EduBasic Journal: Jurnal Pendidikan Dasar
Vol. 8 No. 1, April 2026, pp. 63-74

https://ejournal.upi.edu/index.php/edubasic

Improving Early Childhood Cooperation, Responsibility, and Emotional Regulation through Fun Cooking: An Experimental Study

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Article Info

History of Article
Received:
26 May 2025
Revised:
07 November 2025
Published:
15 April 2026

Abstract

The rapid shift in social dynamics and limitations of conventional teacher-centered learning create an urgent need for innovative strategies to foster early childhood socio-emotional competencies. This study analyzes the effect of experiential learning-based fun cooking on the cooperation, responsibility, and emotion regulation of children aged 5–6 years. This research employed a mixed-methods approach, a true experimental post-test only control group design was combined with qualitative descriptive analysis. Sixteen children at TK Al Mukaddimah Pontianak were purposively selected and randomly assigned to experimental (n = 8) and control (n = 8) groups. The experimental group engaged in structured fun cooking, such as making fruit salad and decorating sandwiches, following Kolb's experiential learning cycle. Data were collected using a structured observation checklist based on national development standards, supplemented by teacher interviews and anecdotal records. Quantitative results from an independent sample t-test showed a significant difference between the experimental (M = 25.25) and control (M = 15.75) groups, with t = 7.56, p = 0.000 < 0.05. Indicator analysis revealed the largest increases in cooperation (+2.50) and responsibility (+2.50), while the effect size (Cohen's d = 4.06) indicated a very large practical impact. Qualitative findings corroborated these results, showing that reflective elements helped children internalize accountability and navigate peer conflicts more effectively. This study concludes that experiential-based fun cooking is a powerful tool for holistic development. Practically, educators should prioritize hands-on, game-based methods in early childhood curricula to foster essential social-emotional resilience.

Keywords: Early Childhood, Experiential Learning, Fun Cooking, Socio-Emotional Skills

How to cite: Rahmah, G. A., Maulina, I., & Herawati, H. (2026). Improving early childhood cooperation, responsibility, and emotional regulation through fun cooking: An experimental study. *EduBasic Journal: Jurnal Pendidikan Dasar, 8*(1), 63-74.

e-ISSN: 2549-4562, p-ISSN: 2987-937X

Info Artikel

Riwayat Artikel
Diterima:
26 Mei 2025
Direvisi:
07 November 2025
Diterbitkan:
15 April 2026

Abstrak

Perubahan cepat dalam dinamika sosial dan keterbatasan pembelajaran konvensional yang berpusat pada guru menimbulkan kebutuhan mendesak akan strategi inovatif untuk menumbuhkan kompetensi sosial-emosional pada anak usia dini. Penelitian ini menganalisis pengaruh kegiatan memasak yang menyenangkan berbasis Experiential Learning terhadap kerja sama, rasa tanggung jawab, dan pengaturan emosi pada anak usia 5–6 tahun. Penelitian ini menggunakan pendekatan campuran, desain eksperimental murni dengan kelompok kontrol post-test only digabungkan dengan analisis deskriptif kualitatif. Enam belas anak di TK Al Mukaddimah Pontianak dipilih secara purposif dan ditugaskan secara acak ke dalam kelompok eksperimen (n = 8) dan kelompok kontrol (n = 8). Kelompok eksperimen terlibat dalam kegiatan memasak yang menyenangkan dan terstruktur, seperti membuat salad buah dan menghias sandwich, mengikuti siklus Experiential Learning dari Kolb. Data dikumpulkan menggunakan daftar periksa observasi terstruktur berdasarkan standar perkembangan nasional, dilengkapi dengan wawancara guru dan catatan anekdotal. Hasil kuantitatif dari uji t sampel independen menunjukkan perbedaan yang signifikan antara kelompok eksperimen (M = 25,25) dan kelompok kontrol (M = 15,75), dengan t = 7,56, p = 0,000 < 0,05. Analisis indikator menunjukkan peningkatan terbesar pada kerja sama (+2,50) dan tanggung jawab (+2,50), sementara ukuran efek (Cohen's d = 4,06) menunjukkan dampak praktis yang sangat besar. Temuan kualitatif memperkuat hasil ini, yang menunjukkan bahwa unsur-unsur reflektif membantu anak-anak menginternalisasi rasa tanggung jawab dan mengatasi konflik dengan teman sebaya secara lebih efektif. Studi ini menyimpulkan bahwa kegiatan memasak yang menyenangkan dan berbasis pengalaman merupakan alat yang ampuh untuk perkembangan holistik. Secara praktis, pendidik sebaiknya memprioritaskan metode praktis dan berbasis permainan dalam kurikulum pendidikan anak usia dini guna menumbuhkan ketahanan sosial-emosional yang esensial.

