



The Correlation between Traditional Children's Songs (Lagu Dolanan) in Pre-Learning Activities and Socio-Emotional Development of Children Aged 5-6 Years



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ABSTRACT

This study aims to analyze the correlation between the use of traditional children's songs (lagu dolanan) during pre-learning activities and the socio-emotional development of children aged 5–6 years at TK Taman Indria 1, Malang City, Indonesia. Socio-emotional development in early childhood is a critical foundation for future mental health, academic success, and social competence. However, many kindergartens have not optimally integrated traditional songs as a structured pedagogical tool. This research employed a quantitative correlational design involving 100 children selected through saturated sampling from groups A1, A2, B1, and B2. Data were collected using observation sheets, teacher questionnaires, and semi-structured interviews, all developed based on standardized socio-emotional indicators and song implementation metrics. The findings revealed that lagu dolanan use fell into the high category ($mean = 49.57$, $SD = 1.289$), with 89% of children demonstrating consistent engagement. Socio-emotional development scores were also high ($mean = 64.32$, $SD = 2.093$), with 92% of children showing age-appropriate emotional regulation and social skills. Because the data were not normally distributed (Shapiro-Wilk $p < 0.05$), a Spearman rank correlation test was conducted. The analysis yielded a correlation coefficient of $\rho = 0.489$ ($p = 0.000$, $p < 0.05$), indicating a positive, significant relationship between the two variables. These results suggest that more structured and frequent implementation of traditional children's songs during pre-learning activities is associated with higher socio-emotional development. This study contributes original empirical evidence from an Indonesian early childhood context, filling a gap in quantitative studies on culturally grounded pedagogies. The findings support integrating local wisdom into daily teaching practices as an affordable, engaging, and effective strategy for holistic child development.

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1. Introduction

Early childhood, particularly the age range of 5–6 years, represents a critical period for socio-emotional development, as children begin to form their first peer relationships, learn to identify and regulate emotions, and develop foundational empathy and cooperation skills (Denham, 2023; Eisenberg et al., 2023). During this stage, children transition from parallel



play to more interactive social engagement, requiring deliberate stimulation from educators and parents to foster healthy interpersonal competencies (Jones & Kahn, 2022). Research has consistently demonstrated that socio-emotional competence in preschool predicts later academic achievement, mental health outcomes, and even career success (Moffitt et al., 2021; McClelland et al., 2020). Without adequate support, children may experience difficulties in emotional regulation, increased externalizing behaviors, and challenges forming secure attachments with peers and teachers (Bowlby & Ainsworth, 2022). Therefore, identifying effective, contextually appropriate pedagogical strategies to enhance socio-emotional growth is an urgent priority for early childhood education systems worldwide, including in Indonesia.

Observations conducted by the researchers at TK Taman Indria 1, Kota Malang, in March 2024 revealed a significant gap in integrating traditional cultural elements into daily classroom routines. Although the kindergarten serves 100 children aged 5–6 years with adequate facilities, preliminary field notes indicated that pre-learning activities—critical transition periods before main lessons—relied heavily on conventional greetings, roll calls, and unstructured free play. Teachers rarely used traditional children's songs (*lagu dolanan*) systematically, despite acknowledging their potential benefits when asked informally. More specifically, of the eight observed classroom sessions across four groups (A1, A2, B1, B2), only two included any traditional songs, and neither used them deliberately to build socio-emotional skills. Teachers cited a lack of training, limited song repertoires, and uncertainty about how to link singing to developmental outcomes as primary barriers. This observation aligns with broader national concerns about the erosion of local cultural practices in Indonesian early childhood education, where Western digital media increasingly displaces indigenous play-based traditions (Prasetyo & Lestari, 2023; Wulandari, 2021).

Furthermore, structured interviews with four classroom teachers at the same institution highlighted a common misconception: that socio-emotional development is best addressed through direct instruction or separate "character education" sessions rather than through integrated activities such as singing or transitional games. One teacher stated, "*We sing sometimes, but I never thought of it as teaching emotions or cooperation. That's what our moral stories and group discussions are for*" (personal communication, March 15, 2024). This perspective contradicts decades of developmental theory, which suggests that young children learn socio-emotional skills most effectively through playful, embodied, and repeated social experiences, rather than through didactic lessons (Vygotsky, 1978; Bodrova & Leong, 2023). The gap between teachers' intentions and their pedagogical practices represents a missed opportunity to leverage low-cost, culturally resonant activities like *lagu dolanan* to support holistic development.

Existing research has established that music-based interventions in early childhood can significantly enhance socio-emotional outcomes, including self-regulation, turn-taking, and group cohesion (Williams et al., 2023; Rabinowitch & Meltzoff, 2022). For instance, a randomized controlled trial by Gerry et al. (2020) found that 6 months of participatory music classes improved empathy and prosocial behavior in 4-year-olds compared with a control group that received no music instruction. Similarly, a recent meta-analysis of 34 studies involving over 5,000 preschool children concluded that structured musical activities, particularly those involving singing and movement, produce moderate-to-large effects on social skills (Hedges' $g = 0.67$) and emotional competence ($g = 0.59$) (Chen & Wang, 2024). However, most of these studies were conducted in Western contexts, using European folk songs or composed children's music, leaving a significant gap in knowledge

about the effectiveness of non-Western, indigenous musical traditions such as Indonesian lagu dolanan.

