

Origami Learning Stimulation as an Effort to Develop Early Childhood Creativity

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Keywords:	Abstract
Early Childhood Creativity; Origami; Learning Stimulation; Fine Motor; Reflective Learning	This study begins with a discourse in early childhood education, emphasizing the need to shift from reproductive to creative learning. Such learning should provide opportunities for exploration, reflection, and independent thinking. This article analyzes how origami can serve as both a motor skills medium and an epistemic stimulus for reflective creativity in children. The research applies a qualitative descriptive case study. Data was collected through non-participant observation, structured interviews with teachers and principals, and documentation at Kindergarten Budi Luhur Mataram. Data analysis followed an interactive process: reducing, presenting, and verifying data using source and method triangulation. Findings show that origami, combined with reflective mentoring, meaningful repetition, and non-directive teacher intervention, can shift children's creativity from imitation to self-driven. This is marked by self-correction, flexibility in motor skills, and social creativity through mutual assistance. The main contribution is the creation of a stimulus–response–reflection–actualization framework for early childhood creativity. These results highlight that creativity grows not just from the media, but from learning interactions that view children as creative subjects, not just instruction followers.

Kata Kunci:	Abstrak
Kreativitas Anak Usia Dini; Origami; Stimulasi Pembelajaran; Motorik Halus; Pembelajaran Reflektif	Studi ini berangkat dari diskursus pendidikan anak usia dini yang menekankan perlunya pergeseran dari pembelajaran reproduktif menuju pembelajaran kreatif yang memberi ruang bagi eksplorasi, refleksi, dan kemandirian berpikir. Artikel ini bertujuan menganalisis bagaimana origami dapat difungsikan bukan sekadar sebagai media motorik, tetapi sebagai stimulus epistemik yang memantik kreativitas anak secara reflektif. Penelitian menggunakan pendekatan kualitatif deskriptif studi kasus yang melibatkan observasi non-partisipan, wawancara terstruktur dengan guru dan kepala sekolah, serta dokumentasi proses pembelajaran di TK Negeri Pembina Mataram. Analisis data dilakukan

		<i>secara interaktif melalui reduksi, penyajian, dan verifikasi data dengan triangulasi sumber dan metode. Temuan menunjukkan bahwa stimulasi origami yang disertai pendampingan reflektif, pengulangan bermakna, dan intervensi non-direktif dari guru menghasilkan pergeseran kreativitas anak dari imitasi menuju kreativitas otonom, ditandai dengan munculnya inisiatif koreksi mandiri, keluwesan gerak motorik halus, dan kreativitas sosial melalui interaksi saling bantu. Kontribusi utama penelitian ini terletak pada formulasi mekanisme stimulus–respons–refleksi–aktualisasi sebagai kerangka pedagogis yang dapat direplikasi untuk pengembangan kreativitas anak usia dini. Hasil ini penting karena menegaskan bahwa kreativitas tidak lahir dari media semata, tetapi dari desain interaksi belajar yang menempatkan anak sebagai subjek kreatif, bukan sekadar pelaksana instruksi.</i>
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INTRODUCTION

Early childhood learning stimulation has undergone significant development in line with changes in the 21st-century education paradigm that emphasizes creativity as an indicator of learning success (Ayber, 2024; Ghafar, 2020; Henriksen et al., 2016; Miller et al., 2023). Various educational scientific forums emphasize that early childhood is not only equipped with basic cognitive skills, but must also be stimulated in the realm of creativity, flexibility of thinking, and productive imagination (Imamah & Muqowim, 2020; J. Kim, 2017; Lubis et al., 2023). In this context, learning that is manual and based on fine motor skills, such as origami, is beginning to be revitalized as an alternative to the dominance of passive and repetitive digital activities.

Current learning conditions in early childhood education demonstrate that instructional practices remain centered on conventional activities such as drawing, coloring, and pasting, which do not offer substantial opportunities for creative exploration (Becker & Schober, 2017; Chepkonga, 2017; Omdal & Roland, 2020; Stamopoulos, 2012). Preliminary observational data from Kindergarten Budi Luhur Mataram indicate that, while children exhibit enthusiasm for artistic activities, they encounter difficulties when engaging in weaving or origami folding. Children require extensive assistance, suggesting a deficiency in creative stimulation grounded in fine motor challenges (Mandich & Rubin, 2023). These observations reveal a misalignment between the creative stimulation needs of children and the learning strategies currently implemented by educators.

