

Four weeks Sustainable Montessori Program for Preschool Child Self-Reliant Attitude at Kindergarten school Ringinrejo District Kediri

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Abstract

Introduction: Early childhood education plays an important role in shaping character, one of which is preschool self-reliant Attitude children. However, the level still varies, and the inconsistent application of learning methods can hinder the development of it. **Objective:** This study aims to determine the effect of a Sustainable Montessori Program (4 weeks) on Preschool Children's Self-Reliant Attitude at Kindergarten School, Ringinrejo District, Kediri Regency. **Method:** The study used a quantitative approach with a quasi-experimental nonequivalent control group design, involving 30 children who were divided into a control group and an experimental group. Data were collected through pretests and posttests using observation sheets and then analyzed using the Wilcoxon Test at a significance level of 0.05. **Result and Discussion:** This study showed an increase in Self-Reliant Attitude in the experimental group (p-value of 0.001), **Conclusions:** The Sustainable Montessori Program (for 4 weeks) has a significant effect on improving Self-Reliant Attitude of preschool children.

Introduction

Preschool child education is an essential phase in forming children's character, developmental readiness, and self-reliance attitude. It is regulated by Ministry of Education and Culture Indonesian Republic No. 146, 2014, which states that early childhood education is aimed at children from birth to six years old in order to optimize their developmental abilities before entering the next level of education (Peraturan Menteri Pendidikan Dan Kebudayaan RI Nomor 146, 2015). One main objective of preschool education is the development of children's self-reliance attitude. In this study, self-reliance attitude refers to children's ability and willingness to perform age-appropriate daily activities with minimal adult assistance, make simple choices, take initiative, and show responsibility for personal tasks. This concept is related to independence, autonomy, and self-help skills, but it is not identical to them. Independence emphasizes the ability to act without assistance, autonomy refers to the capacity to make choices and regulate behavior, while self-help skills focus on practical daily activities such as eating, dressing, toileting, and managing personal belongings. Self-reliance attitude integrates these aspects by emphasizing both behavioral ability and internal willingness to act independently. According by Syaiful, et al. (2020), the self-reliant attitude is still varied where 53% are already independent, 17% fairly, 30% still dependent on parents or caregiver (Yuanita et al., 2020). From a health perspective, self-reliance in preschool children is important because it is closely related to developmental health, adaptive behavior, personal hygiene, toileting readiness, nutrition-related habits, and psychosocial maturity. Children who are able to perform daily self-care activities more independently may show better readiness to maintain healthy routines and reduce excessive dependence on adults. Therefore, strengthening self-reliance attitude is not only an educational concern, but also part of child health promotion and early childhood developmental support.

The Montessori method is one learning approach that can support the development of children's self-reliance attitude because it provides structured freedom, prepared environments, and opportunities for children to choose activities according to their interests and developmental abilities. This method gives children the freedom to choose activities according to their interest and ability, thereby encouraging initiative, concentration, responsibility, creativity, and self-reliance attitude. Montessori method can improve self-reliance attitude through practical life skill and sensory activities among preschool-aged children, especially because practical life activities train children to repeat daily routines such as pouring, cleaning, dressing, arranging objects, and using tools safely. These repeated activities are relevant to the health sector because they support fine motor development, self-care behavior, hygiene habits, and children's confidence in managing their own basic needs

However, at PKK Kindergarten, Ringinrejo district, it is known that the level of self-reliance attitude has not yet reached optimal results. Although this school has implemented the Montessori Program since 2023, children are not yet fully accustomed to act independently and teachers still often give directions to maintain classroom order. In the learning process, many children still frequently ask questions and seek help when doing tasks, and are not yet accustomed to taking initiative. Some children need help with daily activities such as opening water bottle, taking off and putting clothes after going to toilet, cutting and using glue properly. These conditions indicate that children's self-reliance attitude should be understood not only as educational achievement, but also as part of developmental functioning and health-related daily living ability. Difficulties in

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performing age-appropriate self-help activities may reflect the need for continuous stimulation, habituation, and teacher support to strengthen children's developmental independence. Teachers play an important role in shaping children self-reliance attitude through habituation and repeatedly action, where the process to form habits requires a certain time, as automatic behavior generally forms an average in about 66 days, while adaptation phase to new routine can be reach for 2-4 weeks (Frothingham, 2025; Muammar et al., 2023).