Kata Kunci: Anak Usia Dini, Experiential Learning, Fun Cooking, Keterampilan Sosial-Emosional

Cara Mensitasi: Rahmah, G. A., Maulina, I., & Herawati, H. (2026). Improving early childhood cooperation, responsibility, and emotional regulation through fun cooking: An experimental study. *EduBasic Journal: Jurnal Pendidikan Dasar, 8*(1), 63-74.

e-ISSN: 2549-4562, p-ISSN: 2987-937X

INTRODUCTION

Socio-emotional development is widely recognized as one of the foundational aspects of early childhood education, influencing not only children's ability to build interpersonal relationships but also their readiness for future learning (Harrington et al., 2020). At the age of 5–6 years, children are expected to demonstrate emerging skills in cooperation, responsibility, and emotion regulation. These competencies are pivotal because they allow children to modulate emotional arousal, which is essential for adapting to the novel demands of school environments (Williams & Berthelsen, 2017). Furthermore, early socioemotional education actively shapes the brain architecture required for lifelong well-being and social competence (Costa, 2023). Nurturing these skills, particularly resilience and self-regulation, has become a global educational cornerstone to prepare children for the complexities of a diverse society. Thus, these skills form the basis of prosocial behavior, conflict resolution, and resilience in facing challenges during later stages of life (Mustafa, 2025).

However, empirical observations at TK Al Mukaddimah Pontianak reveal significant gaps in these competencies. Regarding cooperation, many students find it difficult to work as a team and collaborate, as shown by research stating that cooperating is not simply the result of becoming mature enough; but rather a skill developed through participation in specific activities aimed at promoting collaboration (Dilfuza, 2025). This lack of interaction often stems from insufficient classroom environments that fail to encourage peer-to-peer negotiation and shared objectives (Aprida et al., 2025). In terms of responsibility, children children tend to neglect the completion of their assignments as well as the communal objects provided, showing that a sense of responsibility can be achieved through clear roles in the group and adequate feedback (Dewi & Salim, 2022; Siswantini et al., 2025). Furthermore, emotion regulation remains a critical issue, as evidenced by frequent outbursts of frustration. These challenges are often linked to a lack of emotional scaffolding and opportunities for sociodramatic or experiential play, which are essential for children to learn how to manage interpersonal and intrapersonal goals effectively (Stavrou, 2019; Harrington et al., 2020). Without such interventions, children may fail to develop the self-soothing mechanisms necessary for social harmony (Silver et al., 2021).

These problems prove that there is a need to implement new strategies other than those that are conventional since the latter depend too much on rote learning and teacher-centeredness for optimal development of socio-emotional competencies (Annur & Khobir, 2025; Ayuba et al., 2022). In response to this gap, innovative pedagogical strategies are required to not only convey knowledge but also actively engage children in meaningful, sensory-rich experiences. One such approach is fun cooking, a hands-on activity designed to be playful, simple, and developmentally appropriate for young learners. Children are engaged in fun cooking where they prepare food items as well as share tasks with their fellow children and such an environment promotes their socio-emotional skills more effectively than traditional classrooms (Anggraini et al., 2025; Trias et al., 2024). These activities provide a concrete platform for children to experience the tangible results of their collaborative efforts, fostering essential traits such as teamwork, trust, and mutual respect (Syafnita & Lina, 2023). Furthermore, fun cooking serves as a versatile pedagogical tool that integrates cognitive, affective, and motor skill development through active, inquiry-based learning (Maranatha & Briliany, 2023).

