Journal of Childhood and Elementary Studies
Volume 1, Issue 1, 40 - 48
e_ISSN: 3110-8113
DOI: 10.64268/joces.v1i1.102

Cooking class–based learning for fine motor skill development in early childhood education

Eti Hadiati, Feby Lian*
Universitas Islam Negeri Raden Intan Lampung, Indonesia
* febbylian9@gmail.com

Article Info

Article history:

Submitted: Jan 07, 2025
Accepted: Apr 05, 2025
Published: Jun 25, 2025

Keywords:

Cooking Class Learning; Early Fine Motor Skills; Human Factors; Play-Based Learning.

Abstract

Background: Fine motor skills are essential for early childhood development, as they support children's readiness for academic learning, self-care, and independent functioning. Fine motor development requires meaningful, repetitive, and developmentally appropriate stimulation. However, learning practices in early childhood classrooms often remain academically oriented and provide limited opportunities for manipulative and experiential activities. Cooking class–based learning offers a play-based and contextual approach that integrates motor activity, engagement, and social interaction.
Aims: This study aims to improve the fine motor skills of children aged 5–6 years through the implementation of cooking class–based learning in early childhood education.
Method: This study employed a Classroom Action Research design based on the Kemmis and McTaggart model, conducted in two action cycles. The participants were 15 children aged 5–6 years at PAUD Kartini Jatimulyo, South Lampung. Data were collected through observation, interviews, and documentation focusing on manipulative skills, hand–eye coordination, and learning engagement. Data were analyzed using qualitative descriptive techniques through data reduction, data display, and conclusion drawing.
Results: The findings show a gradual and substantial improvement in children's fine motor skills across the research cycles. The proportion of children categorized as Very Well Developed increased significantly in Cycle II, while no children remained in the Not Yet Developed category. Cooking class activities enhanced children's coordination, precision of hand movements, and active participation during learning.
Conclusion: Cooking class–based learning effectively improves fine motor skills in early childhood education. Experiential and play-based activities supported by reflective teaching practices contribute to meaningful motor development and positive learning experiences.

To cite this article: Hadiati, E., & Lian, F. (2025). Cooking class–based learning for fine motor skill development in early childhood education. *Journal of Childhood and Elementary Studies*, 1(1), 40-48.

INTRODUCTION

Early Childhood Education represents a fundamental stage in the human education cycle, as it serves as the foundation for children's physical, cognitive, social, emotional, and moral development. At this stage, the learning experiences provided significantly influence children's readiness for subsequent levels of education as well as the development of long-term adaptive abilities. In the Indonesian context, Early Childhood Education is defined as an effort to nurture children from birth to six years of age through the provision of planned and systematic educational stimulation aimed at supporting both physical and psychological growth and development, as stipulated in Undang-Undang Nomor 20 Tahun 2003 tentang Sistem Pendidikan

Nasional. This definition emphasizes the importance of a holistic approach to early childhood education, rather than an approach that is solely academically oriented.

One developmental aspect that plays a crucial role in children's learning readiness is fine motor ability. Fine motor skills are associated with the control of small muscles, particularly hand and finger coordination integrated with visual and cognitive functions. These skills contribute to learning activities such as writing, drawing, cutting, and object manipulation, and are also closely related to children's independence and social participation (Papalia & Martorell, 2021; Roebers & Kauer, 2021). Between the ages of five and six, the development of fine motor coordination accelerates significantly, enabling children to perform manipulative movements with greater precision and control.

Recent studies indicate that fine motor development does not progress optimally when children receive insufficient meaningful and repetitive stimulation. Learning environments that are monotonous and overly focused on academic outcomes may limit opportunities for movement exploration, sensorimotor experiences, and active engagement in the learning process (Józsa, et al., 2023; Roebers & Kauer, 2021; Sintia, et al., 2025). Consequently, play-based and experiential learning approaches are widely regarded as effective strategies for optimizing fine motor development while simultaneously supporting children's cognitive, social, and emotional growth.

