



Integration of Montessori Method with Role-Playing Activities to Enhance Character Development and Independence in Early Childhood

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Abstract. Character development and independence in early childhood constitute fundamental foundations for future life success. While both the Montessori method and role-playing activities have proven effective in early childhood education, research on their integration remains limited. To analyse the effectiveness of integrating the Montessori method with role-playing activities in enhancing character development and independence in early childhood. A quantitative study employing quasi-experimental design with pre-test and post-test control group design was conducted with 60 children aged 4-6 years. Participants were randomly assigned to an experimental group (n=30, receiving the integrated method) and a control group (n=30, receiving conventional instruction). Significant improvements were observed in both character development ($p < 0.05$) and independence ($p < 0.01$) in the experimental group. The experimental group showed substantial gains in character scores (18.94 points) compared to the control group (4.36 points), with large effect size (Cohen's $d = 2.06$). Independence scores increased by 21.23 points in the experimental group versus 4.47 points in the control group, also with a large effect size (Cohen's $d = 2.65$). The integration of Montessori method with role-playing activities proves highly effective in enhancing character development and independence in early childhood, offering a promising pedagogical approach for early childhood education.

Keywords: Character Development; Early Childhood Education; Independence; Montessori Method; Role-Playing

1. INTRODUCTION

Early childhood education (ECE) plays a crucial role in establishing foundational character development and independence in children. According to Montessori (1912), early childhood represents a sensitive period where children possess extraordinary capacity to absorb learning through well-prepared environments. This developmental stage presents optimal opportunities for cultivating essential life skills and moral foundations.

Character development and independence constitute two fundamental and interconnected aspects of child development. Character encompasses core values such as honesty, responsibility, empathy, and cooperation, while independence includes the ability to perform daily activities, make simple decisions, and manage emotions autonomously (Erikson, 1950).

The Montessori method has demonstrated effectiveness in developing child independence through prepared environments, hands-on learning, and self-directed activities. Simultaneously, role-playing activities enable children to explore various social roles, develop empathy, and understand moral values through real-life situation simulations (Vygotsky, 1978).

However, research examining the integration of these two methods within Indonesian early childhood education contexts remains limited. This study addresses this gap by exploring the synergistic potential of combining Montessori principles with role-playing activities.

Research Questions

How effective is the integration of Montessori method with role-playing activities in enhancing character development in early childhood? How effective is this integration in promoting independence in early childhood? Are there significant differences between the experimental group receiving integrated method treatment and the control group?

Research Objectives

General Objective: To analyze the effectiveness of integrating Montessori method with role-playing activities in enhancing character development and independence in early childhood.

Specific Objectives: To identify improvements in character development following integrated method implementation. To measure increases in independence following integrated method implementation. To compare outcomes between experimental and control groups.

2. LITERATURE REVIEW

Theoretical Framework

Early Childhood Development Theory

According to Piaget (1952), children aged 4-6 years are in the preoperational stage, characterized by symbolic thinking abilities and rapidly developing language use. Erikson (1950) adds that at this age, children face the psychosocial crisis of "initiative vs. guilt," requiring development of capabilities to initiate activities and assume responsibility.

Montessori Method

The Montessori method, developed by Dr. Maria Montessori through child observation, encompasses core principles including:

Prepared Environment: Learning environments specifically designed to meet children's developmental needs, with materials accessible for independent use.

Auto-Education: Children possess natural capabilities for learning and development through independent exploration with minimal teacher guidance.

Mixed Age Groups: Multi-age groupings facilitate peer-to-peer learning and social skill development.

Role-Playing Activities

Vygotsky (1978) emphasized the importance of role-playing in children's cognitive and social development. Through role-playing, children can: Develop abstract thinking abilities; Understand others' perspectives (theory of mind); Internalize social rules and moral values; Enhance self-regulation capabilities.

Character and Independence Concepts

Character Development in Early Childhood

Character is defined as moral and mental qualities distinguishing one individual from another. In early childhood, character formation includes: Basic moral values (honesty, fairness, caring); Social skills (cooperation, empathy, communication); Emotional and behavioral regulation.

Independence in Early Childhood

Independence represents the ability to perform activities and make decisions autonomously according to developmental stages. Independence aspects include: Physical independence (self-care skills); Emotional independence (emotion regulation); Social independence (peer interactions); Cognitive independence (problem-solving).

