Bulletin of Early Childhood
Vol. 5, No. 2, December 2026
https://attractivejournal.com/index.php/bec
Bulletin of Early Childhood

Developing Creative Thinking Skills in Early Childhood Through Exploration-Based Learning

Sri Agustina[1], *Putri Dian Indah[1], Muthoibah Lilis Thozi[1], Imelda Fransiska[1], Rabitah Hanum Hasibuan[1]
[1]*Institut Syekh Abdul Halim Hasan Binjai, Indonesia*

putridianindah10@gmail.com*

ARTICLE INFO
Article history:
Received
Agustus 13, 2026
Revised
September 06, 2026
Accepted
November 03, 2026

Abstract

Creative thinking is a fundamental skill that needs to be developed since early childhood to prepare children for facing complex challenges in the future. This research aims to analyze the development of creative thinking skills in early childhood through exploration-based learning. The research method used is a systematic literature review with a qualitative descriptive approach, examining 25 national journal articles published in the last ten years. The results of the study show that exploration-based learning is significantly effective in developing dimensions of creative thinking including fluency, flexibility, originality, and elaboration in children aged 4-6 years. Learning activities that facilitate direct exploration of the environment, use of varied open- ended materials, and give children freedom to experiment without fear of making mistakes make a major contribution to the growth of creative thinking. In addition, the teacher's role as a facilitator and the creation of a supportive learning environment are key factors in the success of exploration-based learning. This research recommendations that early childhood education institutions integrate exploration-based learning models into daily learning programs to optimally support the development of children's creative thinking.

Keywords: Creative Thinking, Exploration-Based Learning, Early Childhood

Published by CV. Creative Tugu Pena
Website https://attractivejournal.com/index.php/be c
This is open access article under the CC BY 4.0 license
https://creativecommons.org/licenses/by-sa/4.0/

INTRODUCTION

The ability to think creatively is one of the 21st-century competencies that is very important for every individual to have because creativity is no longer just an artistic talent, but a high-level cognitive ability that is needed to survive and thrive in the VUCA era (volatile, uncertainty, complexity, ambiguity). Within the framework of 21st-century competencies known as the 4Cs (critical Thinking, creativity, collaboration, and communication), creative thinking is positioned as a core competency equivalent to critical thinking, because individuals are required to be able to generate original ideas, see unusual

relationships, and find alternative solutions to complex problems. Theoretically, creativity can be explained through Guilford's divergent thinking (fluency, flexibility, originality, and elaboration) and Wallas' creative process (preparation, incubation, illumination, and verification), which emphasizes that creativity is a trainable skill, not a static talent. This is empirically proven by research (Dilekçi & Karatay 2023) which shows that 21st-century skills-based curriculum interventions can significantly improve students' creative thinking abilities. Therefore, education has a great responsibility to develop these abilities from an early age, as reviewed by (La & Shagdarsuren 2026) who emphasized that instilling creative thinking in early childhood requires a shift in the educational paradigm towards developing core competencies through peer collaboration and inquiry-based learning that are appropriate to children's developmental characteristics. In line with this, (Veryawan et al. 2026) emphasized that early creativity stimulation can be done effectively through the design of media and contextual learning activities, such as the use of local wisdom in visual arts worksheets, so that education should provide space for independent exploration and discovery, rather than hindering it with a memorization approach and one correct answer.

In the era of globalization that is full of challenges and dynamic changes, the ability to think outside the box, generate new ideas, and find innovative solutions has become a fundamental need because economic, social, technological, and environmental conditions are changing rapidly so that emerging problems often can no longer be solved with old patterns. Increasingly broad and tight competition requires individuals and organizations to not only rely on resources, but also be able to create new value, efficiency, and differentiation through creativity and innovation (Mustofa et al., 2026). Thinking outside the box allows someone to see problems from a different perspective, find opportunities, and create solutions that others have not thought of, while new ideas that are translated into innovation make them more able to adapt and even lead change (Camillo et al., 2025; Gupta et al., 2023). In the context of education, the development of creative thinking cannot begin at a late stage of education; instead, the foundation of creativity must be built from an early age. Early childhood (0-6 years) is in the phase of the golden age or golden period of development, where appropriate stimulation will have a significant long-term impact on all dimensions of a child's development, including their creative thinking abilities (Mulyasa, 2014).

