for the survey questionnaire stopped after receiving responses from 3500 participants.

Statistical Treatment of Data - SPSS statistical methods were used to analyze the data descriptively and correlatively to obtain data related to learning confidence, career planning and adaptability. Multiple regression analysis was applied to explore the interactions and relationships between these variables. Through these analyses, we will be able to gain insights into the performance of these key areas among Chinese higher vocational students and the potential associations between them.

Ethical Considerations - This study will strictly follow ethical principles to ensure that the rights and privacy of participating Chinese higher education students are fully protected. Legitimacy will be ensured by obtaining consent from schools and participating students during the data collection process. All questionnaires and interviews will be conducted anonymously and personally identifiable information will be kept strictly confidential to safeguard students' privacy. The researcher will provide sufficient information to explain the purpose of the study and ensure that participation is voluntary. Any potential risks will be minimized and the results of the research will be used for academic research purposes only. These ethical considerations will ensure the moral compliance of the research and the rights of participating students.

3. Results and discussion

Table 1 summarize the respondents' assessment on natural environment of students. The composite mean of 3.34 indicates that the respondents agreed in general. Among the indicators, academic dimension got the highest

mean score of 3.76, followed by physical dimension, both verbally interpreted as strongly agree. The high score indicates a strong positive perception of the academic aspects of the natural environment. Respondents strongly agree that the academic dimension is well-developed and effective in supporting students' learning. Similarly to the academic dimension, the strong agreement suggests a positive assessment of the physical environment. Respondents strongly agree that the physical aspects of the natural environment, such as outdoor activities and safety, are well-managed and conducive to students' well-being.

Table 1*Summary Table on Natural Environment of Students*

Indicators	Composite Mean	Verbal Interpretation	Rank
1. Physical Dimension	3.71	Strongly Agree	2
2. Academic Dimension	3.76	Strongly Agree	1
3. Social Dimension	2.56	Agree	3
Grand Composite Mean	3.34	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

High mean score in the academic dimension is consistent with the body of literature emphasizing the influence of the physical environment on academic success (Zimmerman, 2023). This underscores the importance of considering and optimizing the learning environment to support students' cognitive development and overall educational experiences. Studies have shown that well-designed learning spaces, access to resources, and a positive ambiance contribute to improved academic performance, student engagement, and overall learning experiences (Barrett et al., 2022). Meanwhile, social dimension ranked the least with mean value of 2.56, verbally interpreted as agree. The lower score suggests a somewhat less enthusiastic agreement regarding the social aspects of the natural environment. While still in the realm of agreement, it indicates that respondents are not as overwhelmingly positive about the social dimension compared to the academic and physical dimensions. Based on the detailed analysis of each dimension, consider implementing interventions or enhancements to further strengthen the overall natural environment for students. This could involve targeted training, adjustments to social activities, or improvements in social interaction opportunities. Research indicates that the physical environment significantly influences social dynamics in educational settings, affecting peer relationships, collaboration, and communication (Hoffmann, et al., 2022). Designing spaces that encourage social interactions is critical for creating a supportive and inclusive learning environment (Sanger, 2020).

Table 2*Summary Table on Learning Efficiency of Students*

Indicators	Composite Mean	Verbal Interpretation	Rank
1. Cognitive dimension	3.39	Agree	2
2. Emotional dimension	3.14	Agree	4
3. Social dimension	3.38	Agree	3
4. Behavior dimension	3.40	Agree	1
Grand Composite Mean	3.33	Agree	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree

Table 2 summarize the respondents assessment on learning efficiency of students. The composite mean of 3.33 indicates that the respondents agreed in general. Among the indicators, behavior dimension got the highest mean score of 3.40, followed by cognitive dimension, both verbally interpreted as agree. The high score suggests a positive perception among respondents regarding students' behavior, indicating that students exhibit positive physical and motor skills. Respondents generally agree that students exhibit positive cognitive behaviors, including active engagement, willingness to help others, and the ability to make friends. This result is supported by Sugai et al. (2000); Cho, et al. (2020) as they discuss the Positive Behavior Support framework, emphasizing its effectiveness in promoting positive behaviors and reducing challenging behaviors in schools. Vygotsky's socio-cultural theory (1978) emphasizes the role of cognitive development in education. The social environment plays a crucial role in shaping cognitive abilities, and positive behaviors contribute to effective learning (Mintzes, 2020).

Meanwhile, emotional dimension ranked the least with mean value of 3.14, followed by social dimension with mean value of 3.38, verbally interpreted as agree. The lower score in the emotional dimension indicates that respondents agree, but there may be opportunities to enhance students' emotional well-being, coping mechanisms, and resilience. While still in the realm of agreement, the somewhat lower score suggests that there may be room for improvement in students' social skills, including aspects like expressing their ideas, understanding adults quickly, and observing changes around them. As supported by Salovey et al. emotional intelligence framework (1990); as cited by MacCann et al. (2020) highlights the importance of emotional skills in promoting well-being. Interventions targeting emotional intelligence can contribute to positive emotional development. The Social Skills Improvement System developed by Gresham et al. (2008); as cited by Hu et al. (2020) focuses on social skills interventions for children. Enhancing social skills contributes to positive social interactions.