The theoretical foundation for implementing fun cooking lies in Kolb's (1984) experiential learning theory, which posits that effective learning occurs through a cycle of concrete experiences, reflection, and experimentation. In this context, fun cooking serves as a sensory-rich "concrete experience" that allows children to explore ingredients and tools directly (Arjulayana, 2025; Tamblyn et al., 2023). Furthermore, Vygotsky's (1978) sociocultural theory emphasizes that children's higher-order functions develop through social interactions within their Zone of Proximal Development (ZPD). During fun cooking, children receive essential scaffolding from teachers and peers, enabling them to

internalize socio-emotional skills, such as cooperation and self-regulation, more effectively than through passive instruction (Mustafa, 2025; Siswantini et al., 2025). By engaging in these socially mediated culinary tasks, children move from needing constant direction to exhibiting independent responsibility.

The implementation of food-based programs in early childhood education has become a global focus of attention due to their impact on psychosocial and behavioral development (Utter et al., 2017). In Australia, the use of sensory play through the introduction of new foods has been shown to increase children's openness to sensory experiences and reduce eating behavior barriers (Low et al., 2024). Meanwhile, a systematic review of culinary interventions in elementary schools in Ireland indicates that group cooking activities play a significant role in enhancing children's self-efficacy and active engagement (Bennett et al., 2021; Lavelle et al., 2022). In Asia, research in Malaysia confirms that culinary nutrition education involving hands-on practice can improve children's psychosocial factors and self-efficacy in interacting with their social environment (Mustafa, 2025; Ng et al., 2022). Collectively, these various studies underscore that culinary interventions are not merely technical skill-building activities, but strategic tools for strengthening children's social cohesion and emotional regulation across diverse cultural contexts (Farmer et al., 2018; Hersch et al., 2014).

Synthesizing these global findings, it is evident that fun cooking provides a robust pedagogical solution for socio-emotional growth. However, most existing studies in Indonesia remain qualitative and focused on short-term motor skill development (Annur & Khobir, 2025; Amaros & Rohita, 2018; Habibi, 2022; Husna et al., 2025; Lestari et al., 2025; Maranatha & Briliany, 2023; Nurlaela & Novita, 2022). This gap necessitates rigorous experimental research to provide strong causal evidence regarding its impact on social-emotional indicators. Therefore, this study investigates the effect of fun cooking based on experiential learning, specifically on cooperation, responsibility, and emotion regulation. This study seeks to move beyond conventional teacher-centered methods and provide empirical evidence that structured culinary activities can serve as a strategic instrument for holistic child development.

METHODS

Research Design

This study employed a mixed-methods approach, combining a true experimental post-test only control group design with qualitative descriptive analysis. While the quantitative design establishes a causal relationship between experiential learning-based fun cooking and socio-emotional skills, the qualitative component, which utilizing teacher interviews and field notes, was integrated to validate the initial equivalence of the groups and provide a deeper exploration of each indicator. This triangulation mitigates the inherent weakness of omitting a pre-test by providing context to the children's developmental baseline.

Participants and Sampling

The population of this research consisted of children aged 5–6 years enrolled in TK Al Mukaddimah Pontianak during the 2024/2025 academic year. This study employed purposive sampling to select the participants, as the sample was specifically drawn from a single institution to meet the research criteria. A total of 16 children were selected based on their age group and enrollment status.

To ensure internal validity and reduce selection bias, the researchers utilized random assignment to divide the 16 participants equally into two groups: 8 children in the experimental group and 8 children in the control group. This randomization at the assignment stage ensured that each child had an equal chance of being placed in either the treatment or the conventional instruction group, thereby strengthening the experimental framework of the study.

