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Cognitive and Creative Stimulation in Young Children

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Abstract

In 21 st century children spend more time with technology at home and in educational setting. A nasty truth associated with technological is that now parents have less time for children, without proper guidance stimulation of brain faculties of children is thwarted. With the use of appropriately designed and guided strategies the need of bridging this gap can be fulfilled. With interventions we can nourish the cognitive and creative faculties of brain of young children and foster innovation, problem solving and creation in them.

This review paper provides a brief review of intervention programs for creative and cognitive development in preshcoolers. The paper synthesize findings of multiple researches conducted on cognitive and creative stimulation of preschoolers in last 25 years. Key intervention strategies include experiential activities, educational games, that stimulates cognitive and creative challenges and make learning fun and interactive. Methodology includes study design, size of the population, research design, duration and content of intervention and results of these programme.

The effectiveness of these intervention programs is assesed by the outcomes of the researches. The result indicated that early nurturance and stimulation lay down the neurological pathway that facilitates learning, behavior and accomplishment in later life. Children exposed to early interventions are more likely to minimise the impact of adverse environment and biological factors. Digital intervention is a unique concept that can provide support, assistance and guidance to prime care giver along with teachers. Cognitive and creative interventions in early childhood years are proven to be beneficial in multidimensional development of children and to avoid the possibilities of developmental failures and delays.

INTRODUCTION:

Early childhood cognitive and creative development establishes the groundwork for lifelong learning and general wellbeing. Numerous engaging activities and environmental elements might foster these vital abilities. Research emphasizes how important it is to give young children enriching experiences in order to improve their cognitive development and encourage creativity. Perception, attention, memory, and problem-solving are just a few of the processes that are included in cognitive development. Since the brain develops quickly in the early years, this is the perfect time to foster cognitive abilities. Reading, playing with symbols, and solving puzzles are all activities that can greatly enhance young children's cognitive development. Since language development promotes the capacity for abstract thought and reasoning, it is essential to cognitive growth. Conversely, creative stimulation entails fostering kids'

artistic and imaginative capacities. Children's inventiveness and creativity can be improved by giving them chances to express themselves creatively through storytelling, music, and art. It is crucial to understand that creativity encompasses more than just artistic endeavors; it also involves problem-solving, critical thinking, and the capacity for multi-perspective viewing. In order to create environments that encourage both cognitive and creative development, parents, caregivers, and educators play a critical role. There should be plenty of opportunity for experimentation and inquiry in these settings. Furthermore, a child's cognitive and creative development can be greatly enhanced by early intervention in cases of developmental delays. Using study findings and current literature, this review paper attempts to investigate the different facets of cognitive and creative stimulation in early children. It will look at the strategies and exercises that support these areas of development and talk about the ramifications for parents, teachers, and legislators. We can better assist children's development and help them reach their full potential if we recognize the significance of early cognitive and creative stimulation. A child's brain develops remarkably during the first few years of life, laying the groundwork for later cognitive and artistic capacities. A child's general development is greatly impacted by the stimulus they receive throughout these early years, which affects their ability to learn, solve problems, and think creatively.

Cognitive Development in Early Childhood:

The expansion of a child's capacity for thought and reasoning is referred to as cognitive development. It affects a number of processes, such as language development, memory, attention, and perception. Piaget's theory of cognitive development states that children develop in discrete stages, each of which is distinguished by particular cognitive capacities [(17).] Cognitive processes can be improved by early stimulation through interactive play, matching games, and reading (3).

Because it facilitates abstract reasoning and sophisticated brain processes, language acquisition is essential to cognitive development (25). Children's language abilities and cognitive development can be greatly enhanced by having discussions with them, telling them stories, and helping them to express their ideas (22).

Executive function, which encompasses abilities like self-control, flexible thinking, and working memory, is another crucial component of cognitive development (8). Activities that test children's ability to organize, concentrate, and make decisions, such games that call for strategic thinking and problem-solving exercises, can help them develop these abilities (2).