Play-based learning through cooking class activities represents one form of experiential learning that is highly relevant for early childhood education. Cooking class activities involve various manipulative movements, such as stirring, mixing, pouring, shaping, and decorating food, which directly stimulate hand-eye coordination. Beyond motor aspects, these activities also involve human factors, including children's active participation, intrinsic motivation, emotional regulation, and social interaction between children and educators. Contemporary research in early childhood education suggests that learning experiences that are meaningful and participatory enhance learning engagement and improve the overall quality of children's learning experiences (Akyol, 2021; Papalia & Martorell, 2021; Pesch, et al., 2025).

Theoretically, the cooking class approach aligns with modern developmental constructivist perspectives, which emphasize that children construct knowledge through direct experience and active interaction with their learning environment Brown et al., 2021; Li & Chen, 2023; Duong et al., 2024). Cooking activities provide authentic contexts for exploration, experimentation, and reflection, while naturally fostering the development of fine motor skills (Maranatha & Briliany, 2023; Indria et al., 2025). This approach is reinforced by recent studies highlighting that active and contextual learning experiences play a critical role in the development of motor skills and adaptive functioning in early childhood

Several empirical studies conducted over the past five years have examined the effectiveness of cooking class activities in improving fine motor skills among young children. Laely and Subiyanto (2020) reported that cooking class activities grounded in local cultural contexts enhanced children's fine motor skills while strengthening emotional relationships between educators and learners. These findings were supported by Wardhani and Wahyuni (2023), who found that cooking class-based learning provided enjoyable, interactive, and effective learning experiences for stimulating fine motor skills through structured manipulative activities. Developmental research by Kamariah et al. (2020) further demonstrated that cooking class play models met validity and practicality criteria and were appropriate for implementation in early childhood learning settings.

Recent international literature also confirms that manipulative and play-based activities contribute significantly to fine motor development, learning engagement, and children's academic readiness (Amira & Kadir, 2025; Halimah & Chamidah, 2025; Sitorus et al., 2025). However, most

existing studies continue to focus primarily on measuring final motor development outcomes, while investigations into learning processes, classroom dynamics, and the role of human factors such as children's engagement and responsiveness remain relatively limited. Moreover, studies integrating cooking class activities within a Classroom Action Research design in early childhood education contexts, particularly in local settings such as South Lampung, are still scarce.

This gap is also reflected in instructional practices at PAUD Kartini Jatimulyo, Jatiagung District, South Lampung. Preliminary observations indicate that learning activities specifically designed to stimulate fine motor development are infrequently implemented and tend to lack variation. Instruction is predominantly academically oriented, resulting in relatively low levels of children's interest and engagement in fine motor activities. This condition has led to persistent difficulties among some children in controlling fine movements, performing manipulative tasks, and actively participating in learning activities.

Based on these conditions, this study aims to improve the fine motor skills of children aged five to six years through the implementation of cooking class activities at PAUD Kartini Jatimulyo, Jatiagung District, South Lampung. The study employs a Classroom Action Research approach to systematically examine both the process and outcomes of implementing cooking class activities within early childhood learning contexts.

This study provides empirical contributions by strengthening evidence regarding the effectiveness of cooking class activities as a play-based learning strategy for enhancing fine motor development in early childhood. Theoretically, it contributes to the enrichment of early childhood education research through the integration of motor development perspectives, contemporary developmental constructivism, and human factors in the learning process. Practically, the findings are expected to serve as a reference for early childhood educators in designing more varied, contextual, and child-centered learning experiences.

METHOD

This study employed a Classroom Action Research (CAR) approach aimed at improving and enhancing the quality of the learning process through reflective actions conducted repeatedly and systematically. Classroom Action Research is considered a relevant strategy for addressing real instructional problems occurring in classroom settings because it allows educators and researchers to carry out continuous improvements based on reflection on ongoing teaching practices (Rukminingsih et al., 2020; Creswell & Creswell, 2018). This approach positions teachers as agents of change within a contextual learning process oriented toward improving the quality of educational practice.

The research design followed a cyclical CAR model consisting of four main stages, namely planning, action implementation, observation, and reflection. These stages were implemented iteratively until the expected improvements in learning were achieved. The model emphasizes the close relationship between action and reflection as the basis for decision-making in subsequent cycles, thereby enabling systematic and sustainable improvements in learning (Kemmis et al., 2014). The flow of CAR implementation in this study is presented in Figure 1, which illustrates the interconnections among stages within each action cycle.

