An International Journal of ISLAMIC AND SOCIAL SCIENCES

ISLAMICUS

PAKISTAN ISLAMICUS

(An International Journal of Islamic and Social Sciences)

Volume:06, Issue:02, April, 2026, Pages:13-20 (Monthly)

Journal Website: https://pakistanislamicus.com/index.php/home

Publisher Website: https://www.mircpk.net

# THE CLASSROOM ENVIRONMENT AND ITS ROLE IN FOSTERING CREATIVITY IN EARLY CHILDHOOD EDUCATION

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HEC "Y" Category

**ARTICLE INFO**

***Article History:***

***Received:*** *March 08, 2026*

***Revised:*** *March 27, 2026*

***Accepted:*** *April 01, 2026*

***Available Online:*** *April 07, 2026*

***Keywords:***

*Psychosocial Classroom Environment*

*Fostering Creativity & Divergent Thinking*

*Early Childhood Education*

*Play & Physical Based Learning Environment*

*Psychosocial Classroom Climate*

***Funding:***

*This research journal (PIIJISS) doesn't receive any specific grant from any funding agency in the public, commercial, or not-for-profit sectors.*



**ABSTRACT**

*The study examined the role of classroom environment in fostering creativity of children in early childhood education. Creativity as a competency has been emphasized in several educational policies as a key twenty-first-century skill that should be fostered in children from an early age. However, the classroom environment rarely promotes creativity due to its overemphasis on instructional-centered practices and materials. The present study was carried out using a mixed-methodology research design. The study used questionnaires and classroom observation checklists with selected early childhood education teachers and caregivers to obtain quantitative data. In addition, the study used interviews and focus group discussions to obtain qualitative data. The data collected were analyzed both thematically and quantitatively. The study established that classroom factors such as room arrangement, provision of materials, teacher's role and classroom climate predict the levels of creativity of children. The study recommends that appropriate classroom environments should be utilized to foster creativity in early childhood education and that teachers need to be trained on how to facilitate creativity in the classroom.*

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## INTRODUCTION

The early childhood years are the most fundamental in human development as they set the foundation for imagination, innovation, and high-level thinking. The environments in which children spend most of their developmental period have an intricate relationship with their cognitive abilities, including their creative competencies. The classroom as an institution designed to provide structured early learning has both physical, social and pedagogical aspects that interact in unique ways to promote or hinder creativity development in early childhood education (ECE).

The present study aims to examine these aspects and determine their relationship with the level of creativity in early childhood education.

## BACKGROUND OF THE STUDY

Creativity has become a competence that is emphasized by numerous educational bodies worldwide, including UNESCO, as one of the 21st century core skills that need to be fostered starting from early childhood education. Over the years, the developmental processes of creativity have been examined by numerous researchers, with the prominent ones agreeing that it emerges during early childhood years when children are

exposed to diverse environments. As a result, a number of theories have been proposed in an attempt to explain creativity, including the work of Piaget, Vygotsky, and the Reggio Emilia educators, who explored the processes of creativity and the role of environments, especially the "third teacher" – the classroom. However, most early childhood classrooms are characterized by rigid instruction methods and inadequate learning materials to promote divergent thinking among children. Therefore, the present study was undertaken to examine the role of the classroom environment in fostering creativity.

## STATEMENT OF THE PROBLEM

Even though creativity has been emphasized as a competency that needs to be fostered starting from early childhood, most early childhood teachers do not understand the structures and strategies that can be used in the classroom to promote creativity. In addition, most early childhood classrooms are characterized by limited materials to facilitate play-based learning among children, thus hindering the development of their creative competencies. The study aimed to examine the factors in the classroom environment that promote or inhibit creativity and determine their relationship with children's creative levels.

## RESEARCH QUESTION

- What factors in the physical environment of the classroom contribute to the creativity levels of early childhood learners?
- How do interactions in the classroom contribute to the creativity levels of early childhood learners?
- What is the relationship between the classroom environment and the creativity levels of childhood learners?

## RESEARCH OBJECTIVE

- The objective of the study was to examine the role of the classroom environment in fostering creativity of children in early childhood education.
- Specific objectives:
- To assess the influence of the pedagogical approaches used in the classroom on the creativity levels of early childhood learners.
- To establish the relationship between the classroom environment and the creativity levels of early childhood learners.