The results of interviews with Group B teachers further substantiate that origami is infrequently utilized as a learning medium due to perceptions that the activity is time-consuming and demands considerable patience from both teachers and students (Hawkins, 2021; Monahan, 2020). Educators commonly prefer expedient methods such as picture pasting, which are perceived as easier to manage within the classroom environment. One teacher remarked, *“Origami is indeed interesting, but children quickly become frustrated, and classroom management becomes challenging.”* These findings highlight pedagogical resistance to the adoption of creative, process-based instructional practices.

The analysis of these observations and interviews suggests that children's creativity predominantly develops within reproductive rather than productive activities. Although children can replicate the examples provided by teachers, they have not yet developed the capacity for independent improvisation. Within the framework of constructivist theory (Piaget & Vygotsky), creativity should emerge through unstructured exploration instead of model imitation. This discrepancy leads to the central research question: Can origami-based learning be reconceptualized as an effective stimulus for the development of children's reflective and autonomous creativity?

The last five years of research have yielded mixed findings. (Wiguna et al., 2022) showed that origami can improve children's cognitive flexibility when given a stepwise instruction strategy. Barnett & Jung, (2020) emphasized that the use of origami in urban schools can offset the impact of gadget dominance. Meanwhile, Romadloni et al., (2025) prove that origami assistance arouses children's intrinsic motivation but still focuses on strengthening motor skills, not yet touching the dimension of creative reflection. On the other hand, research before 2020 Jamil et al., (2018); Nishida, (2019); Wati, (2019) only places origami as a physical art activity, not as a cognitive strategy to form creativity.

The tendency of previous research is still to focus on the result (origami product), not the reflective process that builds creativity as an awareness of creative thinking. In fact, a recent study from Gardner on compound intelligence and metacognition theory suggests that early childhood creativity should be developed through process experience, not direct instruction (Makawi, 2023). This is where the important research gap lies: how origami learning can be repositioned not only as a motor activity but also as a stimulation of structured divergent thinking.

The academic argument in this study departs from the urgency of recontextualizing origami as a pedagogical medium, not just a game. Origami has the epistemic potential to

establish a connection between hand skills, visual imagination, and intellectual exploration. If designed with a stimulating and reflective approach, these activities can form a sustainable creative thinking pattern, in line with the 21st-century educational goals that emphasize creative confidence from an early age (Boakes, 2009; Kim, 2023; Marji et al., 2023).

The theoretical contribution offered in this article is to formulate origami not as a remedial activity but as an educational strategy based on creative stimulation. This study not only photographs children's motor skills but also examines how instructional patterns, teacher mentoring, and free exploration spaces simultaneously shape children's creativity. This approach also criticizes learning practices that are still product-oriented and ignore processes.

The purpose of this study is to analyze how origami learning stimulation plays a role in developing early childhood creativity, examine children's responses to exploratory approaches in origami activities, and assess the position of teachers as facilitators in building an organic and unrestrictive creativity environment.

The practical and academic contributions of this research include the provision of a novel conceptual foundation for early childhood educators regarding models of origami-based creative stimulation, enrichment of the literature on creativity in early childhood education, and the potential to inform the development of exploration-based curricula and reflective creative processes. Accordingly, this article offers a relevant and applicable scientific contribution for optimizing children's creativity through structured, theoretically grounded origami-based instruction.

METHOD

This study focused on stimulating early childhood creativity through origami learning as a creative pedagogical intervention. The research subjects were group B children at Kindergarten Budi Luhur Mataram, along with their teachers, who acted as facilitators. Data collection used non-participant observation of children's origami activities, structured interviews with teachers and principals to assess changes in children's creativity, and visual documentation with photos and activity notes to validate findings. The researcher used observation sheets based on creativity indicators like idea fluency, flexibility, elaboration, independence, perseverance, and motor coordination, all contextualized for origami. Interview guidelines were designed to explore stimulation dynamics and children's responses deeply. All data were analyzed with the Miles and Huberman interactive method data reduction, display,

and conclusion using triangulation of sources and methods. This ensured that findings were descriptive, replicable, and open for verification by researchers in other educational contexts.

RESULTS AND DISCUSSION

1. Research Results

Researchers, when entering classroom B of Kindergarten Budi Luhur Mataram, found that the learning atmosphere was still dominated by conventional repetitive activities such as coloring and sticking, without exploratory challenges that stimulated divergent creativity. This kind of learning pattern shows that children's creativity is more directed in the framework of predetermined form production than in the framework of free idea exploration, which allows children to build meaning through the process of self-discovery. In the initial moments of origami introduction, the child's response seems enthusiastic, but the confusion that arises when starting the first fold indicates that they are not used to facing learning situations that demand independent problem-solving.