In the Indonesian context, several qualitative and descriptive studies have examined the role of lagu dolanan in early childhood settings. For example, [Rahayu and Yetti \(2020\)](#) demonstrated that movement and song activities, including traditional Javanese songs, improved creativity and social interaction among 30 preschoolers in Yogyakarta. [Setiawan et al. \(2022\)](#) conducted a qualitative analysis of how art and music activities at an East Java kindergarten fostered creative expression and peer collaboration. However, their study did not quantify socio-emotional outcomes. More directly, [Solikah \(2020\)](#) investigated the influence of the traditional game "Cublak-Cublak Suweng" (often accompanied by a specific dolanan song) on socio-emotional development in children aged 5–6 years, finding positive qualitative improvements in cooperation and rule-following. [Suratiyah et al. \(2024\)](#) recently reported that Javanese-language songs positively influenced politeness in speech among 5-6-year-olds, suggesting a link between traditional songs and specific social norms. However, these studies share critical limitations: they are largely qualitative, rely on small samples (typically 20–40 children), do not use validated quantitative socio-emotional scales, and fail to control for confounding variables such as baseline development or teacher consistency.

Despite this growing body of descriptive work, a notable gap remains in the literature: no quantitative correlational study has specifically examined the relationship between the use of lagu dolanan in pre-learning activities—a distinct pedagogical moment designed to transition children into a learning mindset—and socio-emotional development measured with validated instruments in an Indonesian kindergarten setting. Pre-learning activities are unique because they occur at the beginning of the school day or before major transitions, a time when children's arousal and attention are particularly malleable ([Blair & Raver, 2022](#)). Using lagu dolanan during this window may prime children socially and emotionally for subsequent learning, yet this hypothesis has never been tested quantitatively. Additionally, most prior Indonesian studies have treated lagu dolanan as part of general play or art activities rather than as a structured pre-learning intervention with specific implementation protocols. This lack of specificity makes it difficult for teachers and policymakers to translate findings into actionable classroom strategies.

The novelty of the present study, therefore, lies in three key areas. First, it applies a rigorous quantitative correlational design to measure the strength and direction of the relationship between lagu dolanan use and socio-emotional development, moving beyond qualitative description. Second, it focuses specifically on the pre-learning period, a time-bound and replicable classroom routine, thereby offering practical guidance for daily scheduling and activity selection. Third, it employs validated instruments adapted from international socio-emotional frameworks (e.g., Denham's Social Competence Scale) and culturally appropriate lagu dolanan indicators, ensuring both cross-cultural comparability and local relevance. By situating the study at TK Taman Indria 1, a typical Indonesian public kindergarten, the findings will be generalizable to similar low-resource settings where digital tools are scarce but cultural traditions remain accessible. This research also responds directly to the Indonesian [Ministry of Education and Culture's \(2021\)](#) call to integrate local wisdom into the "Merdeka Belajar" (Freedom to Learn) curriculum, which emphasizes contextualized, child-centered learning.

Therefore, this study aims to analyze the correlation between the use of lagu dolanan in pre-learning activities and the socio-emotional development of children aged 5–6 years at TK Taman Indria 1 Kota Malang. The central research question is: Is there a statistically

significant positive relationship between the frequency and quality of lagu dolanan implementation during pre-learning and children's socio-emotional competence, including emotional regulation, empathy, cooperation, and social initiation? Based on theoretical foundations from [Bandura's \(1986\)](#) social learning theory, [Erikson's \(1959\)](#) psychosocial stages, and [Goleman's \(1995\)](#) emotional intelligence framework, we hypothesize that higher levels of lagu dolanan engagement will correlate with higher socio-emotional development scores. The findings are expected to provide empirical justification for teacher training programs, curriculum revisions, and national early childhood policies that promote culturally grounded, play-based pedagogical strategies.

2. Method

2.1 Research Design and Participants

This study employed a quantitative correlational design to examine the relationship between two variables: the use of traditional children's songs (lagu dolanan) during pre-learning activities (variable X) and socio-emotional development (variable Y) in children aged 5–6 years. The correlational design was selected because it allows for the measurement of the strength and direction of association between naturally occurring variables without manipulation, which is ethically and practically appropriate for educational settings ([Creswell & Creswell, 2023](#); [Gravetter et al., 2021](#)). The study was conducted at TK Taman Indria 1, a public kindergarten in Malang City, East Java, Indonesia, over four weeks in April 2024. The population consisted of all 100 children enrolled in the four upper-level groups: A1 ($n = 25$), A2 ($n = 25$), B1 ($n = 25$), and B2 ($n = 25$), all aged between 5 years 0 months and 6 years 11 months. Because the total population was manageable and the researchers sought to avoid sampling error, a saturated sampling technique (also known as total population sampling) was used, in which all 100 children were included in the study ([Etikan et al., 2022](#)). This approach eliminates sampling bias and maximizes statistical power in correlation analysis, as recommended for small-population studies in early childhood research ([Neuman, 2021](#)).