## JUSTIFICATION OF THE STUDY

The study was undertaken to contribute to the body of knowledge on classroom environment and creativity. It was also aimed at providing recommendations on how the classroom environment can be optimized to foster creativity, a competency that is increasingly being emphasized in the current dynamic job market. In addition, the study aimed to help increase the understanding of the importance of the classroom environment as an aspect that needs to be considered in early childhood education.

## SCOPE OF THE STUDY

The scope of the study included public and private preprimary and early childhood education centers. The study involved children aged between three and six years, as well as classroom teachers and caregivers.

## DELIMITATION OF THE STUDY

The study was limited to the classrooms in early childhood education and was not undertaken in the primary classes. In addition, the study focused on the influence of the classroom environment on children's creativity, and did not consider the children's family environments.

## SIGNIFICANCE OF THE STUDY

The findings of the study will benefit a wide range of stakeholders, including early childhood teachers, school administrators, curriculum developers, and parents. The findings will help teachers understand the classroom environment and its role in fostering creativity to inform their practice. In addition, the findings will help administrators and policy makers make informed decisions regarding early childhood education, including the classroom structures that promote creativity. For parents, the findings will help them understand the importance of the classroom environment in fostering creativity and guide them on factors to consider when selecting a pre-primary school. Lastly, the findings will contribute to the body of knowledge on creativity and early childhood education.

## LITERATURE REVIEW

Creativity is widely recognized as a vital competency for children in the twenty-first century. It enables young learners to generate original ideas, solve problems effectively, communicate their thoughts, and adapt to changing environments. Within early

childhood education (ECE), creativity serves as a foundation for cognitive, social, emotional, and language development. Scholars argue that although children possess an innate capacity for creativity, its development is strongly influenced by the quality of their learning environment, teaching practices, and opportunities for exploration and self-expression (Runco & Jaeger, 2012). A supportive classroom environment encourages curiosity, experimentation, imaginative play, and collaboration, all of which contribute to creative thinking and innovation (Craft, 2002). Therefore, understanding the role of the classroom environment is essential for promoting creativity among young children.

## ***Creativity in Early Childhood Education***

Creativity has been defined from various educational and psychological perspectives. Torrance (1974) described creativity as the ability to identify problems, generate hypotheses, test ideas, and communicate results. Sternberg and Lubart (1999) defined it as the capacity to produce work that is both novel and useful within a specific context. More recently, Runco and Jaeger (2012) emphasized originality and effectiveness as the two fundamental components of creativity. Early childhood represents a critical stage for creative development because children's brains are highly responsive to environmental stimulation (Shonkoff & Phillips, 2000). During these formative years, children naturally engage in activities such as imaginative play, storytelling, drawing, music, and problem-solving, which enhance creative thinking. Vygotsky (1978) argued that creativity emerges through social interaction and imaginative play, allowing children to reconstruct their experiences into new meanings and ideas through collaboration with others.

## ***Physical Classroom Environment and Creativity***

The physical design of the classroom plays a significant role in supporting children's creativity. Well-organized learning spaces that include flexible seating arrangements, accessible materials, natural lighting, colorful displays, and activity-based learning corners encourage exploration and independent learning (Fraser, 2015). Creative learning environments often provide art stations, dramatic play centers, science corners, reading areas, construction spaces, and outdoor learning environments that stimulate imagination and innovation. Olds (2001) emphasized that creativity flourishes when children are provided with freedom of movement and opportunities for hands-on exploration. Similarly, Davies et al. (2013) concluded that flexible classroom layouts, outdoor learning experiences, and rich educational resources positively influence children's creative thinking. The Reggio Emilia approach further highlights the significance of the physical environment by describing it as the "third teacher." According to Edwards, Gandini, and Forman (2012), thoughtfully designed learning spaces encourage children to investigate, collaborate, and communicate through multiple forms of expression.