Intervention Procedure

The core difference between the treatment and the control group lies in the pedagogical framework and the nature of the activity:

1. Experimental Group (Fun Cooking): The "Fun" Element: Unlike ordinary cooking, which focuses on the final dish, "fun cooking" prioritizes playfulness and sensory exploration. It is designed to be low-pressure, using colorful ingredients and child-friendly tools that empower children to lead the process.
2. The Treatment: The activities (e.g., fruit salad, sandwich decorating) were structured around Kolb's Experiential Learning Cycle. Children did not just follow a recipe; they engaged in Concrete Experience (hands-on), Reflective Observation (discussing what happened), Abstract Conceptualization (linking the activity to values like patience), and Active Experimentation (applying skills in the next session).
3. Control Group (Conventional Instruction): Children in this group followed the standard thematic curriculum, which is largely teacher-centered and relies on rote learning.

While they might engage in simple classroom tasks, they lacked the structured scaffolding of the experiential cycle and the collaborative autonomy provided in the culinary sessions.

Instruments

The instrument used in this study was an observation checklist for socio-emotional development, developed in reference to the indicators established in the Indonesian Ministry of Education and Culture Regulation No. 137/2014 on Early Childhood Development Standards. The indicators measured were:

1. Cooperation: the ability to work together, share tasks, and complete group activities.
2. Responsibility: the ability to complete assigned tasks and care for tools and materials.
3. Emotion Regulation: the ability to manage frustration, delay gratification, and express emotions appropriately.

The observation checklist employed a 4-point rating scale adapted to the Indonesian early childhood assessment standards: BB (*Belum Berkembang*/ Not Yet Developed - 1), MB (*Mulai Berkembang*/ Starting to Develop - 2), BSH (*Berkembang Sesuai Harapan*/ Developing as Expected - 3), and BSB (*Berkembang Sangat Baik*/ Developing Very Well - 4). To ensure high objectivity and reliability, the observations were conducted by trained observers (teachers and researchers) using a rubric that predefined behavioral markers for each score.

Validity and Reliability

Content validity of the instrument was established through expert judgment by three early childhood education specialists. Construct validity was further supported by alignment with existing developmental benchmarks. Reliability testing using Cronbach's Alpha yielded a coefficient of 0.87, indicating high internal consistency. To ensure the reliability of the qualitative data, the researchers employed triangulation by comparing observation results with teacher interview transcripts and anecdotal records, ensuring a comprehensive and objective assessment of each child's socio-emotional progress.

Data Analysis

The data were analyzed using a triangulation approach, integrating both quantitative and qualitative techniques:

1. Descriptive Statistics were used to obtain mean, standard deviation, minimum, and maximum values for each group.
2. Homogeneity Test using Levene's test ensured that variances between groups were equal.
3. Hypothesis Testing was conducted using an Independent Sample T-test to determine the significance of differences between the experimental and control groups.
4. Effect Size Analysis using Cohen's d was calculated to assess the magnitude of the treatment effect (0.2 = small, 0.5 = medium, 0.8 = large).
5. Qualitative Thematic Analysis was applied to interview data and field notes to provide context for the statistical results, particularly in explaining the behavioral changes observed during the fun cooking sessions.

All quantitative analyses were conducted using SPSS version 25, with a significance threshold of alpha = 0.05.

RESULTS AND DISCUSSION

Implementation of Fun Cooking Intervention

The fun cooking intervention was designed based on Kolb's (1984) Experiential Learning Theory, which emphasizes learning through concrete experience and reflection. The program consisted of four sessions over two weeks, focusing on simple, kid-friendly recipes: fruit salad, decorated sandwiches, and traditional Klepon (a traditional green ball cake from flour and palm sugar). Unlike ordinary cooking, the "fun" element was integrated by allowing children to lead the process, explore ingredients sensorially, and work in small collaborative "kitchen teams" (Lavelle et al., 2022; Rahmawati et al., 2025).

The steps followed the four stages of Kolb's cycle:

1. Concrete Experience: Children directly handled tools and ingredients (e.g., mashing fruit, mixing dough).
2. Reflective Observation: After each activity, teachers led a brief "circle time" to discuss challenges, such as waiting for a turn or accidentally spilling an ingredient.
3. Abstract Conceptualization: Teachers connected the activity to social values, explaining why sharing a spoon or helping a friend is important for the group's success (Morrison, 2019).
4. Active Experimentation: Children applied their social reflections in the next session, showing better patience and cooperation.

