



Tanggofun: The effectiveness of modified Snakes and Ladders games in improving children's social skills

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ABSTRACT

Social skills are a crucial component of early childhood development, facilitating social interaction and adjustment. The purpose of this study was to determine and test the effectiveness of modifying Snakes and Ladders games with social challenges to improve the social skills of kindergarten children. The research method used a pseudo-experiment with a two-group pretest-posttest design. In this study, the subjects consisted of 30 kindergarten children, divided into an experimental group and a control group. The experimental group participated in the "Tanggofun" game, which integrates social challenges, while the control group received no treatment. Data were collected through structured observation and analyzed using a paired samples t-test. The test results showed a significant increase in social skills scores for the children in the experimental group, whereas the control group showed no substantial change. The findings suggest that the modified Snakes and Ladders game is an effective learning medium for improving social skills in early childhood.

Keywords: social skills, snakes and ladders game, play-based intervention, early childhood, educational

1. Introduction

Early childhood is the initial stage at which a child begins developing social skills, which will impact their mental and physical health now and in the future (Rachman & Cahyani, 2019). One crucial aspect during this period is the development of social skills. These include the ability to communicate, share, and understand the emotions of others (Wijaya & Nuraini, 2023). These skills support successful social interactions and effective collaboration (Syamsudin, 2020) and have a long-term impact on building social relationships and rational thinking (Paz et al., 2021; Su'ud, 2017). A lack of social skills can disrupt routines, trigger conflict, and increase the risk of future social adjustment difficulties, making early intervention crucial (Larose et al., 2020). Delayed development of children's social skills can lead to peer rejection, academic difficulties, aggressive behavior, and social anxiety. Research shows that a game-based approach is more effective than a purely cognitive approach in developing these skills (Ali et al., 2021; Tersu & Matsouka, 2020). Modifications of traditional games, such as Snakes and Ladders, incorporating social challenges have been shown to increase self-confidence, emotional control, and collaboration skills (Loukatari et al., 2019; Mwinsa & Dagada, 2025). This game enables children to develop sportsmanship, respect for others, and teamwork skills. However, its effectiveness depends heavily on the teacher's role in providing scaffolding or assistance from others (Ndlovu et al., 2023). In line with Vygotsky's theory, children's social skill development can be optimized through the Zone of Proximal Development (ZPD) with the help of adults or experienced peers. A modified Snakes and Ladders game incorporating social challenges can be a fun and meaningful learning medium.

Several previous studies have tested the effectiveness of Snakes and Ladders, but these generally focused on adolescents. Childhood is a crucial stage in the development of social skills. Therefore, this study aims to

test the effectiveness of a modified Snakes and Ladders educational game in improving the social skills of kindergarten children by applying Vygotsky's constructivist approach, which emphasizes the role of social interaction in learning. This study is expected to make theoretical contributions to the field of game-based interventions and provide practical insights for teachers in designing engaging learning experiences that strengthen children's social skills. Based on the description, the research hypothesis states that the snakes and ladders game modified with social challenges (TanggoFun) is efficacious in improving the social skills of early childhood compared to children who do not participate in the game.

2. Method

This study used a quantitative approach with a quasi-experimental method. The design employed was a Two-Group Pretest-Posttest, and the study was conducted in one of the kindergartens in West Sumatra. Participants in this experiment were 30 kindergarten children, divided into two groups using randomization techniques. Each group consisted of 15 people (Experimental Group and Control Group), with the inclusion criteria being kindergarten children aged 5–6 years, able to communicate, having parental permission, and willing to participate in all game sessions. The exclusion criteria were children who were absent, sick, or did not have parental permission. The pretest and posttest stages employed observation techniques to assess children's social skills, including communication, cooperation, and empathy. The number of items on the observation sheet was 41, based on the Social Skills Improvement System – Rating Scales (SSIS-RS) measuring instrument developed by Frank M. Gresham and Stephen N. Elliot. The use of this instrument also refers to previous research that has demonstrated the validity and reliability of the Indonesian version of the SSIS-RS. Mulyana et al. (2024) reported that 45 of the 46 items met Pearson's validity criteria and had a Cronbach's Alpha coefficient of 0.888–0.893, indicating high internal consistency. Therefore, the SSIS-RS was deemed suitable for measuring children's social skills in this study.

The study was conducted over a period of seven sessions. The experimental group consisted of 15 children divided into three small groups (five children each) with a 20-minute intervention period per group. Sessions 1–2 included a pretest, including rapport building and initial observations of social skills. Sessions 3–5 comprised the intervention phase, which utilized a modified version of the Snakes and Ladders game. Children took turns playing, rolling dice, and completing social challenges using flashcards themed around stars, the sun, and the moon. Each challenge was designed to stimulate aspects of communication, cooperation, empathy, assertiveness, responsibility, and self-control. The player who reached the 49th square was declared the winner of the session. Sessions 6–7 included a posttest, which included reflection and final observations, to assess changes in social skills following the treatment.

The data analysis techniques employed in this study included descriptive statistics to describe the observation results and a paired sample t-test to analyze the differences between pretest and posttest scores. An independent t-test was then conducted to determine the significance of changes in social skills that occurred after the treatment was given to the experimental group. Based on the results of the data analysis, the researcher will conclude whether the proposed hypothesis, namely, whether the modified ladder game is efficacious in improving early childhood skills, is supported.