The Montessori Program has been widely studied in relation to various aspects of child development, including motor development, cognitive and social abilities, and social competence. However, research specifically examining its impact on the sustainable development of children's self-reliance attitude remains limited (I. D. Iman et al., 2019; Rahmah et al., 2025). In addition, previous studies have not sufficiently emphasized self-reliance attitude as a health-related developmental outcome, particularly in relation to children's ability to perform self-care routines, regulate behavior, and participate actively in daily activities with minimal assistance. Therefore, this study aims to identify the self-reliance attitude of preschool children at PKK Kindergarten Ringinrejo district and to analyze the effect of implementing a Sustainable Montessori Program over a four-week period on the self-reliance attitude of preschool children. The school has implemented the Montessori Program since 2023 and is supported by officially certified teachers, making it an appropriate setting to strengthen evidence regarding the effectiveness of consistent Montessori practices in fostering children's self-reliance attitude. Thus, this study is expected to contribute not only to early childhood education, but also to child health development by providing evidence on how structured Montessori-based stimulation can support preschool children's self-care ability, adaptive behavior, and developmental readiness

Method

This research used A quantitative approach with a quasi-experimental design using a non-equivalent control group approach was applied to understand the effect of a sustainable Montessori Program (four weeks) on the *Self-Reliant Attitude* of preschool children. Quasi-experimental research is defined as a research method used to examine the effect of one variable on another variable without conducting full randomization of the research subjects (Gisela et al., 2025).

The population of this study consisted of all students in PKK Kindergarten, Ringinrejo district, Kediri Regency, totaling 30 children. All participants were selected as the research sample using a non-probability sampling technique. Furthermore, the total sampling was divided into two groups, experimental Group and control Group each consisting of 15 children, without randomization.

The inclusion criteria for this study were as follows: (1) children or student aged 4–5 years; (2) children who were physically and mentally healthy, without developmental disorders that could hinder participation in the study; (4) children who were able to participate in learning activities using the language of instruction applied in the classroom; and (5) children whose parents or guardians provided written informed consent for participation in the research.

The exclusion criteria were : (1) children who had participated in an intensive Montessori Program (≥ 3 times per week) for at least three months prior to the commencement of the study; (2) children who were concurrently involved in other special programs aimed at self-reliance attitude, such as intensive therapy or specialized classes,

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during the research period; (3) children with a high level of school absenteeism, defined as $\geq 20\%$ of the total meetings; and (4) children or families planning to transfer to another school during the study period.

After obtaining informed consent from the parents, a pretest was conducted to assess the children's self-reliance attitudes. Subsequently, the Montessori Method intervention was implemented continuously in accordance with the observation guidelines, and the study was concluded with a posttest evaluation. The research sample consisted of two groups: an experimental group, which received Four weeks sustainable Montessori technique intervention, and a control group, which received a Montessori technique implemented only according to the regular school schedule. Based on assessment self-reliant attitude (pretest and posttest), classified to: (1) Not yet developed, (2) Starting develop, (3) Developing as expected, and (4) highly developed. The Wilcoxon test used to analyse data with using IBM SPSS Statistics version 25 with a significance level of 0.05, with the significance value (2-tailed) of < 0.05 .

Result and Discussion

1. Result

Based on Table 1, involving a total of 30 children, the characteristics of respondents in the control group showed that the majority were 5 years old: 8 children (53.33%), and female: 8 children (53.33%). Seven children were first-born children (46.67%), while 7 children had one sibling (46.67%), and all respondents in the control group were cared for by their parents. In the experimental group, the majority of respondents were also 5 years old: 9 children (60%), and female: 10 children (66.67%). Most respondents were first-born children, 10 children (66.67%), and all respondents in the experimental group were cared for by their parents.