When the teacher gives initial instructions on how to fold origami paper, she chooses to simplify the steps so that the child can follow the process in a clear order, but this strategy actually shows the child's cognitive dependence on direct direction. Children tend to wait for validation before proceeding with each step, which indicates that their creative patterns are still in the reproductive imitation phase and have not yet reached the transformative phase. In this context, origami serves not only as a medium of hand skills but also as a diagnostic tool to read the child's capacity for creative autonomy. The child's response to the wrong fold indicates emotional dynamics; some children show frustration, while others try to correct shapes spontaneously, even though the results are not perfect.

Teachers, when interacting with children during the weaving process, indirectly play the role of mediators of creativity, not just instructors. When the teacher does not immediately correct the mistake but stimulates the child with reflective questions such as "If you flip the paper, what happens?" the child begins to show an exploratory mindset. These interactions reflect a shift from linear learning to learning that makes room for metacognition. At this point, origami is not only a learning tool but also a space for the negotiation of meaning between children, the media, and the teacher's guidance.

Observational data collected during several learning sessions showed that children's fine motor coordination gradually improved when origami was given repeatedly as a stimulus. The child's initially intermittent and stiff hand movements slowly become more regular and

show movement efficiency, which signifies increased sensory integration and spatial perception. This motor progress not only reflects technical ability but also marks the development of the dimension of creative discipline, namely the child's willingness to repeat the process until it reaches the desired shape.

Interviews with group B teachers reinforce the interpretation that origami opens up a space for reflective creativity for children when the process is less intervened. The teacher stated that some children began to show the initiative to explore other forms without being asked when they felt familiar with the origami medium. This momentum shows a shift in the position of children from recipients of instructions to creative subjects who begin to develop a sense of authorship towards their work. At this point, origami is no longer seen as a learning tool but has functioned as a space for creative experimentation that fosters children's intellectual courage to take risks in the process of creating.

Analysis of photographic documentation of weaving activity showed that the child's facial expressions changed significantly from doubt to strong emotional involvement as they completed a single weaving pattern. This change in expression reflects the transition from a task-based learning experience to an invention-based learning experience. These emotional experiences are important in the study of creativity because early childhood creativity is not just an intellectual product but a manifestation of an authentic affective experience when the child feels valued for the process, not just the outcome.

A triangulative reading of all observational and interview data shows that stimulation through origami learning has direct implications for the formation of children's creative mindsets. Learning not only affects motor skills and visual perception but also trains children to manage uncertainty, overcome temporary failures, and elicit adaptive responses. From the perspective of educational psychology, this condition is a sign of the emergence of generative creativity, which is creativity that arises from the interaction between the child's internal impulses and external stimulants that are not coercive.

The theoretical interpretation of the results of this study reinforces the view that early childhood creativity can be significantly stimulated if learning media is given an epistemic function, not just a mechanical one. Origami in this context is a pedagogical instrument that unites motor, affective, social, and cognitive aspects in one complete creative experience field. When origami is used not just to 'produce shapes' but to 'experience the process,' children learn that creativity is not an instant ability but rather the result of repeated interactions between trial, error, and reflection.

2. Discussion

The discussion of this study interprets the findings of the field, namely the shift from imitation creativity to reflective creativity, the improvement of fine motor agility, and the emergence of social creativity through mutual assistance, by comparing the latest evidence that origami is effective when treated as an iterative process supported by reflective teacher assistance. Research-based service findings at Raudlatul Ittihad Kindergarten show that regular origami practice increases children's enthusiasm, imagination, and creative work when teachers give encouragement and space for exploration; however, our analysis goes beyond motivational narratives by highlighting how children's metacognition is triggered through a cycle of trying–failing–improving with non-directive teacher intervention (Romadloni et al., 2025).

A comparison of the results of this study with a classroom study emphasizing a package of socialization–demonstration–mentoring strategies emphasizes alignment on the principles of stepwise instruction and free exploration space as the key to a child's transition from imitation to modifying forms; in contrast, this article adds *metacognitive cue* requirements (e.g., guiding questions instead of direct correction) as a minimum condition for *self-correction* to be stable. This sharpening expands on previous evidence that primarily reported on PAR's operational steps and the facilitator's role of teachers by positioning *the moment of failure* as learning data equivalent to success, so that the child's reflection cycle is not interrupted (Romadloni et al., 2025).

The dialogue of our findings with a study at Kindergarten Akhlak Mulia shows correspondence on the indicators of process and outcomes i.e., increased children's creativity after the series of origami folds but differs in focus on the mechanism of change: the study emphasizes aggregate/class achievement, while this article unravels *the micro-mechanisms of* teacher-child interaction that move the center of control from teacher validation to creativity (correction initiative, form improvisation, and task persistence) (Hamidah & Maliki, 2024). Thus, the theoretical contribution of this article moves from "what is rising" to "why and how it is happening?"