Creative Development in Early Childhood :

Conversely, creative development entails fostering a child's capacity for original thought and self-expression. In addition to creative pursuits, creativity also includes problem-solving, ingenuity, and the capacity to consider issues from several angles (6).

Giving kids the chance to create art, play imaginatively, and participate in musical activities might help them become more creative. Children can explore new ideas, express their feelings, and experiment with various materials through these activities (19). In this process, parents and teachers are essential because they provide a nurturing atmosphere that promotes experimentation and taking risks (1). Open-ended play, in which kids are free to play whenever they want without worrying about planned results, is a good way to foster creativity (9). Building blocks, role-playing, and storytelling are examples of this kind of play that encourage creativity and varied thinking (23).

The Role of Environment :

Children's cognitive and creative development is greatly influenced by the environment in which they are raised and educated. Both cognitive and creative abilities can be improved in an engaging setting full

of varied experiences (5). This can involve having access to interactive learning opportunities, art tools, instructional toys, and books. In order to provide cognitive and creative stimulation, parental engagement is also essential. Research indicates that children whose parents read to them and play educational games with them are more likely to be more creative and cognitively capable (21). Teachers can also design stimulating learning settings in the classroom that encourage inquiry and discovery.

Implications for Parents, Educators, and Policymakers :

For parents, educators, and legislators, knowing the value of early cognitive and creative stimulation has important ramifications. It emphasizes how crucial it is for parents to provide a loving and engaging home environment. A child's growth can be supported by establishing regular routines that involve reading, engaging in educational activities, and promoting imaginative play (27). Teachers can create curricula and instructional activities that encourage students' cognitive and creative development. This entails striking a balance between organized instruction and unstructured play, including music and art in the curriculum, and employing instructional strategies that promote problem-solving and critical thinking. Legislators can encourage the development of young children by funding initiatives and materials that foster intellectual and artistic stimulation. This can involve supporting parental education initiatives, giving access to educational resources, and allocating funds for early childhood education (12).

Early childhood cognitive and creative stimulation is essential for setting the groundwork for later learning and growth. We can develop children's cognitive and creative potential by offering them stimulating experiences and a nurturing atmosphere.

Objective

The objective of this review paper is to explore various methods and strategies to promote cognitive and creative development, drawing on the basis of existing research and literature to provide insights for parents, educators, and policymakers.

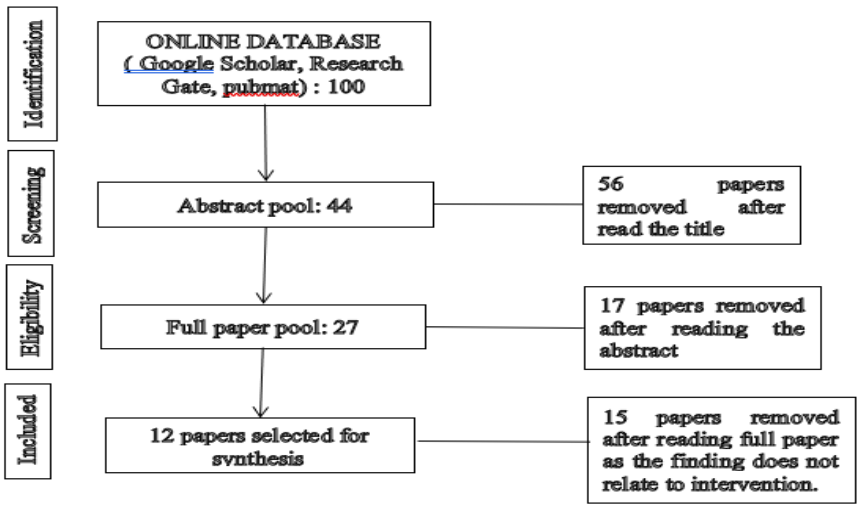
Inclusion Criteria

Studies over the past 15 years to promote creative and cognitive stimulation in early childhood.