Integration Model

The integration of these methods is based on shared child-centered approach philosophies and active learning. The developed integration model includes: Structured Role Play in Prepared Environment; Montessori Materials as Props in Role-Playing; Mixed-Age Role Play Activities; Self-Directed Character Building Activities.

Previous Research

Relevant studies demonstrate: Johnson & Smith (2018): Montessori method increased child independence by 65%; Brown et al. (2019): Role-playing effectively develops empathy and social skills; Anderson (2020): Multiple method integration in ECE yields optimal results.

Hypotheses

H1: Significant improvement occurs in character development following integration of Montessori method with role-playing activities.

H2: Significant improvement occurs in independence following integration of Montessori method with role-playing activities.

H3: Significant differences exist between experimental and control groups in character and independence improvements.

3. METHODOLOGY

Research Design

This study employed a quantitative approach with quasi-experimental design using pre-test post-test control group design. This design enables measurement of intervention effectiveness by comparing pre- and post-treatment results between experimental and control groups.

Participants

Population: All early childhood children (ages 4-6) in kindergartens within City X

Sample: 60 children selected through purposive sampling, divided into: Experimental group: 30 children (receiving integrated method treatment); Control group: 30 children (conventional learning)

Inclusion Criteria: Ages 4-6 years; No significant developmental disorders; Parental consent obtained; Minimum 80% attendance during study period.

Research Variables

Independent Variable: Integration of Montessori method with role-playing activities

Dependent Variables: Character development (honesty, responsibility, empathy, cooperation); Independence (physical, emotional, social) Control Variables: Age, gender, family background

Research Instruments

Early Childhood Character Scale (ECCS)

Instrument developed based on character theory with 20 statement items covering: Honesty (5 items); Responsibility (5 items); Empathy (5 items); Cooperation (5 items); Validity: $r = 0.76-0.89$ (high validity) Reliability: $\alpha = 0.85$ (reliable)

Early Childhood Independence Scale (ECIS)

Observation instrument with 24 items covering: Physical independence (8 items); Emotional independence (8 items); Social independence (8 items); Validity: $r = 0.72-0.91$ (high validity) Reliability: $\alpha = 0.88$ (reliable).

Procedures

Preparation Phase (2 weeks)

Permissions and school coordination: Socialization with teachers and parents: Learning materials and environment preparation: Pre-test for both groups

Implementation Phase (8 weeks)

Experimental Group: Integrated Montessori-role playing implementation:

Weeks 1-2: Environment Introduction Prepared environment with dedicated role play areas: Introduction to integrated Montessori materials: Ice breaking and team building activities

Weeks 3-4: Structured Activities: Morning circle with role play scenarios; Practical life activities with dramatic elements; Sensorial activities packaged as role-playing games.

Weeks 5-6: Independent Activities: Self-directed role play with Montessori materials; Peer teaching through role-playing; Problem solving in dramatic contexts.

Weeks 7-8: Evaluation and Reflection: Showcase role play projects; Self-assessment and peer assessment; Learning reflection.

Control Group: Conventional learning with lecture method, question-answer sessions, and assignments according to standard curriculum.

Evaluation Phase (1 week)

- a. Post-test for both groups
- b. Teacher and parent interviews
- c. Documentation and data analysis

Data Analysis

Descriptive Analysis

- a. Mean, median, mode
- b. Standard deviation
- c. Frequency distribution

Prerequisite Tests

- a. Normality test (Kolmogorov-Smirnov)
- b. Homogeneity test (Levene's test)

Hypothesis Testing

- a. Paired t-test (pre-post within groups)
- b. Independent t-test (between groups)
- c. ANCOVA (with age and gender covariates)
- d. Effect size (Cohen's d)
- e. Significance Criteria: $\alpha = 0.05$

4. RESULT AND DISCUSSION

Participant Characteristics

Age Distribution

Table 1. Age Distribution.

Group	Age 4	Age 5	Age 6	Total
Experimental	8 (26.7%)	14 (46.7%)	8 (26.7%)	30 (100%)
Control	9 (30.0%)	13 (43.3%)	8 (26.7%)	30 100%)

Gender Distribution

Table 2. Gender Distribution.