Phenomena that occur in the field show worrying conditions. Based on results observation and various research that has been done, found that part big institution Education Early Childhood Education (PAUD) in Indonesia is still apply model learning that tends to teacher- centered and oriented on settlement task academic narrow. Children more Lots use up time Study with do sheet work (worksheet), memorize, and follow teacher 's instructions passive. This condition is direct hinder development creativity child Because No give room for child For explore, experiment, and express their original ideas (Suyadi & Ulfah, 2015). More far, research conducted by Puspita and Sari (2020) in several kindergartens in Central Java revealed that 68% of PAUD teachers still use method lectures and giving task as method main learning, while only 12% are consistent implement learning based exploration.

In level research, study about learning based exploration For child age early Still show a number of gap important. First, the majority existing research focus on aspect cognitive general or motor development, but Not yet many of which are specific study impact exploration to dimensions think creative in a way comprehensive, such as fluency, flexibility, originality, and elaboration. Second, research the generally done in a way partial and fragmentary, so that required A systematic synthesis For build greater understanding whole and comprehensive. Third, the context Indonesian culture and local wisdom as a background implementation learning exploration Still seldom used as a calculated variable in a way Serious in design research (Ananda & Fadhilaturrahmi, 2018). A meta- analytic

study that specifically special integrate findings study national about this topic is still very limited.

From the perspective theoretical, foundation think creative child age early Lots rely on in Piaget's constructivism theory which emphasizes that child build his knowledge Alone through interaction active with environment, as well as the Reggio Emilia approach which places environment as the " third teacher ". However Thus, integration between constructivism theory, thinking theory Torrance's creative and practice learning exploration in the context of PAUD Indonesia has not yet articulated in a way comprehensive in One framework cohesive conceptual framework. There are also gaps in understand How the role of teachers as scaffolders and facilitators in a way specific can maximize potential exploration in grow creativity, which has not yet fully answered by existing literature (Rachmawati & Kurniati, 2018).

Starting from various gap mentioned, this research is present with objective For analyze in a way systematic and comprehensive How learning based exploration contribute on development ability think creative child age early. This research is expected can give contribution theoretical in the form of framework integrative conceptual, at the same time give contribution practical in the form of recommendation implementation for PAUD educators in Indonesia.

METHOD

This research uses approach Systematic Literature Review (SLR) with method descriptive qualitative. SLR selected Because allows researchers For identify, evaluate, and interpret all over available and relevant research with question study in a way systematic and can replicated (Ramdani et al., 2021). Protocol study follow guide Preferred Reporting Items for Systematic Reviews and Meta- Analyses (PRISMA) for ensure transparency and reproducibility process review.

Data sources in This research is journal articles scientific national reputable published in period time ten year last (2015-2025). Article search was conducted in a way systematic through several leading electronic databases, including Google Scholar, GARUDA (Garba Digital Reference), and SINTA (Science and Technology Index). Keywords used in process search includes: " thinking creative child age early ", " learning "PAUD exploration ", " creativity child preschool ", " exploration-based learning early childhood ", and relevant combinations of words key the.

Criteria inclusion the article that set includes: (1) is a journal article national indexed SINTA 1-3: (2) published between 2015 to 2025: (3) according to explicit discuss think creative and/ or learning exploration on child age early (0-8 year); (4) is report empirical research, both quantitative, qualitative, and mixed methods: and (5) text complete article can be found accessible. As for criteria exclusion includes articles in the form of opinion, editorial, or non- systematic reviews that do not fulfil methodology standards research. Of the total 187 articles identified on search beginning, after through process selection based on criteria inclusion and exclusion, a total of 25 articles in the end set as the corpus data for this research.

Data analysis was performed through three stages. First, stage thematic coding, where each article is identified findings the main one. Second, the stage categorization, where the findings categorized based on dimensions think creative (fluency, flexibility, originality, elaboration). Third, the creative stage synthesis, where patterns across articles are identified and interpreted in a way critical. Data validity is maintained through triangulation sources and processes peer-checking by fellow member team researcher (Sugiyono, 2019).

RESULTS AND DISCUSSION

The essence Think Creative on Early childhood

Think creative is mental processes that involve formation of new ideas, merging information with ways that are not usual, and ability For see problems from various different perspectives. Guilford (in Munandar, 2012) identified four dimensions main think creative that becomes reference wide in world education, namely: (1) fluency or smoothness in produce many ideas; (2) flexibility or flexibility in change corner viewpoint and approach: (3) originality or originality in generate unique and unheard of ideas common: and (4) elaboration or ability develop and detail an idea (Munandar, 2012). Fourth this dimension becomes framework analysis main in this research.