3. Result

Table 1: Descriptive Statistics

	N	Max	Min	Mean	SD
Pretest control group	15	26	12	19.6	3.924
Posttest control group	15	26	13	19.6	3.699
Pretest experimental group	15	22	12	17.7	3.138
Posttest experimental group	15	30	18	23.6	4.469

The results showed an average increase in social skills scores of 23.6 in the experimental group compared to 19.6 in the control group. The mean posttest score in the experimental group was also significantly higher than the mean pretest score of 17.7. Conversely, there was no difference in the mean score increase in the control group from 19.6 in the pretest to 19.6 in the posttest. This indicates that the Tanggofun modification of the Snakes and Ladders game may have a substantial positive impact on the experimental group.

Table 2: Shapiro-Wilk Normality Test Results

		W	P	Description
Pre-Test	Control group	0.96271	0.73942	Normal distribution
	Experimental group	0.92578	0.23582	
Posttest	Control group	0.95101	0.54055	Normal distribution
	Experimental group	0.89860	0.09062	

Table 2 illustrates the normality of the data using the Shapiro-Wilk test. The data for the experimental and control groups in the pretest and posttest measurements had a significance value of $p > .05$, indicating a normal distribution. Therefore, researchers can use parametric statistics to test the homogeneity of the data.

Table 3: Homogeneity Test Results

Data Analysis	Homogeneity test (based on mean)	Description
Pretest	$0.131 > 0.05$	Homogeneous
Posttest	$0.460 > 0.05$	Homogeneous

The homogeneity test results in Table 2 show that the pretest data ($p > .131$) and posttest data ($p = .460$) are homogeneous. Both values are greater than the significance limit, indicating that the data at both measurement stages are homogeneous. This means that the variance between the compared groups does not show significant differences, thus meeting the assumption of homogeneity of variance in the One-Way ANOVA analysis. Therefore, parametric statistical tests such as ANOVA can be validly performed to test the mean differences between groups in pretest and posttest data.

Table 4: Paired Sample T-test Experimental Group

	Measure 2	t	df	p
Pretest - Posttest		-7.58384	14	2.53612×10^{-6}

Based on the test results, a significant difference was found between the pretest and posttest results of the experimental group, with a t-value of -7.58 and 14 degrees of freedom, indicating statistical significance. A very small p-value indicates that the difference found is statistically significant. The increasing difference in scores from the pretest to the posttest indicates that the treatment given to the experimental group had a positive effect on the children's social skills. Therefore, it was concluded that the treatment given was effective in improving children's social skills.

Table 5: Paired Sample T-test Control Group

Measure 1	Measure 2	t	df	p
Pretest	Posttest	0.0000	14	1.00000

Table 5 outlines the analysis results, yielding a t-value of 0.00 and a significance level of $p = 1.000$. A t-value of zero indicates that there is no statistically significant difference between the pretest and posttest scores in the untreated (control) group. Furthermore, a very high p-value indicates that the difference is not statistically significant. Based on the above description, there was no significant change in scores in the control group.

Table 6: Analysis of Independent Samples T-test

Data Analysis	t	df	p
Pretest	1.46	28	0.154
Posttest	-2.6728	0.012	

Based on the results of the Independent Samples T-Test analysis, it was found that in the pretest, the $t(28)$ value was 1.46 with $p = .154$, indicating no significant difference between the experimental and control groups before the treatment was administered. This indicates that both groups had comparable initial abilities. However, in the posttest, the $t(28)$ value was -2.67 with $p = 0.012$, indicating a significant difference between the two groups after the treatment was administered. This study found that the treatment given to the

experimental group had a positive and significant impact on improving children's social skills. Meanwhile, the control group, which was not given treatment, showed no significant changes in social skills.

These findings support the research hypothesis that structured play activities can improve children's social skills. Conceptually, these results align with Vygotsky's (1978) theory, which emphasizes the role of social interaction and scaffolding in child development. Educational games like TanggoFun can be understood as a form of social scaffolding, facilitating children's learning to cooperate, communicate, and understand social rules through meaningful play experiences.

4. Discussion

The results of this study indicate that the Snakes and Ladders game modified with social challenges (TanggoFun) is efficacious in improving the social skills of early childhood. The social challenges in the game encourage children to interact positively, such as giving praise, asking for help politely, or discussing with friends. The significant improvement in the experimental group, as reflected in the statistical test results, suggests that play-based learning, which involves active interaction, is a highly beneficial approach for children's social development.

These findings support the research hypothesis that structured play activities can improve children's social skills. Theoretically, the study results align with Vygotsky's (1978) perspective, which emphasizes the importance of social interaction and scaffolding in child development. The TanggoFun game serves as a form of social scaffolding, offering a space for children to learn cooperation, communication, and social rules through engaging play experiences. Therefore, the social learning process cannot be facilitated solely through verbal instructions or direct teaching; it is more optimal if children experience social situations directly. These results are also consistent with previous research, which shows that structured play programs positively contribute to improving social skills among preschool children (Loukatari et al., 2019) and that direct interaction-based social skills training produces positive changes in children's social behavior (Larose et al., 2020).

However, this study has limitations, including limited generalizability due to its limited implementation at a single educational institution with a relatively small sample size. The short duration of the intervention also limits the evaluation of long-term impacts on children's social skills. Therefore, future research is recommended to expand the sample size and involve more diverse educational institutions to allow for broader generalization of the results. Furthermore, follow-up studies could explore the long-term impact of implementing TanggoFun games on children's socio-emotional development and integrate teacher and parent perspectives in evaluating the effectiveness of the intervention. This research is expected to encourage educational practitioners to utilize modified games, such as TanggoFun, as an innovative learning strategy that supports the development of children's social skills, in line with the principles of play-based learning. This approach is more preferred and effective for early childhood (Ali et al., 2021).

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