Exclusion criteria

- Studies that were not written in English language.
- Studies that were conducted before 2010.

Table (i) Flow chart of inclusion and exclusion of the research papers



Search outcomes-

After reviewing the titles of the papers, 56 of the 100 publications found in appropriate and eliminated. 17 more articles were eliminated since their abstracts did not align with the study's objectives. 12 papers were finally reviewed to the whole text.

Author	Purpose	No. Of participants and target of population	Research design	Duration & content of intervention	Intervention outcome
Kusnadi U. & Ismail M. H. (2020)	Improve kids' overall growth and creative cognitive abilities, paying particular attention to unchecked creativity, communication issues, and disruptive behaviors by using useful techniques.	20 children with down syndrome	Action research	Carried out in three cycles. Every cycle included useful techniques for encouraging creativity, such comprehending problems, coming up with concepts, and putting those ideas into action.	With an average development score of 2.81 and an occurrence of 1.04 for creative cognitive capabilities, the pragmatic method enhanced children's overall development and creative cognitive abilities over the course of three cycles.

Reina C. R. et al., (2023)	Analyze how well a cognitive stimulation program improves primary school students' academic performance and reading comprehension in the subject of Spanish Language and Literature.	196	Quasi-experimental	Three weekly sessions lasting 15 to 20 minutes each were held on non-consecutive days for 8 weeks.	Notable gains in academic achievement in spanish language and literature as well as reading comprehension scores
Brandão A. et al., (2015)	Such as verbal language, fine motor skills, hand-eye coordination, perception, and imitation in kids with down syndrome	20 children with down syndrome aged 3 to 7 years	Quasi-experimental.	8 weeks. It comprised three weekly sessions lasting 15 to 20 minutes each, during which a specifically created digital game was used to improve cognitive function.	Children with down syndrome benefited from the jecripe game intervention in terms of their verbal language, fine motor skills, perception, imitation, and hand-eye coordination.
Valoviˇcová l. et al., (2020)	The investigation of impact of created experimental natural scientific programme for preschool-age children	60 preschool-age children.	Quasi-experimental design.	The stimulation programmes took 10 months for 1 h every 2 weeks.	The study revealed a strong correlation between intellectual, perceptual, and motor maturity, but it did not find any indication of intellectual or conceptual maturity in preschool-aged

					children.
Malhi p. et al., (2018)	Analyze how toddlers' cognitive development is affected by high-quality early stimulation in a developing nation.	150 toddlers aged 1 to 1.5 years.	Cross-sectional research design.	-	Toddlers' higher cognitive scores are significantly predicted by verbal responsiveness and parental involvement.
Gu X. et al., (2022)	Assess the efficacy of four distinct cognitive-based methods for training creativity: Scamper, random connection, schema violation, and simple ideation.	Sample size-205	Pre and post-test design	30 min.	The results showed marginal to significant improve Ments on several key indicators of divergent thinking, but none of the techniques led to improvement in Convergent thinking.
Den Bosch & Duch (2017)	Recognize the connection between cognitive stimulation at home and intake of junk food, physical activity and body size	1,905 children aged 3 to 4 years	Longitudinal research design	Conducted parent interviews to gather information on bmi, physical activity, and junk food consumption.	According to the study, providing low-income preschoolers with cognitive stimulation at home enhanced their physical activity levels, reduced their consumption of junk food, and promoted better nutrition.