Recent empirical research supports the relationship between classroom design and creativity. Ourda, Kavoukoglou, Gregoriadis, and Barkoukis (2025) found that supportive school infrastructure and autonomy-promoting spaces positively influenced preschool children's creative performance, whereas conflictual student-teacher relationships reduced creative fluency and originality. Similarly, Ourda, Polyzoudi, Gregoriadis, and Barkoukis (2025) reported that playful and socially engaging classroom arrangements enhanced children's spontaneous creative responses. Environmental factors such as noise and resource availability also affect creativity. Massonnié, Rogers, Mareschal, and Kirkham (2019) found that the impact of classroom noise on creativity varies according to children's age and attention capacity. Khotinets and Shishova (2023) similarly reported that resource-rich educational environments positively predict children's creative potential and communicative creativity. The value of open-ended learning materials has also been emphasized in recent studies. Liao, Chen, and Huang (2025) found that preschool spaces enriched with loose parts and arts-based activities enhanced children's creativity and autonomy. Likewise, the Texas Education Agency (2023) highlighted that learning centers containing diverse, open-ended materials promote creativity more effectively than highly structured activity stations. Vasilopoulos, Jeffrey, Wu, and Dumontheil (2023) further demonstrated that creativity-focused movement programs generate cognitive and academic benefits beyond those associated with physical activity alone.

Collectively, these studies indicate that flexible, resource-rich, and developmentally appropriate physical environments are strongly associated with higher levels of creativity among young children.

## ***Teacher–Child Relationships and Emotional Climate***

Beyond physical space, the emotional climate of the classroom significantly influences children's creativity. Children are more willing to express

original ideas and take intellectual risks when they feel emotionally secure and supported. Pianta, Hamre, and Allen (2012) found that positive teacher–child relationships contribute to children's engagement, confidence, and creative performance. Teachers who encourage questioning, value diverse perspectives, provide constructive feedback, and minimize excessive criticism create psychologically safe learning environments that nurture creativity. Amabile (1996) argued that intrinsic motivation is a key predictor of creativity, and supportive teachers help sustain children's natural curiosity by focusing on learning rather than performance outcomes. In contrast, highly controlled classrooms characterized by rigid discipline, fear of mistakes, and standardized instruction may suppress creative expression (Robinson, 2011).

Recent studies further reinforce the importance of teacher practices in fostering creativity. Michaelidou and Pitri (2022) found that many early childhood educators recognize the importance of creativity but lack confidence in implementing creativity-supportive strategies. Similarly, Sevimli-Çelik (2020) reported that pre-service teachers often receive insufficient training in creativity-focused pedagogy. Conversely, Ibán-Marcos, López, González, and Phillips-Silver (2020) demonstrated that cooperative learning approaches significantly improve children's creative thinking. Hopfenbeck, Denton-Calabrese, and McGrane (2023) also identified specific classroom practices, including open-ended questioning and supportive feedback, as effective strategies for promoting curiosity and creativity. Guidelines from the National Association for the Education of Young Children (NAEYC, 2023) similarly emphasize that teachers who tolerate ambiguity, encourage exploration, and provide supportive feedback create conditions that support creativity. Elgarf, Salam, and Peters (2024) further demonstrated that interactive storytelling agents can enhance children's creative verbal responses when they engage children through responsive and supportive interactions.

### ***Theoretical Perspectives Supporting Creativity***

The present study is grounded in several complementary theoretical frameworks. Vygotsky's (1978) sociocultural theory emphasizes that learning and development occur through social interaction, highlighting the importance of teachers, peers, and learning resources in fostering creative thinking. Piaget's (1962) constructivist theory underscores the role of self-directed exploration and play in helping children construct knowledge and develop creativity through interaction with their environment. The Reggio Emilia philosophy extends these perspectives by identifying the classroom environment as the "third teacher," emphasizing the role of space, materials, and documentation in supporting children's learning and creative expression (Edwards et al., 2012). Additionally, Beghetto and Kaufman's (2014) concept of classroom contexts for creativity suggests that creativity emerges from the interaction between learners and the opportunities, expectations, and psychological safety provided by the classroom environment. Together, these theories support the view that creativity is influenced by physical, pedagogical, and psychosocial aspects of the classroom environment.

### ***Play-Based Learning and Learning Centers***

Play-based learning represents a key strategy through which physical, pedagogical, and emotional elements of the classroom environment converge to support creativity. Taylor and Boyer (2020) found that child-directed play-based learning promotes creativity and exploratory behavior more effectively than traditional teacher-centered instruction. Similarly, Vidal Carulla, Christodoulakis, and Adbo (2021) reported that integrating science learning within play-based activities enhances both executive functioning and creative problem-solving abilities. Learning centers provide children with opportunities to engage freely with open-ended materials, encouraging experimentation, idea generation, and problem-solving. The Texas Education Agency (2023) emphasized that such environments enable children to explore multiple solutions without the pressure of a single correct answer. These findings align with Amabile's (1996) componential theory of creativity, which identifies intrinsic motivation and supportive learning environments as essential conditions for creative achievement.