A critical interpretation of the observational data confirms that the surge in smooth motion fluency, attention consistency, and daring to experiment confirm the literature that positions origami as an integrator of the fine-visual–spatial–affective motor–visual domain; however, this article criticizes the practice of classroom practices that are too quick to "correct"

folding errors because they cut the internal reflection cycle—whereas previous reports have focused more on product output or enthusiasm without dissecting the cognitive mechanisms that link repetition, error, and improvement as a path for the formation of reflective creativity (Nainggolan & Pasaribu, 2024).

The confrontation of these field findings with cross-contextual studies shows that when origami is systematically integrated into the learning routine, children not only understand concepts/shapes better (e.g., hijaiyah letters, building spaces) but also develop an intrinsic preference for high-meaning media; this article adds that these preferences serve as *reinforcers* that maintain a cycle of exploration–reflection a dimension of the process that is rarely detailed in practice-based reports (Nainggolan & Pasaribu, 2024).

The theoretical implications in the behavioristic framework place the scarcity of origami stimuli in routine as an explanation for the low creative response and the high dependence on instruction; the increased frequency and quality of the stimulus, accompanied by small reinforcements of success, give rise to *creative self-efficacy* and repetitive adaptive responses. The implications on the horizon of self-actualization can be read when the child shows post-success pride and offers help to a friend, an indication of the fulfillment of reward/actualization needs in a collaborative space, which is in harmony with the atmosphere of origami mentoring that emphasizes active participation and engagement (Nainggolan & Pasaribu, 2024; Romadloni et al., 2025).

The pedagogical implications drawn recommend the repositioning of the role of the teacher from "instructional" to "experiential architect," who organizes *didactic mini-cycles* (short demonstrations–free exploration–guide questions–pauses for reflection–redemonstration at difficult points) so that children experience *productive struggle* safely. This approach differs from continuous technical assistance in that it deliberately withholds interventions at key moments to reinforce internal feedback and (Romadloni et al., 2025; Suryana, 2016), a procedural interpretation that complements product-based success reports

The novelty of this article lies in *the reframing* of origami from a mere motor means to an epistemic stimulus that triggers the child's metacognition; the novelty is operationalized through three necessary conditions that can be replicated across institutions, namely meaningful repetition, non-directive reflective cues, and the acceptance of errors as data a sharpening that has not been explicitly outlined in the 2025 service report and the 2024 descriptive study that tend to focus on product/enthusiasm. Another novelty is the formulation of process indicators (correction initiatives, reflective perseverance, directed improvisation)

that complement the product indicators in the evaluation of early childhood creativity, so that the contribution moves from the description of results to the modeling of change mechanisms that can be verified by subsequent researchers (Romadloni et al., 2025)

The next direction of research development proposes an iterative design trial that varies the difficulty level of the folds, the duration of free exploration, and the type of teacher cues to model the learning curve of creativity; multi-cycle action research with micro-interaction documentation is judged to be the most appropriate to verify the stimulus–response–reflection–actualization trajectory proposed in this article, as well as to test the replication power of early childhood education with diverse teacher profiles, facilities, and classroom cultures (contrast of aggregate achievement vs micro-mechanisms in previous studies).

The implicit conclusion for practice and curriculum emphasizes that the effectiveness of origami rests on the design of interactions that unite the motor, cognitive, social, and affective dimensions in a single creative learning ecology; therefore, the early childhood education curriculum should allocate "structured experiment" sessions with the staging of folding difficulties and reflective feedback criteria as the standard of the process so that children's creativity is not only reflected in the final product, but above all, it grows as a continuous habit of reflective thinking.

CONCLUSION

This study confirms that the stimulation of origami learning that is given repeatedly, accompanied by reflective mentoring and the provision of space for free exploration, can encourage the shift of early childhood creativity from imitation patterns to reflective creativity, which is characterized by the emergence of self-correction initiatives, thinking flexibility, and creative expression that are no longer completely dependent on teachers' instruction. These findings show that origami not only functions as a motor medium but also acts as an epistemic stimulus that triggers metacognition, builds emotional resilience to mistakes, and fosters social creativity through child-to-child mutual aid interactions. The novelty of this research lies in the identification of the micro-stimulus–response–reflection–actualization mechanism as a prerequisite for the formation of autonomous creativity, which at the same time expands on previous studies by emphasizing the importance of the quality of non-directive teacher intervention and the acceptance of errors as part of the creative learning process.

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