Statistical Analysis

To ensure the scientific credibility of the findings, the researchers focused strictly on the three indicators established in the methodology: Cooperation, Responsibility, and Emotion Regulation.

Table 1. Descriptive Statistics of Socio-Emotional Skills

Group	N	Mean	SD
Experimental	8	25.25	2.49
Control	8	15.75	2.25

Table 1 shows that the experimental group achieved a significantly higher average score (M = 25.25) compared to the control group (M = 15.75). This suggests that children exposed to experiential fun cooking demonstrated stronger socio-emotional abilities than those in the conventional teacher-centered setting.

Table 2. Levene's Test of Homogeneity of Variance

Levene Statistic	df1	df2	Sig.
0.15	1	14	0.705

The significance value (0.705 > 0.05) indicates that the data variances between groups were homogeneous, meeting the assumption for the independent sample t-test.

Table 3. Independent Sample T-test Results

Group	N	Mean	SD	t-value	Sig. (p)
Experimental	8	25.25	2.49	7.56	0.000
Control	8	15.75	2.25		

The t-test results reveal a significant difference between groups (t = 7.56; p = 0.000 < 0.05). This confirms that fun cooking based on experiential learning had a significant effect on development. The effect size (Cohen's d = 4.06) indicates a "very large" effect, suggesting the intervention has high practical significance in a classroom setting.

Analysis of Socio-Emotional Indicators

Table 4. Comparison of Socio-Emotional Indicators

Indicator	Experimental (Mean)	Control (Mean)	Difference
Cooperation	5.50	3.00	+2.50
Responsibility	5.25	2.75	+2.50
Emotion Regulation	4.75	3.25	+1.50

Cooperation

Cooperation showed the highest improvement. Quantitatively, the experimental group outperformed the control group by +2.50. Qualitatively, during the "fruit salad" session, children were observed

spontaneously negotiating roles—one child washing the fruit while another arranged it.

This finding aligns with Husna et al. (2025), who noted that culinary activities like making "fruit skewers" effectively stimulate social interaction and collaborative spirit in early childhood through contextual learning. Furthermore, the emergence of shared objectives and synchronized actions during the process corroborates Nisasia et al. (2023), who found that fun cooking provides a concrete platform for children to practice peer-to-peer negotiation and synergy. These collaborative culinary tasks naturally demand communication and interpersonal coordination that traditional rote learning cannot provide.

Responsibility

Responsibility scores also increased by +2.50. In the experimental group, children showed high accountability in cleaning their workstations and returning tools to their proper places without constant teacher prompting. Field notes indicated that the tangible nature of cooking (e.g., if tools aren't clean, we can't eat) helped children internalize responsibility more effectively than verbal instructions.

This finding is consistent with Halimatussadiah et al. (2018), who observed that cooking class activities effectively foster responsibility through concrete indicators such as following instructions, completing tasks on time, and tidying up materials after use. Field notes further indicated that the tangible nature of cooking, where cleanliness directly impacts the ability to consume the food, helped children internalize responsibility more effectively than abstract verbal instructions. This internal process of character building through culinary practice aligns with Zumrotun et al. (2022), who highlighted that parental and teacher scaffolding in cooking activities significantly empowers children to develop independence and a sense of duty toward their assigned roles.

Emotion Regulation

Emotion regulation improved by +1.50. While the increase was moderate, qualitative records showed significant progress in "waiting tolerance." For instance, during the Klepon-making session, children who initially felt frustrated when their dough broke were guided to take deep breaths and try again (Reflective Observation).

This development is consistent with Ayuba et al. (2022), who found that fun cooking activities significantly influence children's emotional stability, particularly in managing negative reactions when facing difficulties during the process. Furthermore, the observation of children learning to regulate themselves and show tolerance aligns with Amaros and Rohita (2018), who emphasize that fun cooking serves as an experiential platform for children to practice self-control and adhere to group rules. These findings suggest that the structured "trial-and-error" nature of culinary tasks provides a safe arena for children to practice emotional resilience and self-soothing mechanisms.