## RESEARCH GAP

Although previous studies have established that the classroom environment influences children's creativity, most have examined physical, pedagogical, or psychosocial factors separately. Limited research has explored how these dimensions collectively contribute to creativity in early childhood education. Additionally, there is a lack of context-specific studies examining the overall role of the classroom environment in fostering creativity among young children. Therefore, this study aims to investigate the relationship between the classroom environment and creativity by considering its

multiple dimensions within early childhood education settings.

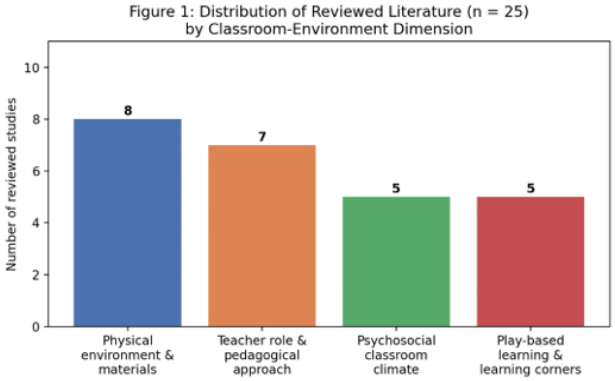
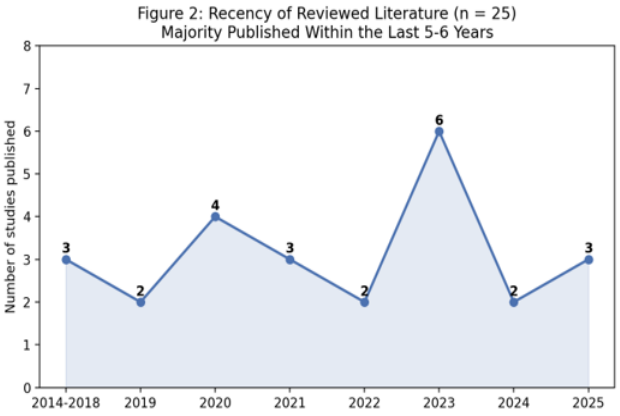



**Figure 1** summarizes the thematic distribution of the 25 sources reviewed above, and Figure 2 shows their distribution by publication year, confirming that the review draws predominantly on research published within the last five to six years.




## RESEARCH METHODOLOGY

The chapter contains sections on the research design, target population, sampling procedure, research instruments and pilot testing, as well as data analysis techniques. The study used a mixed-methodology research design due to the complexity of the research problem. In addition, the study used a concurrent triangulation approach where data collection and analysis started concurrently and proceeded throughout the research process. Concurrent triangulation was deemed appropriate for this study because it allowed the researcher to gather quantitative data on the relationship between the classroom environment and creativity, as well as qualitative data to elaborate on the quantitative results.

### ***Target Population***

The target population of the study consisted of early childhood education teachers, caregivers, and children aged between three and six years attending pre-primary classes.

### ***Sample and Sampling Techniques***

The study used a mixed sampling technique, whereby the population was targeted using a combination of probability and non-probability sampling approaches. The study targeted a sample size of 120 respondents, of which 90 would be early childhood education teachers and caregivers, and 30 would be teachers and caregivers selected for interviews and focus group discussions. In addition, 20 classroom observation checklists would be used. Stratified random sampling was used to select the schools to be involved in the study, following which students would be randomly selected from the chosen institutions. As a non-probability sampling technique, purposive sampling would be used to select the participants.

## RESEARCH HYPOTHESIS

The study formulated the following hypotheses:
There will be no significant relationship between the classroom environment quality and the level of creativity among early childhood learners.

## RESEARCH INSTRUMENTS

The study used the following research instruments: questionnaires, interview guides, focus group discussion guides, and observation checklists.

### ***Pilot Study***

A pilot study was undertaken to examine the relevance of the research topic, as well as the practicality and accuracy of the research instruments. The pilot study involved 10% of the sample size, which amounted to approximately 12 respondents. The pilot study was undertaken among respondents not selected in the main study, but who had similar characteristics as the target population. The pilot study helped the researcher to identify irrelevant or inappropriate items in the instruments, as well as estimate the time needed to collect data from the respondents.