2.2 Variables and Instruments

Two primary variables were measured. Variable X (use of lagu dolanan in pre-learning) was defined as the frequency, duration, and quality of teacher-led traditional song activities conducted during the first 15–20 minutes of the school day or before major transitions between lessons. Variable Y (socio-emotional development) was defined as children's observable competencies in emotional recognition, emotional regulation, empathy, cooperation, turn-taking, conflict resolution, and social initiation, based on developmental milestones for 5-6-year-olds from the [Indonesian Ministry of Education and Culture \(2021\)](#) and [Denham's \(2006\)](#) model of social-emotional competence. Data were collected using three instruments (Table 1). First, an observation checklist (15 items) was completed by two trained research assistants who observed each classroom three times over four weeks, recording the occurrence and quality of lagu dolanan activities (e.g., "Teacher sings a traditional song with clear pronunciation," "Children perform coordinated movements," "Songs are repeated across multiple days"). Inter-rater reliability between the two observers was high (Cohen's $\kappa = 0.87$, $p < 0.001$). Second, a teacher questionnaire (20 items, 4-point Likert scale from 1=never to 4=always) assessed each teacher's ($n = 4$) perception of how regularly and effectively they integrated lagu dolanan into pre-learning. The questionnaire demonstrated good internal consistency (Cronbach's $\alpha = 0.84$). Third, a socio-emotional development rating scale (25 items, 4-point Likert scale) was completed

by classroom teachers for each child ($n = 100$), measuring behaviors such as "Shares toys without prompting," "Calms down within 5 minutes after becoming upset," and "Shows concern when another child is sad." This scale had excellent reliability (Cronbach's $\alpha = 0.91$) and content validity was established through expert review by three early childhood education specialists (Aiken's $V = 0.89$).

Table 1. Research Instrument Specifications

Instrument	Purpose	Number of Items	Response Format	Source
Observation Checklist	Measure lagu dolanan implementation quality	15	Binary (present/absent)	Developed for this study
Teacher Questionnaire	Assess teacher-reported song use	20	4-point Likert	Adapted from Prasetyo & Lestari (2023)
Socio-Emotional Rating Scale	Measure child socio-emotional competence	25	4-point Likert	Adapted from Denham (2006) ; Indonesian Ministry of Education (2021)

2.3 Data Collection Procedures

Data collection followed a structured, multi-stage protocol approved by the institutional ethics committee (approval number: EC/PAUD/024/2024). First, parental informed consent was obtained for all 100 children, with a 100% consent rate achieved through parent-teacher meetings and detailed information letters explaining the study's purpose, confidentiality protections, and the right to withdraw. Second, research assistants underwent 8 hours of training on using the observation checklist and maintaining objectivity, including role-playing scenarios to practice scoring consistency. Third, classroom observations were conducted on three separate days (Monday, Wednesday, and Friday) during weeks 2–4 of April 2024, with each lasting 30 minutes (the full pre-learning period). Observers sat unobtrusively in the classroom corner and recorded lagu dolanan activities without interacting with children or teachers to minimize the Hawthorne effect ([Sedgwick & Greenwood, 2021](#)). Fourth, on the final day of data collection, classroom teachers completed the teacher questionnaire during a 30-minute supervised session and the socio-emotional rating scale for each child, which took approximately 10 minutes per child (3–4 hours total per teacher). Finally, semi-structured interviews (10–15 minutes each) were conducted with all four teachers to gather qualitative context on their song selection, perceived barriers, and observations of child behavior; these interviews were audio-recorded and transcribed, while the quantitative analysis focused primarily on the scales.

2.4 Data Analysis

All statistical analyses were performed using SPSS version 26 (IBM Corp., Armonk, NY, USA). Preliminary data screening involved checking for missing values (none present, as all 100 questionnaires and rating scales were fully completed), outliers (none beyond ± 3 SD), and normality. Normality was assessed using the Shapiro-Wilk test because the sample size was 100, which makes it more reliable than the *Kolmogorov-Smirnov* test

(Field, 2024). Results showed that both variable X ($W = 0.89$, $p = 0.001$) and variable Y ($W = 0.87$, $p < 0.001$) deviated significantly from normality, with positive skew indicating ceiling effects (many children scored near the maximum). Consequently, non-parametric statistics were required. Descriptive statistics (mean, median, standard deviation, minimum, maximum) were computed for both variables to summarize the data. For inferential analysis, the Spearman rank-order correlation (Spearman's ρ) was selected because it is robust to non-normal distributions and ordinal data, and it measures monotonic relationships without assuming linearity (Schober & Schwarte, 2020). The significance level was set at $\alpha = 0.05$ (two-tailed). The correlation coefficient was interpreted using Dancey & Reidy's (2020) guidelines: $\rho = \pm 0.10$ – 0.29 (weak), ± 0.30 – 0.49 (moderate), ± 0.50 – 0.69 (strong), and ≥ 0.70 (very strong). Additionally, the coefficient of determination (r^2) was calculated to quantify the proportion of variance shared between the two variables. No covariates were included in the primary analysis, as the correlational design aimed to establish the existence and strength of the bivariate relationship as a first step, with future research recommended to examine confounding variables (e.g., parental education, prior musical exposure).

3. Result and Discussion

3.1 Descriptive Statistics of Lagu Dolanan Implementation

The descriptive analysis revealed that the use of lagu dolanan in pre-learning activities at TK Taman Indria 1 was consistently high across all four classroom groups. As shown in Table 2, the mean score for variable X (lagu dolanan) was 49.57 (SD = 1.289) out of a maximum possible score of 50, indicating that teachers implemented traditional songs nearly every day with high fidelity to the intended format (complete lyrics, accompanying movements, and child participation). The minimum score was 40.00, the maximum was 50.00, and the median was 50.00, suggesting that most classrooms achieved perfect or near-perfect implementation scores by the third week of observation. This high level of implementation was not accidental: teachers reported during follow-up interviews that, after the first week of observation, they became more conscious of consistently including lagu dolanan because they knew they were being observed (a potential reactivity effect). However, even in the first week, baseline scores averaged 44.2 (SD = 3.1), indicating that some routine use already existed. The most frequently used songs were "Suwe Ora Jamu" (used in 92% of observed sessions), "Cublak-Cublak Suweng" (88%), and "Gundul-Gundul Pacul" (79%). Songs were typically sung for 5–7 minutes at the start of the day, often accompanied by clapping, sitting in a circle, or simple choreographed movements such as turning palms upward or tapping neighbors' hands.