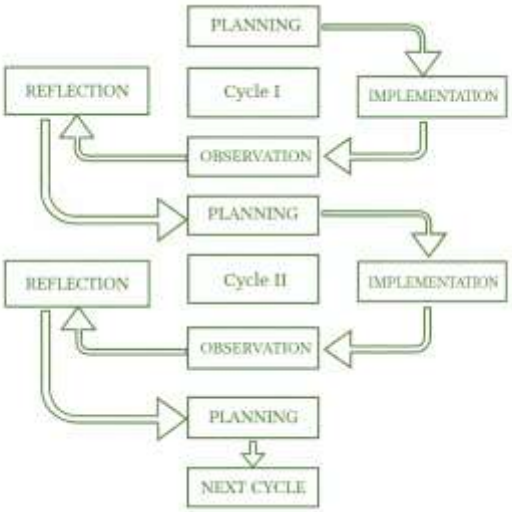

Figure 1. Classroom Action Research (CAR) Scheme by Kemmis and McTaggart

The study was conducted collaboratively involving the researcher, the classroom teacher, and the school. This collaboration aimed to ensure that the instructional actions implemented were aligned with the classroom context and the developmental needs of young children. Each cycle began with a planning stage that involved developing lesson plans based on the cooking class method, followed by the implementation of actions during teaching and learning activities. The observation stage was conducted simultaneously to document the learning process and children's responses during the activities, while the reflection stage was used to evaluate the effectiveness of the actions and to formulate improvements for the next cycle. This process was repeated until improvements in children's fine motor skills were achieved in accordance with the established developmental indicators.

The participants in this study were children from Group B1 at PAUD Kartini Jatimulyo, Jatiagung District, South Lampung, aged 5 to 6 years. A total of 15 children participated, consisting of 7 boys and 8 girls. Participant selection was based on initial observations indicating that most children had not yet demonstrated optimal fine motor development. In this study, the classroom teacher served as the implementer of the instructional actions, while the researcher acted as an observer and facilitator in the reflection and evaluation processes.

Data collection instruments included observation, interviews, and documentation. Observation was used to obtain data on the development of children's fine motor skills during cooking class activities, with a focus on manipulative abilities, hand eye coordination, and children's engagement in learning activities. Interviews were conducted with the classroom teacher as the main informant to obtain supporting information regarding initial learning conditions, children's responses to the implemented method, and changes that occurred during the action cycles. Documentation was used to record the learning process in the form of photographs and field notes describing children's activities and classroom dynamics throughout the study.

Data analysis was conducted using a qualitative descriptive approach following the stages of data reduction, data display, and conclusion drawing. Data obtained from observations, interviews, and documentation were reduced to focus on information relevant to the development of children's fine motor skills through the cooking class method. The reduced data were then presented in narrative form and developmental tables to facilitate understanding of changes occurring in each action cycle. The conclusion drawing stage involved interpreting patterns of

continuous improvement in children's fine motor development based on the results of the data analysis (Himawati, 2020; Asmuddin et al., 2022).

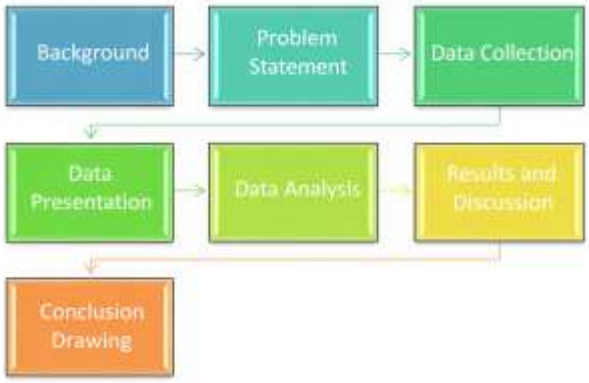

Figure 2. Stages of the Research Process

RESULT AND DISCUSSION

This study was conducted at PAUD Kartini Jatimulyo, South Lampung, involving Group B children aged 5–6 years, using a Classroom Action Research design based on the Kemmis and McTaggart model. The primary focus of the study was to improve children's fine motor skills through the implementation of the cooking class method, which was carried out progressively across two action cycles. Research data were collected through observations, interviews, and documentation during the learning process.