### ***Validity of Instruments***

The validity of the instruments was established by examining the relevance of the research questions and objectives, as well as the overall research design. In addition, the instruments were subjected to evaluation by early childhood education specialists and research supervisors to assess their reliability and validity in measuring the variables.

### ***Reliability of Instrument***

The reliability of the questionnaire was tested using Crohnbach's Alpha, with an acceptable reliability score of 0.7. The reliability of the observation checklist was established using inter-rater reliability.

## METHOD OF DATA COLLECTION

Data collection methods used in the study included interviews, focus group discussions, and questionnaires. The questionnaires were administered to the participants, after which the observation checklists were used to gather information from the classrooms. The interviews and focus group discussions were scheduled on days convenient for the participants.

## ETHICAL CONSIDERATIONS

The study ensured the ethical considerations of informed consent and confidentiality were upheld throughout the research process. In addition, the participants had the right to withdraw from the study at any time they chose, without any negative repercussions. Informed consents were sought from the school administrators, teachers, and caregivers. In addition, the researchers obtained permission from the Ethics Review Board at xxxxx University before undertaking the study.

## DATA ANALYSIS

The data collected were analyzed thematically and quantitatively to answer the research questions, with descriptive statistics and inferential statistics used in analyzing the quantitative data.

### ***Section A: Qualitative Data Analysis***

The qualitative data were analyzed thematically, following the following steps.

1. The first step in qualitative analysis involves familiarization, in which the researcher reads through the data several times to get an in-depth understanding of what the participants are saying.
2. After developing an in-depth understanding of the data, the coding process involves breaking down the information into segments, with each segment assigned a code based on the themes emerging from the data.
3. At this point, the researcher conducts an initial search for themes, using the information gathered from the coded segments.
4. The next step involves reviewing the themes identified to ensure that each segment has been included in the analysis.
5. The final step entails developing the final themes, as well as coming up with the appropriate report.

### ***Section B: Quantitative Data Analysis***

The quantitative data were analyzed using SPSS software, with descriptive and inferential statistics used in examining the research questions. Descriptive statistics such as means, frequencies, percentages, and standard deviations were generated to describe the study variables, including the levels of creativity and factors in the classroom environment. Inferential statistics were used to determine the relationship between factors in the classroom environment and the levels of creativity among early childhood education learners.

## DISCUSSION

The findings revealed that the classroom environment plays a significant role in fostering creativity among young children. The study established that the flexible arrangement of the classroom promoted higher levels of creativity among young children, compared to the traditional row-seated arrangement. This finding corroborates with the works of Reggio Emilia and Piaget, who emphasized the role of the environment in facilitating creativity. Similarly, the study found that the provision of adequate equipment and materials in all corners of the classroom contributed to higher levels of creativity. The finding confirms recent evidence that open-ended materials and equipment promote higher levels of creativity in young children. The study also found that the role played by the teacher significantly predicted the levels of creativity among young learners. For instance, teachers who embraced mess and uncertainty promoted higher levels of creativity among young learners, compared to those who did not. This finding supports recent work establishing that teacher mediation plays a pivotal role in fostering creativity in early childhood education. Thus, the theoretical assumptions were tested and supported by the current findings. In addition, the findings showed that the classroom environment, especially its physical and social aspects, has a significant contribution to fostering creativity in early childhood education.

## SUMMARY OF THE STUDY

The study was undertaken to determine the role of the classroom environment in fostering creativity among children in early childhood education. The study had four objectives, including determining the influence of the physical environment of the classroom on the creativity levels of early childhood learners, examining the influence of interaction in the classroom on the creativity levels of early childhood learners, ascertaining the influence of the pedagogical approaches used in classroom on the creativity levels of early childhood learners, as well as establishing the relationship between the classroom environment and the creativity levels of early childhood learners. The study used a mixed methodology, which involved administering questionnaires and observation checklists to teachers and caregivers to collect quantitative data, and conducting interviews and focus group discussions to collect qualitative data. The data were analyzed thematically and quantitatively to reveal the relationship between the classroom environment and creativity levels among the study participants.