Discussion

The findings of this study provide empirical evidence that experiential learning-based fun cooking significantly enhances children's socio-emotional skills, as evidenced by a mean score of 25.25 in the experimental group compared to 15.75 in the control group. The calculated effect size (Cohen's $d = 4.06$) falls into the "extraordinarily large" category, suggesting that the intervention's impact is not only statistically significant but also practically transformative in an early childhood setting.

This magnitude of effect aligns with global research highlighting that experiential culinary interventions in schools are potent tools for increasing children's perceived competence and active engagement (Bennett et al., 2021; Lavelle et al., 2022). Such transformative results underscore that hands-on food preparation acts as a meaningful pedagogical strategy that moves beyond simple activity into the realm of psychosocial development.

The Divergence in Developmental Gains: Why Cooperation and Responsibility Excelled

One of the most striking results is the high increase in Cooperation (+2.50) and Responsibility (+2.50), compared to the more moderate gain in Emotion Regulation (+1.50). This divergence is not accidental but stems from the specific mechanics of the fun cooking intervention. Cooperation achieved the highest score because the activity of cooking is inherently prosocial and interdependent. For instance, during the sandwich-making session,

the "Reflective Observation" stage of Kolb's cycle allowed children to realize that shared tasks, such as one child holding the bread while another spreads the jam, led to more efficient and successful outcomes.

This phenomenon aligns with the concept of shared objectives and synchronized actions, where collaborative behaviors are formed through engagement in structured activities rather than incidental maturity (Dilfuza, 2025). Furthermore, fun cooking creates a "micro-community" where children naturally negotiate roles and communicate to achieve a common goal, effectively stimulating their collaborative spirit (Husna et al., 2025). As children engage in these culinary tasks, the immediate social interaction and peer-to-peer negotiation provide a more powerful learning platform than traditional verbal instruction (Nisasia et al., 2023).

The gain in Responsibility was driven by the "Immediate Feedback Loop" inherent in the kitchen environment. Unlike a drawing or a worksheet, tools in cooking, such as spoons, bowls, and ingredients, have a direct impact on the group's ability to complete the task and enjoy the results. If a child fails to care for their tools or follow the procedure, the activity is disrupted. This creates a form of "naturalistic accountability," where children internalize responsibility because they value the tangible outcome of the activity.

This finding aligns with Halimatussadiah et al. (2018), who demonstrated that cooking activities foster responsibility by requiring children to tidy up materials and follow structured rules to ensure the success of the process. Furthermore, hands-on food preparation serves as a premier tool for developing "agency" and self-reliance, as children are empowered to lead their own tasks within a group (Zumrotun et al., 2019). By participating in these culinary sessions, children move from needing constant teacher prompting to exhibiting independent responsibility for their assigned roles (Al Ali et al., 2021; Siswantini et al., 2025).

The Complexity of Emotion Regulation: A Moderate Increase

In contrast, Emotion Regulation showed a more moderate improvement (+1.50). This is scientifically consistent with the developmental timeline of 5-6-year-olds. While cooperation and responsibility are "outward-facing" social behaviors that can be practiced through teamwork, emotion regulation is an "inward-facing" cognitive process that requires higher-level executive functions and the modulation of emotional arousal (Harrington et al., 2020).

As noted in the field observations, while children tried to manage their frustration, such as when their dough broke during the klepon session, these self-soothing mechanisms are still fragile and in development. According to Costa (2023), early socioemotional education actively shapes the neuro-affective brain architecture, but this process is longitudinal and requires consistent nurturing to reduce behavioral problems. Furthermore, the moderate gain in this study reflects the reality that self-regulation is a complex competency that serves as a bridge between cultural insights and educational practices, often maturing at a different pace than more visible social skills (Mustafa, 2025). This explains why, although the intervention provided a "safe arena" for trial and error, the statistical gain remains lower than that of cooperation.