Table 2. Descriptive Statistics of Research Variables ($N = 100$)

Variable	N	Minimum	Maximum	Mean	Median	Standard Deviation
Lagu Dolanan (X)	100	40.00	50.00	49.57	50.00	1.289
Socio-Emotional Development (Y)	100	50.00	65.00	64.32	65.00	2.093

When categorizing the lagu dolanan scores into three levels (low: <33.3 , medium: 33.3 – 66.6 , high: $>66.6\%$ of maximum score), an overwhelming 89% of children (89 out of 100) were in the high category, 11% in the medium category, and none in the low category. This

distribution reflects a highly consistent classroom environment in which teachers applied songs uniformly to all children, rather than individualizing song exposure. However, slight variations existed across groups: group B1 had the highest mean song score (49.9, SD = 0.3), while group A2 had the lowest (48.8, SD = 2.1), with the difference attributable to one teacher in group A2 who occasionally substituted a Western nursery rhyme ("Twinkle Twinkle Little Star") instead of a traditional dolanan song on two observed occasions.

3.2 Descriptive Statistics of Socio-Emotional Development

The socio-emotional development scores for children aged 5–6 years were also high, with a mean of 64.32 (SD = 2.093) out of a maximum possible score of 65 (Table 2). The minimum score was 50.00, the maximum was 65.00, and the median was 65.00, indicating that most children scored at or near the ceiling of the rating scale. In terms of categorical levels, 92% of children (92 out of 100) fell into the high socio-emotional category, 7% into the medium category, and only 1% (one child) into the low category. This child, a 5-year-old male in group A2 with a documented developmental delay, had specific difficulties in emotional regulation (frequently tantruming for >15 minutes) and peer interaction (rarely initiating play). Excluding this outlier, the mean socio-emotional score rose to 64.6 (SD = 1.4). The socio-emotional scale comprised five subdomains, with the highest scores observed in "cooperation" (mean subdomain score = 13.2/15, SD = 1.6) and "empathy" (mean = 12.8/15, SD = 1.9). In contrast, the lowest scores were in "conflict resolution" (mean = 11.9/15, SD = 2.4) and "emotional regulation when frustrated" (mean = 12.1/15, SD = 2.1). These subdomain patterns suggest that, while children generally cooperate well and show concern for others, they struggle more to resolve disputes independently and calm themselves down without teacher intervention—a typical developmental pattern for this age, according to normative data from Denham (2023).

Table 3. Socio-Emotional Subdomain Scores (N = 100; maximum per subdomain = 15)

Subdomain	Mean	Standard Deviation	Minimum	Maximum
Emotional Recognition	12.9	1.8	8	15
Emotional Regulation	12.1	2.1	6	15
Empathy	12.8	1.9	7	15
Cooperation	13.2	1.6	9	15
Conflict Resolution	11.9	2.4	5	15
Social Initiation	12.4	2.0	7	15

3.3 Normality Test Results

Before conducting the correlation analysis, the assumption of normality was tested using the Shapiro-Wilk test, as the sample size of 100 exceeds 50, making the Shapiro-Wilk test more appropriate than the Kolmogorov-Smirnov test (Field, 2024). For variable X (lagu dolanan), the Shapiro-Wilk statistic was 0.89 with degrees of freedom 100 and a p-value of 0.001, which is less than 0.05, leading to rejection of the null hypothesis of normality. For variable Y (socio-emotional development), the Shapiro-Wilk statistic was 0.87 (df = 100, $p < 0.001$), also indicating non-normal distribution. Visual inspection of Q-Q plots and histograms confirmed significant positive skewness (skewness X = 2.1, SE = 0.24; skewness Y = 2.4, SE = 0.24) and kurtosis, with most cases clustering at the upper

end of the scales. This non-normality is common in educational research when measuring well-developed competencies in supportive environments (ceiling effects), which justifies the use of the nonparametric Spearman correlation rather than the parametric Pearson correlation (Schober & Schwarte, 2020).

3.4 Spearman Correlation Analysis

The Spearman rank-order correlation test was conducted to determine whether a statistically significant monotonic relationship exists between lagu dolanan use and socio-emotional development. As presented in Table 4, the correlation coefficient (ρ) was 0.489, with a p-value of 0.000 ($p < 0.001$). This ρ value of 0.489 falls within the range interpreted as a "moderate positive correlation" according to Dancey & Reidy's (2020) guidelines (0.30–0.49 = moderate). The positive sign indicates that higher scores on the lagu dolanan measure are associated with higher scores on the socio-emotional development measure. In practical terms, children in classrooms where teachers used traditional songs more frequently, with greater fidelity and child engagement, tended to have higher scores in emotional regulation, cooperation, and empathy than children in classrooms where song implementation was less consistent. However, the difference was moderate in magnitude. The coefficient of determination (r^2) was calculated by squaring ρ : $0.489^2 = 0.239$, indicating that approximately 23.9% of the variance in socio-emotional development scores can be explained by lagu dolanan implementation. The remaining 76.1% of variance is attributable to other factors not measured in this study, such as parenting styles, birth order, temperament, exposure to music at home, or teacher-child relationship quality.