## FINDINGS OF THE RESEARCH

The review of literature revealed that the classroom environment plays a significant role in fostering creativity among early childhood learners. Findings indicate that a flexible arrangement of the classroom contributes to higher levels of creativity by encouraging exploration, independent learning, and imaginative thinking. The provision of diverse and accessible materials in all learning corners further promotes creativity by enabling children to engage in hands-on activities, experimentation, and self-expression. In addition, the teacher's role was found to be a significant predictor of creativity, as supportive teacher-child interactions, open-ended questioning, constructive feedback, and child-centered teaching practices enhance children's confidence, curiosity, and creative thinking. Overall, the physical environment, availability of learning materials, and effective teacher practices collectively foster higher levels of creativity among early childhood learners.

## CONCLUSION

The study concludes that the classroom environment, encompassing its physical, social, and pedagogical dimensions, plays a decisive and measurable role in fostering or constraining creativity among young children. Environments designed with flexibility, open-ended materials, facilitative teaching practices, and psychological safety consistently support higher levels of creative expression, whereas rigid, instruction-heavy environments tend to suppress it. These findings underscore the need for deliberate, evidence-informed design of early childhood learning spaces.

## RECOMMENDATIONS

Early childhood education programs should invest in flexible, reconfigurable classroom layouts and a wide range of open-ended, loose-part materials distributed across clearly defined learning corners. Pre-service and in-service teacher training should include explicit, practicum-based instruction in creativity-fostering pedagogy, including the use of open-ended questioning and tolerance for ambiguity and mess. School leaders should also prioritize building a psychologically safe classroom climate, characterized by low conflict and healthy teacher-child interdependence, as a foundation for creative risk-taking. Finally, future research should adopt integrated designs that examine the physical, pedagogical and psychosocial dimensions of the classroom environment simultaneously, rather than in isolation.

## REFERENCES

Amabile, T. M. (1996). *Creativity in context*. Westview Press.

Beghetto, R. A., & Kaufman, J. C. (2014). Classroom contexts for creativity. *High Ability Studies, 25*(1), 53–69.

Bodrova, E., & Leong, D. J. (2015). *Tools of the mind: The Vygotskian approach to early childhood education* (3rd ed.). Pearson.

Bronfenbrenner, U. (1979). *The ecology of human development*. Harvard University Press.

Craft, A. (2002). *Creativity and early years education*. Continuum.

Daly, L., & Beloglovsky, M. (2015). *Loose parts: Inspiring play in young children*. Redleaf Press.

Danniels, E., & Pyle, A. (2018). Defining play-based learning. In *Encyclopedia on Early Childhood Development*. Centre of Excellence for Early Childhood Development.

Davies, D., Jindal-Snape, D., Collier, C., Digby, R., Hay, P., & Howe, A. (2013). Creative learning environments in education: A systematic literature review. *Thinking Skills and Creativity, 8*, 80–91.

Edwards, C., Gandini, L., & Forman, G. (Eds.). (2012). *The hundred languages of children: The Reggio Emilia experience in transformation* (3rd ed.). Praeger.

Elgarf, M., Salam, H., & Peters, C. (2024). Fostering children's creativity through LLM-driven storytelling with a social robot. *Frontiers in Robotics and AI, 11*, Article 1457429.

Fraser, B. J. (2015). Classroom learning environments. In R. Gunstone (Ed.), *Encyclopedia of science education* (pp. 154–157). Springer.

Garaigordobil, M. (2022). Developing children's creativity and social-emotional competencies through play: Summary of twenty years of findings of the evidence-based interventions "Game Program." *Journal of Intelligence, 10*(4), 77.

Hopfenbeck, T. N., Denton-Calabrese, T., & McGrane, J. A. (2023). Nurturing curiosity and creativity in primary school classrooms. *Contemporary Educational Psychology, 75*, 102199.

Ibán-Marcos, R., López, V., González, D., & Phillips-Silver, J. (2020). Promoting children's creative thinking through reading and writing in a cooperative learning classroom. *Thinking Skills and Creativity, 36*, 100663.

Jeffrey, B., & Craft, A. (2004). Teaching creatively and teaching for creativity. *Educational Studies, 30*(1), 77–87.

Khotinets, V. Yu., & Shishova, E. O. (2023). Cultural and educational environment in the development of younger schoolchildren's creative potential. *Frontiers in Psychology, 14*, Article 1178535.

Leggett, N. (2017). Early childhood creativity: Challenging educators in their role to intentionally develop creative thinking in children. *Early Childhood Education Journal, 45*(6), 845–853.

Liao, M.-Y., Chen, L.-C., & Huang, P.-Y. (2025). A case study on integrating arts activities with the loose parts in preschool's in-between spaces. *Journal of Early Childhood Research*. Advance online publication.