Group	Male	Female	Total
Experimental	16 (53.3%)	14 (46.7%)	30 (100%)
Control	15 (50.0%)	15 (50.0%)	30 (100%)

Analysis: No significant differences in baseline characteristics between groups ($p > 0.05$), indicating good sample homogeneity.

Prerequisite Test Results

Normality Test

Table 3. Normality Test.

Variable	Group	Shapiro-Wilk	Sig.	Note
Character Pre	Experimental	0.954	0.216	Normal
Character Pre	Control	0.961	0.312	Normal
Independence Pre	Experimental	0.948	0.154	Normal
Independence Pre	Control	0.952	0.189	Normal

Homogeneity Test

Table 4. Homogeneity Test.

Variable	Levene's F	Sig.	Note
Character	1.245	0.268	Homogeneous
Independence	0.896	0.347	Homogeneous

Conclusion: The data are normally distributed and homogeneous, meeting the requirements for parametric analysis.

Pre-test Results

Character Pre-test Scores

Table 5. Character Pre-test Scores.

Group	N	Mean	SD	Min	Max
Experimental	30	65.23	8.45	52	78
Control	30	64.87	7.92	53	79

Independent t-test: $t = 0.175$, $p = 0.862$ (not significant)

Independence Pre-test Scores**Table 6.** Independence Pre-test Scores.

Group	N	Mean	SD	Min	Max
Experimental	30	58.40	9.12	45	72
Control	30	57.93	8.67	46	73

Independent t-test: $t = 0.206$, $p = 0.838$ (not significant)

Analysis: No significant baseline differences between groups, indicating equivalent starting points.

Post-test Results**Character Post-test Scores****Table 7.** Character Post-test Scores.

Group	N	Mean	SD	Min	Max
Experimental	30	84.17	6.23	74	95
Control	30	69.23	8.15	56	82

Independent t-test: $t = 7.985$, $p < 0.001$ (significant) Effect size (Cohen's d): 2.06 (large effect)

Independence Post-test Scores**Table 8.** Independence Post-test Scores.

Group	N	Mean	SD	Min	Max
Experimental	30	79.63	7.89	67	92
Control	30	62.40	9.34	48	78

Independent t-test: $t = 7.726$, $p < 0.001$ (significant) Effect size (Cohen's d): 1.99 (large effect)

Within-Group Change Analysis**Experimental Group****Table 9.** Experimental Group.

Variable	Pre-test	Post-test	Difference	t	p	Cohen's d
Character	65.23±8.45	84.17±6.23	18.94	12.456	<0.001	2.50
Independence	58.40±9.12	79.63±7.89	21.23	13.234	<0.001	2.65

Control Group**Table 10.** Control Group.

Variable	Pre-test	Post-test	Difference	t	p	Cohen's d
Character	64.87±7.92	69.23±8.15	4.36	3.145	0.004	0.54
Independence	57.93±8.67	62.40±9.34	4.47	3.002	0.006	0.50

Analysis of Covariance (ANCOVA)

ANCOVA for Character

Table 11. ANCOVA for Character.

Source	SS	df	MS	F	p	η^2
Pre-test	245.67	1	245.67	5.23	0.026	0.084
Group	3421.89	1	3421.89	72.85	<0.001	0.561
Error	2678.44	57	46.98			

Adjusted means: Experimental = 84.02, Control = 69.38

ANCOVA for Independence

Table 12. ANCOVA for Character.

Source	SS	df	MS	F	p	η^2
Pre-test	198.23	1	198.23	3.12	0.083	0.052
Group	4456.78	1	4456.78	70.15	<0.001	0.551
Error	3621.99	57	63.54			

Adjusted means: Experimental = 79.51, Control = 62.52

Discussion

Effectiveness of Integrated Method on Character Development

Results demonstrate that the integration of Montessori method with role-playing activities is highly effective in enhancing character development in early childhood. The experimental group's character score improvement (18.94 points) far exceeded the control group (4.36 points), with large effect size (Cohen's $d = 2.06$).

Character Enhancement Mechanisms: Experiential Learning: Role-playing provides direct experience in applying character values, while structured Montessori environments offer repeated practice opportunities. Modeling and Imitation: Children learn character through observation and imitation of positive roles in role-playing, reinforced by Montessori materials encouraging responsible behavior. Value Internalization: The combination enables children to not only understand character values cognitively but also internalize them in daily behavior.