Initial observations conducted during the pre-cycle phase indicated that children's fine motor skills were not yet optimally developed. Most children were unable to demonstrate controlled hand and finger coordination during manipulative activities. Based on the observation results, 66.66% of children were categorized as Not Yet Developed (NYD), while 33.34% were categorized as Beginning to Develop (BD). At this stage, no children had reached the Expected Development (ED) or Very Well Developed (VWD) categories. These findings indicate that previous fine motor stimulation had not sufficiently met children's developmental needs.

The implementation of actions in Cycle I was carried out through cooking class activities designed to actively involve children in simple manipulative tasks. Observation results in this cycle showed positive changes in children's fine motor skills. The percentage of children in the Not Yet Developed (NYD) category decreased to 53%, while the Beginning to Develop (BD) category increased to 46%. In addition, children began to appear in the Expected Development (ED) category, accounting for 6%, although no children had yet reached the Very Well Developed (VWD) category. These changes indicate that cooking class activities had begun to positively affect children's fine motor coordination, although the outcomes were not yet optimal.

More substantial improvement was observed in Cycle II. Following revisions in planning and implementation based on reflections from Cycle I, observation results showed that no children remained in the Not Yet Developed (NYD) or Beginning to Develop (BD) categories. A total of 20% of children reached the Expected Development (ED) category, while 80% achieved the Very Well Developed (VWD) category. This achievement indicates that the majority of children were able to perform fine motor activities with good coordination, accuracy, and movement control through cooking class activities.

The following table presents a summary of children's fine motor development at each stage of the study.

Table 1. Summary of Student Percentage Scores in Improving Children's Fine Motor Skills through the Cooking Class Method

Cycle	Learning Session RPPH	Results of children's gross motor development								Total
		BB		MB		BSH		BSB		
		Children	%	Children	%	Children	%	Children	%	
Pre-cycle		14	99%	1	6%	0	0%	0	0%	10
Cycle I	III	8	53%	7	46%	1	6%	0	0%	10
Cycle II	VI	0	0%	0	0%	3	20%	12	80%	10
Total Percentage		**100%**		**100%**		**100%**		**100%**		

The results of this study indicate that the gradual implementation of the cooking class method through Classroom Action Research effectively improved the fine motor skills of children aged 5–6 years. The progression from the pre-cycle stage to Cycle II demonstrates that learning based on manipulative activities provides stimulation aligned with the developmental characteristics and needs of early childhood learners. These findings confirm that fine motor skills do not develop spontaneously but require repeated, structured practice within meaningful and enjoyable learning contexts, as emphasized in contemporary early childhood motor development literature (Aguss, 2021; Asmuddin et al., 2022; Gabbard, 2018).

From a constructivist theoretical perspective, improvements in children's fine motor skills can be understood through the view that children construct knowledge and skills through direct experience and active interaction with their learning environment. Cooking class activities position children as active learners engaged in concrete exploration, such as stirring, mixing, pouring, and shaping food ingredients. These activities provide rich sensorimotor experiences and naturally support the development of hand–eye coordination, consistent with experiential learning principles relevant to early childhood education (Papalia & Martorell, 2021; Diamond, 2020).

Beyond motor aspects, the findings also highlight the important role of human factors in early childhood learning processes. During cooking class activities, children demonstrated higher levels of engagement, increased enthusiasm, and more positive emotional responses compared to academically oriented learning activities. Active involvement and intrinsic motivation during the activities contributed to improved learning experiences, which in turn supported the enhancement of fine motor skills. These findings reinforce the view that child-centered learning involving meaningful activities enhances learning engagement while simultaneously supporting cognitive and social development (Hirsh-Pasek et al., 2015; Roebers & Kauer, 2021).

The more substantial improvement observed in Cycle II indicates that continuous reflection and refinement inherent in Classroom Action Research play a critical role in optimizing learning outcomes. Adjustments in instructional strategies, strengthened implementation of cooking class activities, and more effective classroom management enabled children to participate more consistently and optimally. These findings align with previous studies reporting that cooking class methods are effective in improving fine motor skills in early childhood when implemented in a planned, reflective, and iterative manner (Kamariah et al., 2020; Laely & Subiyanto, 2020; Wardhani & Wahyuni, 2023).