Table 3 presents the association between natural environment and learning efficiency. The computed rho-values indicates a moderate direct correlation and the resulted p-values were less than the alpha level except on social dimension versus emotional, social and behavior dimension. This means that there was significant relationship exists and implies that the better the environment of the students, the better is the learning efficiency. The computed rho-values indicate a moderate direct correlation between natural environment and learning efficiency. A moderate direct correlation suggests that as one variable increases, the other tends to increase as well, and vice versa. In this context, a positive correlation implies that a better natural environment is associated with better learning efficiency.

Table 3
Relationship Between Natural Environment of Students and Learning Efficiency

Physical Dimension	rho-value	p-value	Interpretation
Cognitive dimension	.156**	0.003	Significant
Emotional dimension	.260**	0.000	Highly Significant
Social dimension	.303**	0.000	Highly Significant
Behavior dimension	.332**	0.000	Highly Significant
Academic Dimension			
Cognitive dimension	.255**	0.000	Highly Significant
Emotional dimension	.369**	0.000	Highly Significant
Social dimension	.293**	0.000	Highly Significant
Behavior dimension	.343**	0.000	Highly Significant
Social Dimension			
Cognitive dimension	.187**	0.000	Highly Significant
Emotional dimension	0.105	0.050	Not Significant
Social dimension	0.002	0.971	Not Significant
Behavior dimension	0.086	0.110	Not Significant

Legend: Significant at p-value < 0.01

The concept of a moderate direct correlation signifies that as one variable increases, there is a tendency for the other variable to increase as well, and conversely, as one decreases, the other tends to decrease. In the context of the study, a positive correlation specifically suggests that a better natural environment is associated with better learning efficiency. A study by Berman et al. (2008) explores on cognitive benefits of interacting with nature. Exposure to natural environments has been linked to improvements in attention and cognitive function, supporting the idea of a positive correlation between the natural environment and learning efficiency (Dadvand, et al., 2015).

The resulted p-values were less than the alpha level, except on the social dimension versus emotional, social, and behavior dimensions. The fact that most of the p-values are less than the alpha level indicates that there is a significant relationship between the natural environment and learning efficiency. This means that the quality of the natural environment is associated with variations in learning efficiency. The identified significant relationship between the natural environment and learning efficiency aligns with a widely acknowledged understanding that a conducive and positive learning environment is a crucial factor contributing to better educational outcomes. As a review by Barrett et al. (2015) discusses the impact of classroom design on student outcomes. Incorporating

natural elements and creating visually appealing learning spaces can contribute to a positive learning environment.

The p-values for the social dimension versus emotional, social, and behavior dimensions are not less than the alpha level. The lack of significance in these dimensions suggests that there might not be a statistically significant relationship between the social dimension of the natural environment and the emotional, social, and behavior dimensions of learning efficiency. Further investigation may be needed to understand these specific dynamics. The significant relationship between natural environment and learning efficiency aligns with the common understanding that a conducive and positive learning environment contributes to better educational outcomes. The moderate direct correlation implies that improvements in the natural environment are associated with improvements in learning efficiency, supporting the idea that a well-designed and positive learning environment can positively impact students' educational experiences and outcomes. The exception in the social dimension highlights the complexity of the relationship. While natural environments may generally contribute to positive learning outcomes, the specific interaction between the social dimension of the environment and aspects of emotional, social, and behavioral learning efficiency may require further exploration.