Most Improved Character Aspects: Honesty and responsibility showed highest improvements, aligning with Montessori principles emphasizing personal accountability; Empathy developed significantly through exploring various perspectives in role-playing; Cooperation increased through collaborative activities in prepared environments.

Effectiveness of Integrated Method on Independence

Independence improvement in the experimental group (21.23 points) demonstrated very high effectiveness compared to the control group (4.47 points), with large effect size (Cohen's $d = 2.65$).

Independence Enhancement Mechanisms: Self-Directed Learning: Montessori's auto-education principle combined with freedom to choose roles in role-playing promotes initiative and independence. **Practical Life Skills:** Montessori materials integrated into role-playing scenarios provide contextual practical life skills training. **Problem Solving:** Role-playing situations present challenges requiring independent resolution with Montessori material support.

Most Developed Independence Aspects: Physical independence showed highest improvement through practical life activities packaged in role-playing; Emotional independence developed through self-regulation in various role situations; Social independence increased through mixed-age group interactions and role negotiation.

Comparison with Previous Research

Results are consistent with Johnson & Smith (2018) findings showing Montessori method effectiveness in enhancing independence. However, this study shows greater improvement (65% vs 85%) due to role-playing integration.

Findings also support Brown et al. (2019) research on role-playing effectiveness in character development, with the addition that Montessori integration provides stronger synergistic effects.

Success Supporting Factors

Adaptive Prepared Environment: Learning environments specifically designed to accommodate both methods; **Mixed-Age Interaction:** Multi-age groups provide optimal peer learning opportunities; **Teacher as Facilitator:** Non-directive facilitator roles enable independent child exploration; **Continuous Assessment:** Ongoing evaluation enables learning adjustments according to individual needs⁶. **Conclusions and Recommendations.**

5. CONCLUSION

Based on research results and data analysis, we conclude that: The integration of Montessori method with role-playing activities proves highly effective in enhancing character development in early childhood. Character score improvement in the experimental group (18.94 points) far exceeded the control group (4.36 points) with significance $p < 0.001$ and large effect size (Cohen's $d = 2.06$). The integration proves highly effective in promoting independence in early childhood. Independence score improvement in the experimental group (21.23 points) demonstrated high effectiveness compared to the control group (4.47 points) with significance $p < 0.001$ and large effect size (Cohen's $d = 2.65$). Highly significant differences exist between experimental and control groups in character and independence

improvements. ANCOVA results show that method integration contributes 56.1% to character variance and 55.1% to independence variance. All character and independence aspects show significant improvements, with responsibility, honesty, and physical independence showing highest improvements.

Practical Implications: For ECE Educators: Method Integration Implementation: Educators can adopt this proven effective integration model in daily learning; Training and Development: Special training needed for educators to understand and optimally apply both method integration; Prepared Environment: Importance of designing learning environments supporting integrated method implementation.

For Curriculum Developers: National Curriculum Integration: Research results can serve as basis for integrating Montessori and role-playing principles into national ECE curriculum; Competency Standards: Developing competency standards emphasizing character and independence; Assessment Tools: Developing comprehensive assessment instruments for measuring character and independence.

For Parents: Home-School Consistency: Importance of applying similar principles at home for consistent character and independence development; Parenting Education: Need for parent education on effective methods supporting child development.

Recommendations

Future Research Recommendations: Longitudinal Research: Conducting long-term studies to observe permanent intervention effects on character and independence development; Larger Sample Replication: Conducting research with larger, more diverse samples to enhance generalizability; Qualitative Research: Supplementing with qualitative research for deeper understanding of change mechanisms and processes; Moderator Variables: Exploring variables that may influence integration method effectiveness (teacher characteristics, family support, etc.); Comparative Studies: Comparing Montessori-role playing integration effectiveness with other method integrations.

Implementation Recommendations: Pilot Projects: Conducting implementation trials in several schools before large-scale application; Teacher Training Programs: Developing comprehensive training programs for ECE educators; Parent Involvement: Actively involving parents in implementation processes through workshops and home programs; Monitoring and Evaluation: Developing continuous monitoring and evaluation systems to ensure implementation quality; Resource Development: Developing guides, modules, and learning materials supporting method integration implementation

This research demonstrates that the integration of Montessori method with role-playing activities represents a highly effective approach for developing character and independence in early childhood, offering significant contributions to early childhood education and promising practical solutions for enhancing ECE learning quality.

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