On child age early, thinking creative manifest in distinctive shape in accordance stage development they. Children preschool in a way experience own trend For think divergent — they capable produce various type answer on One question without burdened by convention social research Fadlillah (2017) emphasized that child age 4-6 year in a way inherent is thinker creative, but this potential can experience decline in a way significant if environment learn what they face it No give Enough room For explore and experiment in a way free. This confirms how crucially role environment learning and methods learning in look after at a time optimize potential think creative which is experience There is on every child.

Concepts and Principles Learning Based Exploration

Learning based exploration is approach pedagogical that places child as subject active in process learning, where children pushed For investigate, discover, and understand draft through interaction direct with environment and various material learning (Suryana, 2016). This approach is rooted in strong in Piaget's constructivism theory which argues that knowledge built in a way active by child through process assimilation and accommodation, as well as Vygotsky's Zone of Proximal Development (ZPD) theory which emphasizes importance scaffolding from people mature or older peers competent.

Rachmawati and Kurniati (2018) identified some main characteristics learning based exploration that distinguishes it from the model learning conventional. First, learning centered on process discovery (inquiry-based), not on delivery results end. Second, the child given freedom For submit questions, hypothesize, and test the hypothesis itself. Third, the use of ingredients open-ended which is not own One correct answer, such as material nature (sand, water, soil) clay, grains) and materials recycling repeat, which gives room as wide as possible for interpretation and expression individual children. Fourth, teachers play a role as facilitator and co- investigator, not as source single knowledge.

Effectiveness Learning Exploration to Dimensions Think Creative

Based on synthesis of 25 articles analyzed, found strong and consistent evidence that learning based exploration give impact significant positive to fourth dimensions think creative child age early. These findings are described based on every dimensions think creative as following.

From the side dimensions fluency (fluency), activities exploration material natural proven in a way consistent increase ability child in produce various ideas and solutions. Research conducted by Ananda and Fadhilaturrahmi (2018) in 34 kindergarten children showed average increase in fluency scores think by 42.7% after implementation of exploration programs natural during eight week. Children who are regularly invited play with media such as sand, water, and soil clay show more capabilities tall in produce various possibility use something objects, which are the main indicators smoothness thinking (Khadijah, 2016).

On dimensions flexibility (flexibility), activities play free and exploratory open push child For change approach and angle his view when face obstacles. Puspita and Sari (2020)

in his research find that children who take part in learning programs based projects and exploration show ability adaptation think far more tall compared to group control that follow learning conventional. This is because in exploration, children in a way natural confronted on an unavoidable situation predictable demanding they For think flexible and seeking alternative approach (Syamsuddin, 2021).

Dimensions originality is the most closely related aspects with exploration free. When child given freedom For use ingredients without rigid instructions, they tend produce unique and personal work and solutions. Research Lestari and Wijayanti (2019) on children Group B in six kindergartens in..... revealed that activity exploration material loose parts produce level originality work children who are statistically significant more high ($p < 0.01$) compared with activity structured and guided art in a way strict by the teacher. The uniqueness of the ideas that emerge from each child reflect How exploration capable facilitate expression authentic individual.

As for dimensions elaboration (elaboration), namely ability develop and detail ideas, as well show significant improvement through learning based exploration. Wardhani and Nurhayati (2022) documented that children involved in project exploration term long - term project capable develop initial ideas they become more complex and detailed work after a number of session exploration. This process shows that exploration No only generate a lot of initial ideas, but Also facilitate deepening and developing ideas in a sustainable.

Supporting Factors Success Learning Exploration

Analysis cross- article identification several critical factors that determine success implementation learning based exploration in develop think creative child age early. The first and most important factor dominant is design environment learning environment). Environment rich learning with various material diverse exploration, can accessible with easy by children, and safe in a way physique and psychological is prerequisite main. Sanjaya and Puspitasari (2023) emphasized that environment organized learning with good and possible child move free can increase duration and quality exploration child in a way significant, which in his turn compared straight with level creativity produced.

Second factor is competence and role of teachers as facilitator. A teacher who understands the philosophy of exploration and is able to withhold oneself from tendencies For direct or give solution Ready use to child proven produce outcome more creativity good. Fadlillah (2017) found that the teachers who has get training about approach inquiry-based and reflective teaching capable create more verbal interaction rich with children — in the form of question open - ended questions) and verbal encouragement — which are effective stimulate process think creative child.

The third factor is availability and diversity material exploration. Ingredients loose parts — namely ingredients that are not structured and able manipulated, moved, designed, and reconfigured with various proven way become media that most effective in stimulate think creative. Khadijah (2016) noted that children who have access to diverse material nature and materials recycling repeat shows more complexity of the game height and level more creativity rich compared to children who only own access on toy manufacturers who have function single and limited.