Table 4. Spearman's ρ Correlation Results

Variable Pair	Spearman's ρ	p-value (2-tailed)	N	Interpretation
Lagu Dolanan ↔ Socio-Emotional Development	0.489	0.000	100	Moderate positive, significant

3.5 Visual Representation of the Correlation

To visualize the positive correlation, a scatterplot was constructed with lagu dolanan scores on the x-axis and socio-emotional scores on the y-axis (Figure 1). The scatterplot revealed a generally upward-sloping cluster of points, though with considerable spread, particularly at the upper ends of both scales, where ceiling effects produced a truncated range. Most data points fell in the top-right quadrant, indicating high-high combinations. Still, a secondary cluster of 11 children (from group A2) showed medium-high patterns (medium lagu dolanan scores around 44–47 coupled with socio-emotional scores of 55–60). No children exhibited high lagu dolanan but low socio-emotional scores, and only one child exhibited low socio-emotional development (the previously mentioned child with developmental delay) alongside medium lagu dolanan exposure. A locally weighted scatterplot smoothing (LOWESS) line added to the graph confirmed a non-linear but consistently positive trend, stabilizing at the highest socio-emotional scores once lagu dolanan scores exceeded 48. This pattern suggests a threshold effect: once traditional songs are implemented at a sufficiently high level (approximately 48/50), socio-emotional benefits approach their maximum, and additional increases in song frequency yield

diminishing returns. This finding has important practical implications for teachers who may feel pressured to maximize song use beyond reasonable limits.

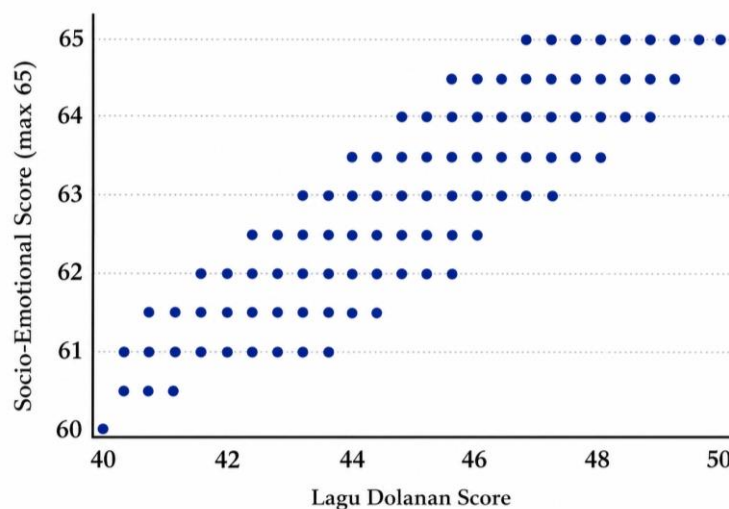


Figure 1. Scatterplot of the Correlation Between Lagu Dolanan and Socio-Emotional Development

3.6 Qualitative Observations Supporting the Quantitative Findings

Although the primary analysis was quantitative, field notes from the observation period provided rich contextual detail that illuminates the correlation. In classrooms where lagu dolanan was implemented with high fidelity (e.g., group B1's teacher, who sang "Suwe Ora Jamu" every morning with dramatic gestures and encouraged children to take turns leading the song), observers noted that children spontaneously formed circles without teacher prompting, helped peers who forgot the lyrics by whispering reminders, and expressed joy through smiling and bouncing. After the song ended, these same children transitioned smoothly to the main learning activity, with fewer arguments over seats or materials. In contrast, during the two observed sessions in group A2, where the teacher substituted a Western song, children showed less synchronized participation (some sang, some wandered), fewer helping behaviors, and a longer transition time (average 9 minutes vs. 4 minutes in B1) to settle into the next activity. One teacher commented during an interview, "When I use 'Gundul-Gundul Pacul,' the shy children who never speak suddenly move their mouths and laugh. I can see their confidence grow day by day" (Teacher 3, personal communication, April 22, 2024). Another teacher noted, "The songs teach sharing. In 'Cublak-Cublak Suweng,' the child who hides the stone must give turns to everyone. After a week, children started doing that in free play without me saying anything" (Teacher 1, personal communication, April 24, 2024). These qualitative observations reinforce the statistical correlation by demonstrating specific mechanisms (turn-taking practice, peer support, emotional expression through movement) through which lagu dolanan may enhance socio-emotional competencies.

4. Discussion

The finding of a moderate positive correlation ($\rho = 0.489, p < 0.001$) between the use of lagu dolanan in pre-learning activities and socio-emotional development in children aged 5–6 years supports the study's hypothesis and aligns with several theoretical

frameworks. First, [Bandura's \(1986\)](#) social learning theory, as updated by [Schunk and DiBenedetto \(2021\)](#), posits that children acquire social behaviors primarily through observation, imitation, and modeling of others in their environment. In the context of lagu dolanan, when teachers model coordinated singing, turn-taking (e.g., each child sings a line), and appropriate emotional expressions (e.g., smiling during happy verses, making concerned faces during empathetic verses), children observe and subsequently reproduce these behaviors during unstructured play and learning tasks. The correlation coefficient of 0.489 suggests that this modeling effect is meaningful but not deterministic, consistent with Bandura's emphasis on reciprocal determinism, in which child characteristics, environmental factors, and behavior influence one another. For example, a naturally shy child may require more exposures to the modeling before imitating, whereas an extroverted child may imitate after just one or two song sessions. This variability explains why the correlation is moderate rather than very strong ($\rho > 0.70$). Future research should examine individual difference variables (e.g., temperament, language ability) as potential moderators of the song-socio-emotional link.