Table 1
Sample Characteristics

Characteristics	Control group (n=15)		Experimental group (n=15)		Total (n)		p	
	n	%	n	%	n	%		
Aged	4 years old	7	46.67	6	40	13	43.33	0.713*
	5 years old	8	53.33	9	60	17	56.67	
Gender	Boy	7	46.67	5	33.33	12	40	0.456*
	Girl	8	53.33	10	66.67	18	60	
Birth order	1 st	7	46.67	10	66.67	17	56.67	0.440*
	2 nd	5	33.33	4	26.67	9	30	
	3 rd	3	20	1	6.67	4	13.33	
Sibling	no	4	26.67	8	53.33	12	40	0.318*
	1	7	46.67	4	26.67	11	36.67	
	2	4	26.67	3	20	7	23.33	
Caregiver	Parents	15	100	15	100	30	100	-
	Grandfather or Grandmother	0	0	0	0	0	0	
	Sibling	0	0	0	0	0	0	
	Housemaid	0	0	0	0	0	0	
	Another	0	0	0	0	0	0	

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The analysis showed that there were no significant differences between the control and the experimental group in all respondent characteristics. Therefore, it can be concluded that both groups in this study were homogeneous in terms of demographic characteristics measured in this study, including age, sex, birth order, number of siblings, and caregiver status. The results of pre-test assessment of children's self-reliant attitude in the control group showed that the majority were categorized as Highly developed: 14 children (93.33%), while 1 child (6.67%) was categorized as Developing as Expected. In the post-test, the number of children in the Highly developed category decreased to 13 children (86.67%), whereas the Developing as Expected category increased to 2 children (13.33%).

Meanwhile, in the experimental group, the pre-test results before four weeks sustainable Montessori Program showed that the majority of children were also categorized as Highly developed: 11 children (73.33%), and 4 children (26.67%) were categorized as Developing as Expected. However, after receiving four weeks Sustainable Montessori Program, all children were categorized as Highly developed: 15 children (100%) (Table 2). Although this finding indicates improvement in the experimental group, the interpretation should consider the possibility of a ceiling effect because most children had already been categorized as Highly developed before the intervention, especially in the control group. This condition suggests that the opportunity to observe large categorical changes was limited from the beginning.

Table 2
Self-reliant attitude assessment

Criteria	Control group (n=15)				Experimental Group (n=15)			
	Pre-test		Post-test		Pre-test		Post-test	
	n	%	n	%	n	%	n	%
Not yet develop	0	0	0	0	0	0	0	0
Starting Develop	0	0	0	0	0	0	0	0
Developing as Expected	1	6.67	2	13.33	4	26.67	0	0
Highly developed	14	93.33	13	86.67	11	73.33	15	100

Statistical analysis showed that in the control group, the p-value was 0.053 (>0.05), showing that there was no significant difference in self-reliant attitude scores between the pre-test and post-test. In contrast, the experimental group demonstrated a p-value of 0.001 (<0.05), indicating that there was a statistically significant difference in self-reliant attitude between the pre-test and the post-test before and after four weeks sustainable Montessori Program implementation (Table 3). However, because the baseline category of self-reliant attitude was already high in both groups, the statistical results should be interpreted together with the distribution of pre-test scores and the possibility that the categorical assessment may be less sensitive in detecting small but meaningful changes among children who were already highly developed.

Table 3
Bivariate analyzed pre-test and post-test assessment (self-reliant attitude)

Group	Criteria	Pre-test		Post-test		p
		n	%	n	%	
Control Group (n=15)	Developing as Expected	1	6.67	2	13.33	0.053*
	Highly developed	14	93.33	13	86.67	
Experimental Group (n=15)	Developing as Expected	4	26.67	0	0	0.001*
	Highly developed	11	73.33	15	100	

*Wilcoxon Test

2. Discussion

This study showed that there was a significant difference in self-reliant attitude between the pre-test and the post-test before and after four weeks sustainable Montessori Program implementation (Table 3), and the characteristic sample were homogeneous (Table 1). The conventional paradigm of teacher-centered education is increasingly viewed as inefficient for nurturing children's self-reliant attitude and self-directed growth (Pratiti, 2018). Nevertheless, an important methodological consideration in this study is the presence of a ceiling effect. Before the intervention, 93.33% of children in the control group and 73.33% of children in the experimental group were already categorized as Highly developed. This indicates that most children had demonstrated a high level of self-reliant attitude at baseline, leaving limited room for further categorical improvement after the intervention. Therefore, the effectiveness of the Montessori Program should not be interpreted only from the shift in categories, but also from changes in mean scores and behavioral consistency observed during daily activities