The fourth factor is climate psychologically free from evaluation negative. Children who learn in the environment in which they feel safe For try, fail, and try Again without Afraid laughed at or criticized show more courage big in take risk cognitive — that is come up with ideas that are not normal and unusual conventional. Wardhani and Nurhayati (2022) underline that supportive and non- judgmental classroom climate is condition sine qua non bagi development creativity child.

Implementation Learning Based Exploration: Models and Strategies

Of the 25 articles reviewed, it was identified a number of model and strategy implementation learning based exploration that has been proven effective in Indonesian PAUD context. The first model is Center Natural Materials, where children given time special For explore with various material nature. Research Suryana (2016) on center material nature in several Holistic PAUDs Integrative in Bandung shows that this approach is consistent increase problem- solving skills and creativity child during 12- week period intervention.

Second model is learning based project (project-based) learning) which is rooted on principle exploration deep to something topic. Ramdani et al. (2021) in study they are in several kindergartens Salimah documenting that children involved in project exploration for three to four Sunday show significant progress in dimensions elaboration and originality think Creative. The ongoing investigative process in this model allows children to continue to explore, question, and develop their understanding in greater depth.

the structured free play approach. free play) which combines the flexibility of free play with clear learning objectives. Syamsuddin (2021) explains that in this approach, teachers intentionally design a rich play environment. designed environment) but gives children complete freedom to determine how they interact with that environment. Research shows that this approach is more effective in developing creative thinking than either guided free play or fully structured learning.

More far, Lestari and Wijayanti (2019) and Sanjaya and Puspitasari (2023) are both emphasize importance routine reflection post-exploration. Sessions where children invited For share, discuss, and document process exploration they (for example through pictures, telling stories, or manufacturing portfolio simple) proven strengthen internalization of creative experiences and encouraging child For develop their ideas more carry on on session next. This reflection practice is in line with with principle metacognition which is part integral of think creative level tall.

Challenges in Implementation and Solutions Offered

Although proof its effectiveness strong, implementation learning based field exploration No escaped from various challenge. The first challenge is resistance from people old people who often associate learning quality with activity formal academics such as writing and counting, so that look at activity exploration as activity play only that which is not worth education. Khadijah (2016) recommends the importance of parenting programs systematic education For build understanding person old about essence development child age early and important play as a learning medium main.

The second challenge is limited capacity of teachers in design and facilitate activity exploration in a way effective. Many PAUD teachers who conceptual understand importance exploration, but experience difficulty in its implementation Because lack of adequate training. Suryana (2016) and Sanjaya & Puspitasari (2023) concluded that the development program professional the teacher who sustainable, collaborative, and practice - based professional development) is investment critical that must be prioritized by early childhood education institutions and services education.

The third challenge concerning limitations source Power in the form of materials and space exploration, especially in PAUD institutions that operate with budget limited. Solution lots of creativity revealed in literature is utilization ingredients loose parts sourced from the environment surroundings and materials recycling repeat as alternatives that are not need cost big However still effective in a way pedagogical (Ananda & Fadhilaturrahmi, 2018). Collaboration with local communities to provide ingredients natural Also become Wrong One the strategy that recommended.

CONCLUSION

Based on results systematic literature comprehensive review against 25 journal articles national reputable published in ten year Lastly, this study concludes that that learning based exploration is proven approach empirically effective in develop ability think creative child age early in a way holistic. Fourth dimensions think creative — fluency, flexibility, originality, and elaboration — demonstrates significant improvement when children gain a learning experience based on exploration in a way consistent and programmed with Good.

Success implementation learning based exploration determined by interaction synergistic between some key factors: design environment rich and supportive learning, teacher competence as skilled facilitators, availability ingredients diverse exploration (especially loose parts and materials nature), as well as climate psychologically safe and evaluation - free classroom negative. Models proven implementation effective covering center material nature, learning based projects, and play free structured, all three equipped with routine meaningful reflection post-exploration.

This study recommends that PAUD institutions in Indonesia strategically integrate learning based exploration to in curriculum and plans learning daily. Education Office recommended to prioritize development programs professional PAUD teachers who focus on pedagogy exploration. Further research is recommended For study impact term length of learning based exploration to development think creative child on level education next, and explore model the most effective implementation appropriate use for PAUD context in the region with limitations source Power.