Research Position, Novelty, and Theoretical Synthesis

This study holds a unique research position by bridging the gap between global experiential learning models and Indonesian educational standards. The novelty lies in the systematic integration of Kolb's (1984) four-stage cycle into a "fun cooking" framework that specifically targets socio-emotional indicators in a quantitative experimental manner. This methodology addresses a significant gap in Indonesian early childhood research, which has predominantly relied on qualitative case studies or descriptive approaches (Habibi, 2022; Husna et al., 2025).

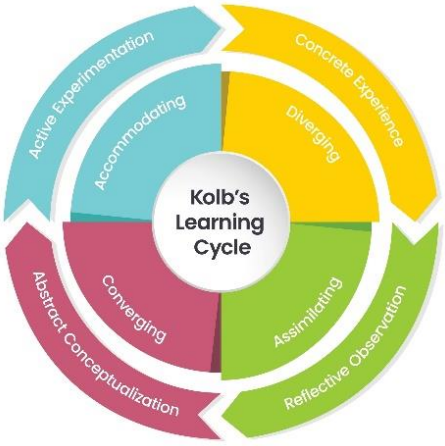

Figure 1. Integration of Kolb's Learning Stages in Enhancing Early Childhood Socio-Emotional Competencies

By applying Vygotsky's (1978) Sociocultural Theory, this study demonstrates that the "scaffolding" provided by teachers and peers during the cooking process allows children to operate effectively within their Zone of Proximal Development (ZPD). Through this socially-mediated activity, children transition from requiring constant direction to exhibiting independent responsibility and collaborative synergy (Siswantini et al., 2025). This is further supported by research on sensory-based learning, which suggests that direct multisensory engagement in activities like food preparation strengthens neural development and executive functions related to social impulse control (Arjulayana, 2025; Tamblyn et al., 2023).

Implications and Future Trajectory

The practical implications of this study are profound. For educators, these findings provide a validated "pedagogical recipe" to foster character building through structured culinary activities. For policymakers, it highlights a critical need for the early childhood curriculum to shift from sedentary "rote memorization" toward "meaningful experience" and active engagement (Mustafa, 2025). This transition is essential to align local practices with global standards that prioritize school readiness and socio-emotional resilience (Costa, 2023).

However, the study acknowledges limitations, such as the small sample size (n = 16) and the post-test only design, which may limit the generalizability of the causal claims. Future research should adopt a Mixed-Method Sequential Explanatory Design, utilizing longitudinal data to track how these "fun cooking" gains translate into long-term social resilience and academic success. Furthermore, exploring the role of parental involvement as a scaffolding agent in home-based culinary activities could provide deeper insights into the sustainability of these socio-emotional competencies (Lavelle et al., 2022; Zumrotun et al., 2022).

CONCLUSION

This study provides compelling empirical evidence that experiential learning-based fun cooking significantly enhances the socio-emotional development of children aged 5–6 years. The findings reveal that such activities produce substantial improvements in cooperation and responsibility, alongside moderate gains in emotion regulation, with statistical analysis confirming a very large effect size (Cohen's d = 4.06). Theoretically, these results reinforce Kolb's Experiential Learning Theory and Vygotsky's Sociocultural Theory, demonstrating that foundational social competencies are most effectively internalized when children are immersed in concrete, sensory-rich experiences and guided social interactions.

Practically, this research suggests that early childhood educators should move beyond conventional, sedentary instruction by integrating hands-on culinary activities into the thematic curriculum. Similarly, parents can adapt these methods at home to strengthen independence and teamwork in a naturalistic setting. Despite the promising outcomes, the study acknowledges limitations regarding its small sample size (n = 16) and the post-test only design. Therefore, future research should prioritize longitudinal designs with larger, more diverse populations and adopt mixed-method approaches to capture the enduring impact of experiential learning on child behavior.

Ultimately, the findings of this study serve as a vital call for broader pedagogical shifts. Fun cooking is not merely a playful classroom diversion; it represents the efficacy of experience-based and game-based

methodologies as the cornerstone of holistic child development. In an era of evolving educational standards, these active learning strategies are key to curriculum reform, moving away from rote memorization toward nurturing resilient, cooperative, and responsible individuals prepared for lifelong success.

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