The experimental group exhibited a substantial increase in children's self-reliant attitude scores, rising from a pre-test mean of 38.93 to a post-test mean of 42.60. Notably, this improvement was observed across all respondents within the group, indicating a more consistent and uniform behavioral shift. Conversely, while the control group also showed an increase in mean self-reliant attitude scores from 43.66 to 44.53, this change was statistically insignificant and did not occur universally, as some children maintained stagnant scores. These findings suggest that conventional learning without the four weeks sustainable Montessori Program does not optimize the enhancement as effectively as the experimental group. However, because the control group had a higher baseline mean score than the experimental group, the greater increase in the experimental group may partly reflect greater opportunity for improvement. This condition reinforces the need for cautious interpretation and suggests that future studies should use larger samples, more varied baseline characteristics, and more sensitive measurement instruments to reduce the influence of ceiling effects.

The four weeks sustainable Montessori program integrates practical life and sensorial activities in a consistent and systematic manner. Practical life exercises—such as packing away toys and tools, returning materials to their proper places, putting on shoes independently, opening and closing water bottles, and organizing backpacks—serve to cultivate children's responsibility, reduce dependency on others, and habituate them to initiating and completing tasks autonomously while adapting to classroom rules and routines. Within the context of sensorial activities, tasks such as pouring water, completing puzzles, creating origami or paper crafts, and presenting their work train children to explore based on their individual capacities, express ideas, foster creativity, and build self-confidence during social interactions and public speaking. Ultimately, the consistent implementation of these habituation behaviors through a combination of both activities plays an essential role in developing children's self-reliant attitude, responsibility, socio-emotional skills, and courage to take an active role in the learning process. In addition, the changes observed in children's self-reliant attitude may also be influenced by external factors, including teacher guidance, classroom routines, parental support, and children's habits at home. Since all respondents were cared for by their parents, home-based stimulation and parenting practices may have contributed to children's ability to perform daily self-help activities independently.

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A four weeks sustainable Montessori programs has proven effective in stimulating children's self-reliance attitude. Through practical life and sensorial activities, this approach fosters the development of responsibility, self-regulation, concentration, social skills, and autonomous decision-making (Lodewijk, 2023). However, the role of teachers should also be acknowledged because Montessori implementation depends not only on learning materials, but also on how teachers provide structured freedom, give repeated opportunities, and reduce excessive assistance. Differences in teacher consistency, classroom management, and reinforcement may influence how quickly children develop independent behavior

The findings of this study are aligned with the research by Maarif and Fauziyyah (2025), which demonstrated that the Montessori method significantly enhances children's independence, as evidenced by a substantially larger score increase in the experimental group compared to the control group ($p < 0.05$), alongside improvements in decision-making and responsibility (Maarif & Fauziyyah, 2025). This outcome is also consistent with Wulandari et al. (2018), who reported that the Montessori approach is effective in building independent character and supporting responsibility, self-mastery, concentration, and social skills (Wulandari et al., 2018). Furthermore, a study by Iman et al. (2017) indicated that Montessori education enhances children's emotion regulation, social competence, and autonomous development (E. D. Iman et al., 2017). Taken together, these corroborating studies reinforce that a continuous Montessori program effectively strengthens children's self-regulation and sense of responsibility. Nevertheless, the findings of the present study should be positioned within its methodological limitations, particularly the high baseline level of self-reliant attitude and the possibility that external environmental factors outside the school intervention also affected children's development