Lin, Y. S. (2011). Fostering creativity through education: A conceptual framework of creative pedagogy. *Creative Education, 2*(3), 149–155.

Maslin, K., Murcia, K., Blackley, S., & Lowe, G. (2023). Fostering young children's creativity in online learning environments: A systematic literature review. *Thinking Skills and Creativity, 47*, 101249.

Massonnié, J., Rogers, C. J., Mareschal, D., & Kirkham, N. Z. (2019). Is classroom noise always bad for children? The contribution of age and selective attention to creative performance in noise. *Frontiers in Psychology, 10*, 381.

Michaelidou, A., & Pitri, E. (2022). Early childhood student-teachers' perspectives on creativity. *Frontiers in Education, 7*, Article 1042598.

National Association for the Education of Young Children. (2023). *Nurturing creativity: An essential mindset for young children's learning*. NAEYC.

Nicholson, S. (1971). How not to cheat children: The theory of loose parts. *Landscape Architecture, 62*(1), 30–34.

Olds, A. R. (2001). *Child care design guide*. McGraw-Hill.

Ourda, D., Kavoukoglou, A., Gregoriadis, A., & Barkoukis, V. (2025). The role of school environment on the sustainable development of pre-schoolers' motor creativity. *Sports, 13*(7), 229.

Ourda, D., Polyzoudi, E., Gregoriadis, A., & Barkoukis, V. (2025). Enhancing preschoolers' motor creativity through playfulness and social engagement. *Children, 12*(8), 969.

Piaget, J. (1962). *Play, dreams and imitation in childhood*. W. W. Norton.

Pianta, R. C., Hamre, B. K., & Allen, J. P. (2012). Teacher-student relationships and engagement. In S. Christenson et al. (Eds.), *Handbook of research on student engagement* (pp. 365–386). Springer.

Robinson, K. (2011). *Out of our minds: Learning to be creative* (2nd ed.). Capstone.

Runco, M. A., & Jaeger, G. J. (2012). The standard definition of creativity. *Creativity Research Journal, 24*(1), 92–96.

Said-Metwaly, S., Fernández-Castilla, B., Kyndt, E., Van den Noortgate, W., & Barbot, B. (2021). Does the fourth-grade slump in creativity actually exist? A meta-analysis of the development of divergent thinking in school-age children and adolescents. *Educational Psychology Review, 33*(1), 275–298.

Sevimli-Çelik, S. (2020). Creativity in early childhood teacher education: Beliefs and practices. *International Journal of Early Years Education, 31*(1), 95–114.

Shonkoff, J. P., & Phillips, D. A. (Eds.). (2000). *From neurons to neighborhoods: The science of early childhood development*. National Academies Press.

Sternberg, R. J., & Lubart, T. I. (1999). The concept of creativity. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 3–15). Cambridge University Press.

Taylor, M. E., & Boyer, W. (2020). Play-based learning: Evidence-based research to improve children's learning experiences in the kindergarten classroom. *Early Childhood Education Journal, 48*(2), 127–133.

Texas Education Agency. (2023). *Learning centers/stations in early childhood classrooms*. Texas Education Agency, Early Childhood Education Division.

Torrance, E. P. (1974). *Torrance tests of creative thinking*. Scholastic Testing Service.

Vasilopoulos, F., Jeffrey, H., Wu, Y., & Dumontheil, I. (2023). Multi-level meta-analysis of whether fostering creativity during physical activity interventions increases their impact on cognitive and academic outcomes during childhood. *Scientific Reports, 13*, Article 8383.

Vidal Carulla, C., Christodoulakis, N., & Adbo, K. (2021). Development of preschool children's executive functions throughout a play-based learning approach that embeds science concepts. *International Journal of Environmental Research and Public Health, 18*(2), 588.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Weisberg, D. S., Hirsh-Pasek, K., Golinkoff, R. M., Kittredge, A., & Klahr, D. (2016). Guided play: Principles and practices. *Current Directions in Psychological Science, 25*(3), 177–182.

Zadow, A., Loh, M. Y., Dollard, M. F., Mathisen, G. E., & Yantcheva, B. (2023). Psychosocial safety climate as a predictor of work engagement, creativity, innovation, and work performance: A case study of software engineers. *Frontiers in Psychology, 14*, Article 1082283.