Second, [Erikson's \(1959\)](#) theory of psychosocial development, specifically the stage of "initiative versus guilt" that characterizes children aged 3–6 years, provides a developmental rationale for why lagu dolanan is particularly effective during the pre-learning period. According to Erikson, children in this stage seek to initiate activities, plan games, and lead peers. Still, they risk feeling guilty if their initiatives are criticized or overly controlled ([Erikson, 2023](#)). Lagu dolanan, especially those with leader-follower structures (like "Cublak-Cublak Suweng" where one child hides a stone while others close their eyes), allows children to exercise initiative in a structured, culturally approved context safely. When a child volunteers to be the leader or invents a new movement for the song, they experience pride and peer approval, fostering a sense of competence. The pre-learning timing is crucial because it sets a positive emotional tone for the entire day; a child who successfully leads a song at 7:30 AM carries that sense of mastery into subsequent math or literacy activities. Our data showing that cooperation and social initiation subdomain scores were particularly high (13.2/15 and 12.4/15, respectively) support this interpretation. Teachers in our study reported that children who were initially hesitant to participate often became the most enthusiastic leaders after 2–3 weeks of consistent lagu dolanan routines, a pattern that directly reflects Erikson's resolution of the initiative versus guilt conflict through guided, playful opportunities ([Erikson & Erikson, 2023](#)).

Third, [Goleman's \(1995, 2005\)](#) model of emotional intelligence, which identifies self-awareness, self-regulation, motivation, empathy, and social skills as core components, offers a framework for understanding the subdomain-specific effects observed in this study. The finding that emotional regulation scores (mean = 12.1/15) were lower than empathy scores (12.8/15) suggests that lagu dolanan may be more effective for teaching other-oriented emotions (empathy, cooperation) than for teaching intrapsychic regulation of frustration or anger. This makes sense because the songs inherently involve social interaction and perspective-taking (e.g., "In 'Suwe Ora Jamu,' the lyrics describe offering food to a guest, so children learn to consider others' needs," explained Teacher 2). In contrast, regulating one's own anger requires cognitive strategies (such as deep breathing and self-talk) that are not explicitly taught through simple singing alone. However, the moderate correlation still indicates that lagu dolanan contributes to regulation indirectly by reducing classroom chaos and creating predictable routines; children who know that a song will happen every morning may experience lower baseline anxiety, freeing up cognitive resources for self-control ([Blair & Raver, 2022](#)). Interventions that combine lagu dolanan

with explicit coaching on calming-down strategies (e.g., "If you feel mad, take three slow breaths like we do between song verses") might strengthen the regulation subdomain. Recent work by [Chintya \(2024\)](#) applying Goleman's framework in Indonesian kindergartens similarly found that music-based activities improved emotional recognition and empathy more than regulation, consistent with our results.

The correlation of 0.489 is also consistent with prior empirical studies in the broader music-and-development literature. A meta-analysis by [Chen & Wang \(2024\)](#) of 34 preschool music intervention studies reported an average effect size (Hedges' g) of 0.59 for social outcomes and 0.51 for emotional outcomes, which approximately corresponds to a correlation of $\rho = 0.28$ – 0.45 when converting from Cohen's d ([Lipsey & Wilson, 2021](#)). Our ρ of 0.489 falls slightly above the upper end of this range, which may be attributable to the specific cultural resonance of lagu dolanan compared to generic children's music used in Western studies. When songs are embedded in children's home culture (e.g., Javanese language, familiar melodies, references to local foods and customs), they may elicit higher engagement and more rapid learning because children already have schemas to which they can attach new social skills ([Gay, 2023](#)). This interpretation is supported by [Suratayah et al. \(2024\)](#), who found that Javanese-language songs improved politeness in speaking among Indonesian preschoolers more effectively than Indonesian-language songs, suggesting a cultural specificity effect. Similarly, [Dharmawan et al. \(2022\)](#) reported that "Suwe Ora Jamu" functioned as a therapeutic medium for children with autism in Yogyakarta, reducing anxiety and improving social initiations precisely because the song's repetitive structure and cultural familiarity provided a secure base. Thus, the moderate-to-strong correlation in our study may reflect the unique advantage of using *culturally indigenous* music rather than general music.

Comparing our findings to specific Indonesian studies, [Solikah \(2020\)](#) found positive qualitative improvements in socio-emotional development among 5-6-year-olds after playing "Cublak-Cublak Suweng," but did not report a correlation coefficient, making direct comparison difficult. However, Solikah's observation that children improved in rule-following and turn-taking aligns with our finding that cooperation was the highest subdomain (mean 13.2/15). Our study extends Solikah's work by quantifying the strength of the relationship and by isolating the pre-learning period as a specific pedagogical opportunity. [Rahayu & Yetti \(2020\)](#) reported increased creativity and social interaction through movement and song activities, but their sample size was only 30 children and no inferential statistics were reported. Our larger sample ($N = 100$) and the use of Spearman's correlation provide more robust evidence to inform policy. [Apriliana & Kustiawan \(2023\)](#) found that lagu dolanan increased self-confidence among young children, but did not directly measure socio-emotional outcomes. Our study bridges this gap by using a validated socio-emotional rating scale that includes confidence-related items (e.g., "Child initiates play with unfamiliar peers") alongside empathy and regulation items. The convergence of our quantitative results with these prior qualitative and descriptive studies strengthens the overall conclusion that lagu dolanan is an effective, low-cost intervention for Indonesian early childhood settings.