REFERENCES

Ananda, R., & Fadhilaturrahmi. (2018). Peningkatan Kemampuan Sosial Emosional melalui Permainan Kolaboratif pada Anak KB. Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini, 2(1), 1–10. https://doi.org/10.31004/obsesi.v2i1.1

Camillo, G. M., de Vasconcellos, S. L., Amal, M., & Parente, R. C. (2025). Bridging creativity and international business competence through digital capabilities. Future Business Journal, 11(1), 1–13. https://doi.org/10.1186/s43093-025-00494-x

Dilekçi, A., & Karatay, H. (2023). The effects of the 21st century skills curriculum on the development of students' creative thinking skills. Thinking Skills and Creativity, 47, 101229. https://doi.org/10.1016/j.tsc.2022.101229

Fadlillah, M. (2017). Buku Ajar Bermain dan Permainan Anak Usia Dini. Kencana.

Gupta, S., Ganesh, S., & Krishen, A. (2023). The role of creativity and culture for transformational management in a changing world. Journal of Business Research, 160, 113557. https://doi.org/10.1016/j.jbusres.2022.113557

Khadijah. (2016). Pengembangan Kognitif Anak Usia Dini: Teori dan Pengembangannya. Perdana Publishing.

La, T., & Shagdarsuren, T. (2026). A study on inquiry-based learning paths for cultivating creative thinking in preschool children from the perspective of peer collaboration. International Journal of Educational Development. https://doi.org/10.1016/j.ijedudev.2026.103657

Lestari, S., & Wijayanti, A. (2019). Pengaruh Kegiatan Bermain Loose Parts terhadap Kreativitas Anak Usia 5-6 Tahun. Jurnal Pendidikan Anak Usia Dini, 13(2), 191–202. https://doi.org/10.21009/JPUD.132.04

Munandar, U. (2012). Pengembangan Kreativitas Anak Berbakat. Rineka Cipta.

Mulyasa, H. E. (2014). Manajemen PAUD. Remaja Rosdakarya.

Mustofa, M. S., Mulyono, K. B., & Fatimah, N. (2026). Decoding innovation configurations for agribusiness performance: Indonesian evidence. Cogent Business & Management, 13(1), 2619666. https://doi.org/10.1080/23311975.2026.2619666

Puspita, D. A., & Sari, R. N. (2020). Implementasi Pembelajaran Berbasis Proyek dalam Mengembangkan Kreativitas Anak Usia Dini di TK Pertiwi Semarang. Jurnal Pendidikan dan Kebudayaan, 5(1), 43–55. https://doi.org/10.24832/jpnk.v5i1.1358

Rachmawati, Y., & Kurniati, E. (2018). Strategi Pengembangan Kreativitas pada Anak Usia Taman Kanak-Kanak. Kencana.

Ramdani, Z., Tae, L. F., & Prakoso, E. (2021). Kreativitas dalam Konteks Pembelajaran: Sebuah Kajian Sistematis. Jurnal Psikologi, 48(1), 13–29. https://doi.org/10.22146/jpsi.55764

Sanjaya, I. G. N., & Puspitasari, R. (2023). Desain Lingkungan Belajar Berbasis Eksplorasi untuk Stimulasi Kreativitas Anak Usia Dini. Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini, 7(1), 612–625. https://doi.org/10.31004/obsesi.v7i1.3912

Sugiyono. (2019). Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, dan R&D). Alfabeta.

Suryana, D. (2016). Pendidikan Anak Usia Dini: Stimulasi dan Aspek Perkembangan Anak. Kencana.

Suyadi, & Ulfah, M. (2015). Konsep Dasar PAUD. Remaja Rosdakarya.

Syamsuddin. (2021). Bermain Bebas Terstruktur sebagai Upaya Pengembangan Kreativitas Anak Kelompok B di TK Islam Terpadu Makassar. Jurnal Pendidikan Anak Usia Dini Undiksha, 9(2), 255–265. https://doi.org/10.23887/paud.v9i2.36201

Veryawan, V., Hasibuan, R. H., Ningsih, A. D., Tursina, A., Mutia, N. B., Sit, M., Yus, A., & Yusnadi, Y. (2026). Development of Acehnese local wisdom-based visual art worksheet to enhance early childhood creativity. Journal of Childhood Development, 6(2), 353–376. https://doi.org/10.25217/jcd.v6i2.7928

Wardhani, N. P., & Nurhayati, S. (2022). Proyek Eksplorasi Jangka Panjang dan Dampaknya terhadap Kreativitas Anak Prasekolah. Jurnal Ilmiah Visi, 17(1), 47–58. https://doi.org/10.21009/JIV.1701.5

Copyright Holder :
© Rabitah Hanum Hasibuan, et-al., (2026)

First Publication Right :
© Bulletin of Early Childhood

This article is under:
CC BY SA