Starr A. et al., (2024)	The purpose of the study is to investigate the directionality of the relationship between early cognitive development and parental cognitive stimulation.	15,314	Longitudinal research design	Using genetically informative cross-lagged models, the study assessed the relationship between cognitive stimulation and cognitive development.	Rather than representing causative mechanisms, these effects were primarily explained by shared environmental and genetic factors.
Warsito O. et al., (2012)	To analyze nutritional status, psychosocial stimulation, and factors affecting the cognitive development of preschool age children.	Mothers who had preschool children aged 3-5 years and sample size was 58	Cross-sectional	-	Favorable and noteworthy impact on preschoolers' cognitive development
Garaigordobil M. & Berrueco L. (2011)	Assess how a play program affects preschoolers' capacity for creative thought.	86 participants aged 5 to 6 years	Pre-post test experimental design	Weekly play sessions lasting 75 minutes creative personality qualities, both verbal and visual.	According to the study, creative personality qualities, graphic creativity, and verbal creativity all significantly increased.
Jaruchainiwat P. et al., (2024)	To investigate the effects of integrating guided play with Loose parts on preschoolers' creative thinking, social behavior, and	Group 1 includes 97 children and group 2 includes 50 children aged 3-5 years	Pre and post test quasi-experimental	12 sessions of 60 min. Each	While preschoolers in group 2 (indoor learning) exhibited increases in social and creative behavior but not

	attention.				attention, those in group 1 (outdoor learning) showed improvements in creative, social, and attention scores.
Lestari R. T. & Priyanti N. (2024)	Examine how early childhood education can benefit from the use of loose parts media to foster creativity.	24 participants	Qualitative descriptive method	Over the course of several weeks, the intervention involved exploration activities using a variety of learning environment aspects to foster children's creativity.	The study found that through planned activities and discovery, loose parts media successfully sparked early childhood creativity, grabbing children's attention and fostering their growth.

Results:

Study design-

This study include creative and cognition based interventions in which 1 study used qualitative descriptive design[15], 1 pre-post quasi-experimental design[13], 1 pre-post experimental design[10], 3 quasi-experimental[4,18,24], 2 cross-sectional[16,26], 2 longitudinal research design[7,20], 1 action research[14] and 1 pre and post test design[11].

Population types-

In this study, population type inlcudes, normal preschoolers, children who have down syndrome, communication issue, disruptive behavior, low academic performance, who take junk food, and do low physical exercise.

Age Range-

This review paper primarily focused on early childhood age range 3 - 6 but but there is also a study which was conducted on children of 1 to 1.5 years[16].

Sample size- In this study total sample size of research papers are 18,185. In which minimum sample size 20[4,14] and maximum was 15,314[1920].

Conclusion: For cognitive and creative development, the early years are crucial, and planned interventions can have a big impact throughout this time. The best programs for improving children's cognitive capacities are comprehensive ones that include cognitive stimulation, child-focused education,

and family participation. Language development, social awareness, logical reasoning, and problem-solving abilities are all enhanced by these therapies. Incorporating traditional games, arts, and hands-on activities into these programs can also encourage young children's creativity and inventiveness.
Investing in and implementing holistic and integrative early childhood programs is essential to ensuring the optimal cognitive and creative growth of young children, as research has consistently demonstrated that children who participate in such programs exhibit greater creative expression and higher cognitive performance compared to their peers who do not. These interventions lay a solid foundation for lifelong learning and adaptability.

References:

1. Beghetto, R. A., & Plucker, J. A. (2016). Creative self-beliefs. In J. C. Kaufman & R. J. Sternberg (Eds.), The Cambridge handbook of creativity (pp. 200-216). Cambridge University Press.
2. Bodrova, E., & Leong, D. J. (2006). Tools of the mind: The Vygotskian approach to early childhood education. Pearson.
3. Boyd, D., & Bee, H. (2015). Lifespan development (7th ed.). Pearson.
4. Brandão, A., Brandão, L., Nascimento, G., Moreira, B., Vasconcelos, C. N., & Clua, E. (2010, November). Jecripe: stimulating cognitive abilities of children with down syndrome in pre-scholar age using a game approach. In *Proceedings of the 7th International Conference on Advances in Computer Entertainment Technology* (pp. 15-18).
5. Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Harvard University Press.
6. Craft, A. (2001). An analysis of research and literature on creativity in education. Qualifications and Curriculum Authority.
7. den Bosch, S. O., & Duch, H. (2017). The role of cognitive stimulation at home in low-income preschoolers' nutrition, physical activity and body mass index. *BMC pediatrics*, *17*, 1-7.
8. Diamond, A. (2013). Executive functions. Annual Review of Psychology, 64, 135-168.
9. Gandini, L. (2014). Foundations of the Reggio Emilia approach. In C. Edwards, L. Gandini, & G. Forman (Eds.), The hundred languages of children (3rd ed., pp. 27-44). Praeger.
10. Garaigordobil, M., & Berrueco, L. (2011). Effects of a play program on creative thinking of preschool children. *The Spanish journal of psychology*, *14*(2), 608-618.
11. Gu, X., Ritter, S. M., Delfmann, L. R., & Dijksterhuis, A. (2022). Stimulating creativity: Examining the effectiveness of four cognitive-based creativity training techniques. *The Journal of Creative Behavior*, *56*(3), 312-327.
12. Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. Science, 312(5782), 1900-1902.
13. Jaruchainiwat, P., Khayankij, S., Hemchayart, W., & Tamrongath, U. (2024). Promoting young children's creative thinking, social skills, and attention using guided play and loose parts. *Kasetsart Journal of Social Sciences*, *45*(1), 121-128.
14. Kusnadi, U., & Ismail, M. H. (2020, August). Stimulating Children's Creativity Using the Pragmatic Approach. In *International Conference on Early Childhood Education and Parenting 2019 (ECEP 2019)* (pp. 264-269). Atlantis Press.
15. Lestari, R. T., & Priyanti, N. (2024). Implementation of Loosepart Media in Developing Children's Creativity. *Journal of Scientific Research, Education, and Technology (JSRET)*, *3*(2), 543-551.

16. Malhi, P., Menon, J., Bharti, B., & Sidhu, M. (2018). Cognitive development of toddlers: does parental stimulation matter?. *The Indian Journal of Pediatrics*, *85*, 498-503.
17. Piaget, J. (1952). The origins of intelligence in children. International Universities Press.
18. Reina-Reina, C., Conesa, P. J., & Duñabeitia, J. A. (2023). Impact of a cognitive stimulation program on the reading comprehension of children in primary education. *Frontiers in Psychology*, *13*, 985790.
19. Russ, S. W. (2003). Play in child development and psychotherapy: Toward empirically supported practice. Lawrence Erlbaum Associates.
20. Starr, A., Oginni, O., & von Stumm, S. (2024). Do children cause the cognitive stimulation they receive? Modelling the direction of causality. *Behavior Genetics*, *54*(6), 443-455.
21. Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2004). The effective provision of pre-school education (EPPE) project: Final report. Institute of Education, University of London.
22. Tamis-LeMonda, C. S., Kuchirko, Y., & Song, L. (2014). Why is infant language learning facilitated by parental responsiveness? Current Directions in Psychological Science, 23(2), 121-126.
23. Torrance, E. P. (1966). The Torrance tests of creative thinking: Norms-technical manual. Personnel Press.
24. Valovičová, Ľ., Trníková, J., Sollárová, E., & Katrušín, B. (2020). Stimulation and development of intellectual abilities in preschool-age children. *Education Sciences*, *10*(2), 43.
25. Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.
26. Warsito, O., Khomsan, A., Hernawati, N., & Anwar, F. (2012). Relationship between nutritional status, psychosocial stimulation, and cognitive development in preschool children in Indonesia. *Nutrition research and practice*, *6*(5), 451-457.
27. Weisberg, D. S., Hirsh-Pasek, K., & Golinkoff, R. M. (2013). Guided play: Where curricular goals meet a playful pedagogy. Mind, Brain, and Education, 7(2), 104-112.