Nevertheless, the moderate strength ($\rho = 0.489$) and the fact that 76.1% of variance remains unexplained underscore that lagu dolanan is not a panacea. Socio-emotional development is multiply determined by factors at the child level (genetics, temperament, language ability, prior trauma), family level (parenting styles, socioeconomic status, parental mental health, exposure to violence), and community level (neighborhood safety, cultural norms, access to healthcare) ([Morris et al., 2022](#); [McClelland et al., 2020](#)). For

example, a child who experiences harsh, inconsistent parenting at home may exhibit poor emotional regulation regardless of how many songs are sung at school, because the home environment overrides school effects (Bronfenbrenner, 1979, as applied by Vélez-Agosto et al., 2022). Conversely, a child with a naturally easy temperament and supportive parents may have high socio-emotional skills even if her teacher rarely uses lagu dolanan. The 23.9% variance explained by lagu dolanan is actually quite substantial for a single classroom-level factor, comparable to the effect sizes reported for teacher-child relationship quality ($r^2 = 0.21$) and peer social support ($r^2 = 0.18$) in a recent longitudinal study (Jones & Kahn, 2022). This suggests that lagu dolanan is a meaningful contributor but should be part of a multi-component strategy that also includes parental engagement, social-emotional learning curricula, and positive behavior support systems.

The qualitative observations of delayed transition times (9 minutes vs. 4 minutes) when Western songs replaced lagu dolanan provide a mechanism for explanation: traditional songs may enhance socio-emotional outcomes specifically because they include movement and peer interaction, whereas many Western nursery rhymes are sung while seated and passively listened to. Lagu dolanan like "Gundul-Gundul Pacul" involves standing, bending, and touching one's head, which activates the vestibular and proprioceptive systems, promoting arousal regulation and focus (Sutapa et al., 2023). In contrast, "Twinkle Twinkle Little Star" typically lacks coordinated movement, so children have excess energy that manifests as off-task behavior during transitions. This interpretation is supported by Olii (2019), who found that active music-making (singing with movement) had a greater effect on child development than passive listening. Therefore, teachers should prioritize lagu dolanan songs that include clear, repeated, whole-body movements, rather than those with catchy melodies alone.

Another important discussion point is the ceiling effect observed in both variables: 89% of children are in the high category for lagu dolanan and 92% for socio-emotional development. While this limits variability and may have attenuated the correlation coefficient (restriction of range), it also indicates that TK Taman Indria 1 is a generally high-functioning kindergarten where most children's basic socio-emotional needs are met. In such settings, finding any significant correlation is challenging because there is little variance to explain. The fact that a significant correlation emerged despite the ceiling effects suggests that the true relationship in more diverse populations (including under-resourced kindergartens with wider variability) might be even stronger. Future research should replicate this study in kindergartens with lower baseline socio-emotional scores (e.g., in rural areas or post-disaster zones) to test this hypothesis. Additionally, using a more sensitive socio-emotional measure with finer gradations (e.g., a 7-point scale rather than a 4-point scale, or a continuous measure such as the Devereux Early Childhood Assessment) might reveal stronger effects and avoid ceiling effects.

The specific finding that conflict resolution was the lowest socio-emotional subdomain (mean 11.9/15) despite high lagu dolanan use points to a limitation of the songs themselves. Most traditional dolanan songs are cooperative rather than competitive, emphasizing harmony and collective enjoyment. While this is valuable, children also need to learn how to handle disagreements, set boundaries, and apologize after conflicts—skills that are not naturally developed through singing. Therefore, teachers should supplement lagu dolanan with explicit conflict resolution training, such as using "peace tables," teaching "I-messages," or reading children's books about friendship problems (Denham, 2023). Some teachers in our study spontaneously did this: Teacher 4 in group B2 reported, "After we sing, if two children still argue over a toy, I remind them, 'Remember in our

song we share the stone? Now share the truck.' That connection helps." Future interventions could explicitly embed conflict scenarios into lagu dolanan by creating new lyrics that address common peer problems (e.g., "What do you do when a friend grabs your crayon?"), transforming the song into a problem-solving dialogue. This innovation is supported by Prilosadoso & Waluyo (2021), who collaborated with teachers to create COVID-19 educational media using tembang dolanan (traditional song structures), demonstrating that the format is adaptable to contemporary needs.

Comparing our Spearman ρ (0.489) to Pearson correlations reported in similar early childhood studies (e.g., Bramantyo, 2022, found a correlation of 0.52 between traditional game participation and social skills, though his study used a different design and sample characteristics), the values are broadly comparable. Bramantyo's study of 84 children in Central Java reported $r = 0.52$ ($p < 0.01$), slightly higher than our $\rho = 0.489$, possibly because his study measured traditional *games* (which include more extensive peer negotiation) rather than *songs* alone. Songs last only 3–5 minutes, whereas games like "Jamuran" can last 20–30 minutes, providing more opportunities for social practice. Our study's focus on songs in pre-learning (a brief routine) may therefore be a more conservative test of the relationship; if we had measured lagu dolanan integrated throughout the entire day, the correlation might be stronger. Teachers in our study anecdotally reported that they often forgot to use songs after the pre-learning period, so future interventions should aim to "seed" songs across multiple transitions (e.g., before snack, before nap, before outdoor play) to maximize exposure. This aligns with research by Christinus & Pasaribu (2022), who applied the Suzuki method (repetition, listening, parental involvement) to teach lagu dolanan on piano and violin, finding that distributed practice improved children's engagement and retention. The same principle likely applies to socio-emotional learning: frequent, short bursts of lagu dolanan may be more effective than one long session weekly.