Table 4
Proposed Action Plan to improve the Natural Environment of Students

KRA	Strategies	Person/s Involved	Success Indicator
Natural Environment of Students			
Social Dimension	<ol style="list-style-type: none"> 1. Encourage and Foster Social Skills Capitalize on the positive perception of students' ability to negotiate and solve problems. 2. Promote Positive Behavior Highlight and promote the positive impact of the natural environment on decreasing disobedience and fostering engaged behavior. 	<p>Teachers, school counselors, and parents.</p> <p>Educators, school administrators, and behavior specialists.</p>	<p>Increased instances of positive social interactions, improved conflict resolution among students.</p> <p>Observable reduction in disobedience, increased engagement, and positive behavior among students.</p>
Physical Dimension	<ol style="list-style-type: none"> 1. Enhance Material Variety Consider exploring ways to diversify materials to better meet the varied needs of students. 2. Communication and Feedback Engage with respondents to gather more detailed feedback on why the variety of materials is perceived as less effective. 3. Build on Strengths Acknowledge and build upon the strengths identified, such as the positive perception of outdoor activities and the safety and reliability of materials. 	<p>Curriculum developers, educators, and resource coordinators.</p> <p>Teachers, students, and educational researchers.</p> <p>Educational leaders, curriculum developers, and school improvement teams.</p>	<p>Increased variety of materials supporting diverse learning styles and preferences.</p> <p>Detailed feedback on material effectiveness, leading to informed adjustments and improvements.</p> <p>Continuous improvement in the learning environment based on acknowledged strengths.</p>
Learning Efficiency of Students			
Emotional dimension	<ol style="list-style-type: none"> 1. Encourage Growth Mindset Foster a growth mindset by emphasizing that failure is a part of the learning process and an opportunity for improvement. Encourage students to view challenges as a chance to learn and grow. 2. Provide Emotional Support Implement programs or initiatives that provide emotional support to students. This could include counseling services, peer support networks, or workshops on emotional well-being 	<p>Teachers, counselors, and educational psychologists.</p> <p>School counselors, psychologists, and support staff.</p>	<p>Observable shift in students' mindset towards challenges as opportunities for growth and learning.</p> <p>Implementation and utilization of emotional support programs and services.</p>
Social dimension	<ol style="list-style-type: none"> 1. Promote Positive Social Behaviors Capitalize on the strengths identified in actively doing things and willingness to help others. Reinforce and encourage positive social behaviors, and consider implementing peer support programs. 2. Facilitate Social Integration Support initiatives that facilitate social integration, such as activities that encourage students to make friends with other kids. 3. Continuous Social Skill Assessment Regularly assess and monitor students' social skills over time. Identify areas of improvement and track the impact of any implemented interventions to ensure continuous enhancement in the social dimension of learning efficiency. 	<p>Teachers, behavior specialists, and peer support coordinators.</p> <p>Educators, facilitators of extracurricular activities, and peer mentors.</p> <p>Educators, school counselors, and evaluators.</p>	<p>Encouragement and reinforcement of positive social behaviors, potentially measured through observed behavior and peer feedback.</p> <p>Increased instances of students making friends and participating in social activities.</p> <p>Regular assessments leading to the identification of areas for improvement and the successful impact of interventions.</p>

4. Conclusions and Recommendations

Majority of the respondents are parents, female, ages 36 to 45 years old and has a college degree. The academic and physical dimensions received the highest mean scores, both interpreted as "strongly agree," indicating strong positive perceptions in these areas. The social dimension, while still in the realm of agreement, received a lower mean score, suggesting a less emphatic endorsement of the social aspects of the natural environment. The Behavior and Cognitive dimensions on learning efficiency among students received the highest mean scores, both interpreted as "agree," indicating slightly positive perceptions in these areas. The social and emotional dimension, while still in the realm of agreement, received a lower mean score, suggesting a somewhat lower score suggests that there may be room for improvement in students' social and emotional skills. It was found out that parents, female, belong to age bracket of 26 to 35 years old and obtained college degree have better assessment on natural environment than others. It was found out that parents, female, belong to age bracket of 26 to 35 years old and obtained college degree have better assessment in the cognitive and emotional dimensions of learning efficiency. This implies a more effective and personalized educational experience for individuals across various age and educational groups. The significant relationship between natural environment and learning efficiency, indicated by moderate direct correlation which underscores the importance of creating and maintaining positive learning environments. This implies for educational strategies and policies aimed at improving learning outcomes by optimizing the natural surroundings in which students learn.

Based on the findings, the following recommendations can be made: Since the social dimension received a lower mean score compared to academic and physical dimensions, educators and administrators may consider implementing strategies to enhance the social aspects of the learning environment. This might include promoting collaborative activities, fostering positive peer interactions, and creating a supportive social atmosphere. Recognizing the slightly lower mean scores in the social and emotional dimensions of learning efficiency, educators may implement programs that focus on enhancing students' social and emotional skills. This could involve incorporating social-emotional learning (SEL) initiatives, mindfulness practices, and counseling services to support students' overall well-being. Acknowledging that parents, females, those aged 26 to 35, and individuals with a college degree have a better assessment of the natural environment, cognitive, and emotional dimensions, educational institutions may consider developing targeted support and engagement strategies for these specific groups. This may involve specialized workshops, feedback sessions, or involvement in decision-making processes. Recognizing the significant relationship between the natural environment and learning efficiency, educational policymakers may prioritize and invest in creating and maintaining positive learning environments. This may involve improvements in school infrastructure, green spaces, and the overall aesthetics of educational spaces to positively impact students' educational experiences. Establishing open channels for communication between educators, parents, and students can facilitate continuous feedback and collaboration. This ensures that educational strategies remain responsive to the evolving needs and perceptions of the learning community. Future studies may be conducted to further confirm the result of the present study considering other design such as qualitative study.

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