Overall, this discussion reinforces recent evidence demonstrating that play-based and manipulative activity-oriented learning has a positive impact on fine motor development in early childhood. This study shows that the implementation of cooking class activities within a Classroom Action Research framework not only contributes to improved fine motor development outcomes but also enhances the quality of the learning process through active engagement, learning motivation, and more meaningful learning experiences for young children, particularly within local early childhood education contexts (Aguss, 2021; Asmuddin et al., 2022).

CONCLUSIONS

This study aimed to improve the fine motor skills of children aged five to six years through the implementation of the cooking class method at PAUD Kartini Jatimulyo, Jatiagung District, South Lampung. The results of the Classroom Action Research conducted over two cycles indicate that the cooking class method was effective in gradually enhancing children's fine motor skills, as reflected in the shift of developmental categories from Not Yet Developed and Beginning to Develop toward Developing as Expected and Very Well Developed. These findings confirm that experiential, manipulative activities provide stimulation that is well aligned with the developmental characteristics of early childhood learners. In addition, children's active engagement, intrinsic motivation, and positive emotional responses during cooking class activities demonstrate that human factors play an important role in improving the quality of the learning process, consistent with Piaget's constructivist theory, which emphasizes learning through direct interaction with the environment.

From a practical perspective, the findings suggest that the cooking class method can serve as an alternative play-based instructional strategy for developing fine motor skills in early childhood in a contextual and meaningful manner. However, this study has several limitations. It was conducted in a single early childhood education institution with a limited number of participants and employed a qualitative descriptive approach over a relatively short period of time. As a result, the findings cannot be broadly generalized nor do they capture long-term impacts. Therefore, future research is recommended to involve more diverse contexts and larger samples, to integrate quantitative or mixed-methods approaches, and to explore the development of cooking class activities supported by visual media or simple technologies in order to further enrich early childhood learning experiences.

ACKNOWLEDGMENT

The authors would like to express sincere appreciation to the teachers and children of PAUD Kartini Jatimulyo, Jatiagung District, South Lampung, for their cooperation and active involvement throughout the research process. Gratitude is also extended to colleagues who provided academic input during the reflection and evaluation stages of this study.

AUTHOR CONTRIBUTION STATEMENT

EH contributed to research conceptualization, classroom action planning, data collection, and initial manuscript preparation. FL contributed to research design, observation, data analysis, interpretation of findings, and manuscript revision. Both authors reviewed and approved the final version of the manuscript.

CONFLICTS OF INTEREST

The authors declare that the research was conducted collaboratively with the participating school solely for educational and academic purposes. There were no financial sponsorships,

commercial interests, or personal relationships that could be perceived as influencing the research process or its outcomes.

REFERENCES

Aguss, R. M. (2021). Analisis perkembangan motorik halus usia 5–6 tahun pada era new normal. *Sport Science and Education Journal, 2*(1), 21–26. https://doi.org/10.33365/ssej.v2i1.998

Akyol, T. (2025). The effect of participatory pedagogy and children's participation training on early childhood teachers' views on children's participation. *Journal of Pedagogical Research*, *9*(4), 102-118. https://doi.org/10.33902/JPR.202533781

Amira, F. N., & Kadir, R. A. (2025). Pedagogical Approaches to Enhancing Fine Motor Skills in Early Childhood through Play-Based Activities. *International Journal of Pedagogy*, *3*(01). https://doi.org/10.31849/ijp.v3i01.26708

Asmuddin, A., Salwiah, S., & Arwih, M. Z. (2022). Analisis perkembangan motorik kasar anak di taman kanak-kanak Buton Selatan. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini, 6*(4), 3433–3443. https://doi.org/10.31004/obsesi.v6i4.2068

Brown, C. P., Ku, D. H., & Barry, D. P. (2021). Making sense of instruction within the changed kindergarten: perspectives from preservice early childhood educators and teacher educators. *Journal of Early Childhood Teacher Education*, *42*(1), 20-52. https://doi.org/10.1080/10901027.2020.1726532

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Diamond, A. (2013). Executive functions. *Annual review of psychology*, *64*(1), 135-168. https://doi.org/10.1146/annurev-psych-113011-143750

Duong, T. T. H., Nguyen, T. T. H., & Hoang, T. M. (2024). Exploring Teachers' Perspectives on Adaptive Learning in Undergraduate Programs, Vietnam National University, Hanoi. *International Journal of TESOL & Education*, *4*(3), 110-129. https://doi.org/10.54855/ijte.24437

Gabbard, C. (2021). *Lifelong motor development*. Lippincott Williams & Wilkins.