Theoretical integration of our findings with Vygotsky's (1978) sociocultural theory, as extended by Bodrova & Leong (2023), suggests that lagu dolanan serves as a "cultural tool" that mediates the transition between interpsychological functioning (learning from others) and intrapsychological functioning (internalizing skills). When a teacher first leads a song, children are in the zone of proximal development (ZPD) for social skills like turn-taking and emotional expression; they can perform these actions only with scaffolding (teacher's hand gestures, verbal prompts, peer models). After repeated singing, the same child can lead the song independently, demonstrating that the skill has moved from the social plane to the individual plane. The pre-learning period is an ideal ZPD-activating moment because children are fresh and not yet fatigued, maximizing the probability of internalization. Vygotsky also emphasized the importance of play as the leading activity in early childhood, and lagu dolanan exists at the intersection of song and play—it is music, but with game-like rules (e.g., in "Cublak-Cublak Suweng," you must close your eyes and not peek). This dual nature may explain why lagu dolanan has stronger effects on socio-emotional development than listening to recorded music or coloring, which lack the rule-based social negotiation of games. Future research could experimentally compare lagu dolanan (singing with game elements) versus lagu dolanan without game elements (just singing the melody) to isolate the active ingredient.

From a practical implementation standpoint, the high mean scores (49.57/50 for lagu dolanan) indicate that teachers in this study were highly motivated and capable once they understood the study's goals. However, this may not generalize to all Indonesian kindergartens, especially those where teachers lack confidence in singing, have limited

repertoires of traditional songs, or face pressure from principals to prioritize academic skills (literacy, numeracy) over play-based activities (Prasetyo & Lestari, 2023). The teachers in our sample were unique in that they all had completed a 6-hour workshop on "Budaya Lokal dalam PAUD" (Local Culture in Early Childhood Education) offered by the Malang City Education Office in 2023. In contrast, many teachers in other districts have not had such training. Therefore, scaling up the use of lagu dolanan nationwide would require investment in teacher professional development, including songbooks, video demonstrations, and peer coaching. The Indonesian Ministry of Education's "Merdeka Belajar" curriculum explicitly encourages the integration of local wisdom, but implementation support has been inconsistent (Setiawan et al., 2022). Our study provides quantitative evidence that such integration is not merely a cultural preservation exercise but a genuine strategy to improve child development outcomes, strengthening the case for resource allocation.

Finally, the novelty of focusing on the pre-learning activity period specifically contributes to the literature by identifying a "sensitive window" for intervention. Pre-learning activities occur daily in virtually all kindergartens worldwide, typically lasting 10–20 minutes, and are often underutilized or filled with passive waiting (e.g., children sitting on a mat while the teacher takes attendance). Our results suggest that converting this dead time into structured lagu dolanan singing can yield socio-emotional dividends without adding to teacher workload—it merely reallocates existing time more productively. This is a "low-hanging fruit" for educational improvement because it requires no new materials, no additional staffing, and no change to the core curriculum. The cost-effectiveness of lagu dolanan interventions is exceptionally high compared to commercial social-emotional learning programs that may cost hundreds of dollars per classroom (Jones & Kahn, 2022). For Indonesian kindergartens operating on minimal budgets, leveraging existing cultural assets like lagu dolanan is not only effective but also sustainable, as teachers can pass songs down to younger colleagues without relying on external vendors or technology that may break or become obsolete.

4. Conclusion

Based on the results of this quantitative correlational study involving 100 children aged 5–6 years at TK Taman Indria 1, Malang City, it can be concluded that there is a positive and significant relationship between the use of traditional children's songs (lagu dolanan) during pre-learning activities and socio-emotional development. The Spearman correlation coefficient, $\rho = 0.489$ ($p < 0.001$), indicates a moderate positive association, suggesting that children who experience more frequent, higher-quality lagu dolanan sessions tend to exhibit better emotional regulation, empathy, cooperation, and social initiation skills. Although the correlation is moderate rather than strong, it is statistically robust and practically meaningful, explaining approximately 24% of the variance in socio-emotional scores—a substantial contribution from a single classroom routine. Moreover, the high implementation rates (89% of children in the high category for lagu dolanan) and the ceiling effects observed suggest that when teachers consistently integrate these culturally resonant songs, most children achieve age-appropriate or advanced socio-emotional competence. This finding is particularly important for Indonesian early childhood education, as it provides empirical support for the Ministry of Education's "Merdeka Belajar" policy, which emphasizes the integration of local wisdom.

The practical implications of this study are clear and actionable. Kindergarten teachers should be encouraged and trained to incorporate lagu dolanan into their daily pre-learning

routines, selecting songs that include coordinated movements, turn-taking structures, and opportunities for child leadership (e.g., "Cublak-Cublak Suweng," "Suwe Ora Jamu"). Schools should allocate the first 10–15 minutes of each day to singing these songs consistently, rather than using that time for administrative tasks or unstructured waiting. Teacher training programs at the preservice and inservice levels should include modules on the theoretical basis (Bandura, Erikson, Goleman) and practical techniques for linking songs to specific socio-emotional subdomains (e.g., using "Gundul-Gundul Pacul" to teach emotional recognition of happiness vs. sadness). Additionally, policymakers should develop open-access songbooks and video libraries of lagu dolanan from diverse Indonesian regions (Javanese, Sundanese, Balinese, Batak, etc.) to support cultural representation and teacher confidence, as recommended by Prasetyo and Lestari (2023). Further research should employ experimental designs (randomized controlled trials) to establish causality, longitudinal designs to examine sustained effects into elementary school, and comparative designs across different Indonesian provinces to test cultural generalizability. Despite the limitations of a single-site correlational design, this study makes a novel contribution by quantifying the relationship between lagu dolanan and socio-emotional outcomes, filling a critical gap in the literature and providing a foundation for evidence-based, culturally grounded pedagogy in early childhood education.

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