The result aligns consistently with previous research, which demonstrates that four weeks sustainable Montessori implementation enhances self-reliant attitude in preschool-aged children. This growth is fostered through practical life activities, directed freedom, and the reinforcement of personal responsibility for their actions. Specifically, our findings indicate this implementation significantly improves self-reliant attitude at PKK Kindergarten, Ringinrejo district. In the context of midwifery, these results highlight an essential role in optimizing early childhood health and development, particularly during the golden age (0–6 years). Midwives can provide targeted education to caregivers regarding the critical importance of developmental stimulation using the Montessori method, which has proven effective in fostering autonomy in preschoolers. Ultimately, effective collaboration among kindergarten teachers, healthcare professionals, and parents serves as a cornerstone for optimizing sustainable childhood growth and development. Future studies are recommended to control or assess parental involvement, home routines, teacher behavior, and prior exposure to Montessori activities so that the specific effect of the Montessori Program can be more clearly distinguished from other developmental influences. In addition, further research should consider using continuous score analysis, item-level assessment, or longer follow-up periods to better capture changes among children who are already categorized as Highly developed at baseline

Conclusion

In conclusion, following the intervention, all 15 children (100%) in the experimental group achieved the 'highly developed' category for preschool independence. In contrast, the majority of the control group fell into the 'highly developed' category (13 children, 86.67%), while the remaining 2 children (13.33%) were categorized as 'developing as expected'. Statistical analysis confirmed that four weeks sustainable Montessori Program significantly enhanced preschoolers' self-reliant Attitude. This significant impact is evidenced by a more pronounced categorical shift from 'developing as expected' to 'highly developed' in the experimental group compared to the control group

References

- Frothingham, S. (2025). *How Long Does It Take for a New Behavior to Become Automatic?* <https://www.healthline.com/health/how-long-does-it-take-to-form-a-habit>.
- Gisela, A., Rindrayani, S. R., & Nastiari, M. F. (2025). *Metodologi Penelitian Quasi Eksperimen*. *Adiba :Journal of Education*, 5(2), 183–192.
- Iman, E. D., Danisman, S., Demircan, Z. A., & Yaya, D. (2017). The effect of the Montessori education method on pre-school children's social competence–Behaviour and emotion regulation skills. *Early Child Development and Care*, 189(9).
- Iman, I. D., Danisman, S., Demircan, Z. A., & Yaya, D. (2019). The effect of the Montessori education method on pre-school children's social competence – behaviour and emotion regulation skills. *Early Child Development and Care*, 189(9), 1494–1508.
- Lodewijk, D. P. Y. (2023). *Petualangan Belajar dengan Metode Montessori: Membangun Kecerdasan dan kreativitas anak*. Jawa Barat: Guepedia.
- Maarif, F. A., & Fauziyyah, N. (2025). *Penerapan Metode Montessori untuk Meningkatkan Kemandirian Anak Usia Dini*. *Jurnal Pendidikan Merdeka Belajar*, 2(2), 70–78.
- Muammar, Q., Maulidya, U., Miftachul Huda, & Neneng, A. (2023). *Fostering Independent Learning in Early Childhood: A Case Study on Montessori Pedagogy at PAUD Montessori Futura Indonesia*. *Golden Age. Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini*, 8(3), 109–120.
- Peraturan Menteri Pendidikan Dan Kebudayaan RI Nomor 146 (2015). Kurikulum Pendidikan Anak Usia Dini.
- Pratitis, N. (2018). Perbedaan Tingkat Kemandirian Belajar Ditinjau Dari Metode Pembelajaran pada Anak. *Persona Jurnal Psikologi Indonesia*, 7(2), 60–68.
- Rahmah, A. A., Fatimah, N., & P, D. A. F. (2025). *Implementasi Metode Montessori Dalam Mengembangkan Sensori Motorik Untuk Meningkatkan Kemandirian Anak Usia 3–4 Tahun Di KB Babur Rahman Pakuniran*. *Indonesian Journal of Islamic Golden Age Education*, 6(1), 1–12.
- Wulandari, D. A., Safuddin, S., & Muzakki, J. A. (2018). Implementasi pendekatan Metode montessori dalam membentuk karakter mandiri pada anak usia Dini. *AWLADY: Jurnal Pendidikan Anak*, 4(2), 1–19.
- Yuanita, S., Lilis, F., & Wanda Magfuzatin, N. (2020). *Faktor yang berhubungan dengan kemandirian anak usia pra sekolah*. *Journals of Ners Community*, 11(2), 216–227.