Halimah, N., & Chamidah, A. N. (2025). Nature-Based Sensory Play as an Intervention for Fine Motor Skills Development in Early Childhood. *Journal of Innovation and Research in Primary Education*, *4*(4), 2172-2185. https://doi.org/10.56916/jirpe.v4i4.2063

Himawati, F. (2020). *Metode penelitian*. Rajawali Pers.

Hirsh-Pasek, K., Zosh, J. M., Golinkoff, R. M., Gray, J. H., Robb, M. B., & Kaufman, J. (2015). Putting education in "educational" apps: Lessons from the science of learning. *Psychological Science in the Public Interest, 16*(1), 3–34. https://doi.org/10.1177/1529100615569721

Indria, A., Masniati, D., & Pasaleron, R. (2025). Cooking Class Learning to Improve Children's Fine Motor Skills. *Journal of Islamic Early Childhood Education*, *3*(1), 147-153.

Józsa, K., Oo, T. Z., Borbélyová, D., & Zentai, G. (2023). Exploring the growth and predictors of fine motor skills in young children aged 4–8 years. *Education Sciences*, *13*(9), 939. https://doi.org/10.3390/educsci13090939

Kamariah, H. P., Samad, S., & Anas, M. (2020). Pengembangan model permainan *cooking class* untuk meningkatkan motorik halus anak usia dini. *Tunas Cendekia: Jurnal Program Studi Pendidikan Islam Anak Usia Dini, 3*(2), 1–12. https://doi.org/10.24256/cendekia.v3i2.1612

Kemmis, S., McTaggart, R., & Nixon, R. (2014). *The action research planner: Doing critical participatory action research*. Springer. https://doi.org/10.1007/978-981-4560-67-2

Laely, K., & Subiyanto, S. (2020). *Cooking class* berbasis kearifan lokal meningkatkan motorik halus anak di daerah miskin. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini, 4*(2), 923–932. https://doi.org/10.31004/obsesi.v4i2.466

Li, P. H., & Chen, J. J. (2023). *The glocalization of early childhood curriculum: Global childhoods, local curricula*. Routledge. https://doi.org/10.4324/9781003274865

Maranatha, J. R., & Briliany, N. (2023). Enhancing fine motor skills in early childhood through fun cooking activities: A quasi-experimental study in Purwakarta, Indonesia. *Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini*, *8*(4), 203-212. https://doi.org/10.14421/jga.2023.84-01

Papalia, D. E., & Martorell, G. (2021). *Experience human development* (14th ed.). McGraw-Hill Education.

Pesch, A., Fletcher, K., Williams, O., & Hirsh-Pasek, K. (2025). Enhancing teacher-child engagement and promoting early learning with playful learning landscapes. *Journal of Applied Developmental Psychology*, *98*, 101786. https://doi.org/10.1016/j.appdev.2025.101786

Roebers, C. M., & Kauer, M. (2021). Motor and cognitive control in preschool children. *Frontiers in Psychology, 12*, 611781. https://doi.org/10.3389/fpsyg.2021.611781

Rukminingsih, Adnan, G., & Latief, M. A. (2020). *Metode penelitian pendidikan: Penelitian kuantitatif, kualitatif, dan tindakan kelas*. Rajawali Pers.

Sintia, S., Romba, S. S., & Rahmat, M. Y. (2025). Hands-On Activity on Fine Motor Skills in Early Childhood Education. *ETDC: Indonesian Journal of Research and Educational Review*, *5*(1), 83-94. https://doi.org/10.51574/ijrer.v5i1.4002

Sitorus, R. W., Siregar, K. P., & Sari, R. I. (2025). The role of play based learning in early childhood development. *Educia Journal*, *3*(1), 1-14. https://doi.org/10.71435/610424

Undang-Undang Republik Indonesia Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional.

Wardhani, A. E., & Wahyuni, A. (2023). Pembelajaran *cooking class* dalam meningkatkan keterampilan motorik halus anak. *Edukatif: Jurnal Ilmu Pendidikan, 5*(2), 1707–1718. https://doi.org/10.31004/edukatif.v5i2.5518