Analysis of Student Interaction and Social Skills in Game Activities in Elementary School in Indonesian Context

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ABSTRACT

Objective: Social skills are one of the basic skills that students must have. How important social skills students must have. Elementary school students are expected to be able to recognize and implement social skills in their future lives. However, in practice at school, students have fewer social skills. Due to the lack of interaction and joint learning activities between students in elementary schools. Through learning activities at school, communicating, and even playing. This research aims to analyze the types of games that can foster interaction and social skills in elementary school students. **Method:** This research uses a qualitative research method with a descriptive approach. The research subjects were 15 elementary school students in Wringinrejo, Mojokerto. Research stages (1) in the preparation stage, the researcher pr, prepares a research plan and creates interviews, observations, documentation, and guidelines. (2) Implementation Stage, the researcher conducted a field study by carrying out observation and interviews, as well as taking documentation; 3) Findings Results: The researcher analyzed the findings and made conclusions from the research results and continued with the final stage, namely (4) Research Reporting Stage using observation data, interviews, and documented. **Result:** The results of this research show that the social skills of elementary school students are excellent through group play activities such as mazes and marbles are suitable for solitary and social play because they are proven to stimulate children to interact socially in the physical process and improve their social skills. **Novelty:** The researcher's hope for future researchers is to look more deeply at students' social skills at the elementary school level to have more innovative strategies, media, or other methods in instilling students' social skills.

INTRODUCTION

Children in elementary school typically use play activities in the classroom to communicate. In addition to posing health dangers, a lack of extracurricular activities for kids can harm their social lives and social skills (Jiang et al., 2022; Kim et al., 2024; Manitsa, 2023). Children between the ages of seven and twelve will be interested in social play. Youngsters start elementary school at this point, and social connections become crucial. Communication with others can be successful and productive when they possess social skills. Children can learn to adapt to society by developing the following skills: striking up a discussion on any subject, asking for assistance or information, saying "thank you," "I am sorry," expressing opinions, showing respect for others, asking for permission, being responsible, and following rules.

The skills that students need and must possess have been identified as important for overall social competence, such as effective initiation of interactive social games (Salamah, 2022), offering help, empathy, forming friendships, negotiation, and

compromise (such as negotiating in games or negotiating game rules), sharing limited play tools (sharing toys or preferred activities), cooperation during competitive games with limited resources, and decision-making. Other skills that shape and maintain friendships include influencing others, leadership, cooperation and collaboration, teamwork, and self-control. However, skills that provide context for the selection of appropriate behaviors, such as non-verbal communication, listening, exchanging information, expressing and recognizing intentions and emotions, attracting others' attention, sympathy, social patterns (observation and imitation), joint attention, and shared perspectives (Bekker et al., 2020). All these factors contribute to their communication with others.

A review of studies on social skills for school-aged children shows that social skills can be changed and perfected and should be taught as early as possible. PlayPlay is a means to enhance activities related to social skills and stimulate children to cooperate. The implementation of physical education activities for preschool-aged children can also lead to an increase in social skills (Mačak et al., 2022; Martinez-Merino & Rico-González, 2024; Senol, 2021; Wu et al., 2024). Regarding the enhancement of social interaction among children. Sepahpour et al. (2015) designed augmented tabletop games for children to promote social interaction among participating players. The results show that social interactions occur through cooperation and competition within and between teams designed for fun interactive toys.

Children's imagination and sense of duty toward toys encourage socialization. In order to develop engaging interactions, players should be allowed to establish their own game rules and objectives (Bekker et al., 2020). Additionally, they create a variety of chances for players to cooperate and engage in competition. They conclude that the objectives and regulations of games encourage participants to interact with one another. The game's openness provides an opportunity for social interaction during play, as negotiation about the goals and rules of the game is required. In the open-ended play, children play games in groups with different patterns of social interaction (Eidsvåg & Rosell, 2021; Rochanavibhata & Marian, 2022; Salminen et al., 2021; Sysoev et al., 2022; Veitch et al., 2021). The interaction structure between players, the game, and other players is called the player interaction pattern. For example, single-player versus cooperative games (Fullerton, 2021). Assistance and cooperation in autistic children using several entertainment tools designed in such a way that they cannot be played individually, and also designed interactive toys consisting of a moving body and three controllers. Traditional cooperative games, particularly those with cultural elements, have improved elementary school students' social skills, interpersonal behavior, and communication (Hartanto et al., 2021; Harahap, 2023). When combined with cognitive behavioral therapy techniques, these games can effectively change negative thought patterns and boost social abilities (Harahap, 2023).

Digital games also offer promising results, with 3D collaborative games promoting student cooperation in tertiary education. Furthermore, a randomized controlled trial demonstrated that a computer-based social skills development game significantly improved social literacy, reduced social anxiety and bullying victimization, and increased social satisfaction among children aged 7-11 with social skills deficits. These findings highlight the potential of both traditional and digital games in enhancing social skills across different age groups and contexts. Various types of games can enhance social skills and interaction. Traditional games promote pro-social behavior and cognitive empathy among children, improving their ability to observe and interact with

their environment (Krishnaveni & Ahmedov, 2022). Massively Multiplayer Online Role Playing Games (MMORPGs) offer opportunities to learn social skills such as meeting people, managing groups, and coordinating with others through self-organization, instrumental coordination, and downtime sociability. Simulation-based games show potential for enhancing social skills development and knowledge retention in children with Autism Spectrum Disorders (ASD), although more empirical evidence is needed. These diverse game types provide valuable platforms for developing and practicing social and communication skills in different contexts.

Each user has one controller and points it in a specific direction. The body moves in the direction of the combined active controllers. The body moves faster when users point their remotes in the same direction. Although there are currently many products for team games, the effects of these products on the improvement of social skills have not been found in previous research. In addition, children's games vary by country, city, culture, and season. With the following research questions: (1) Which game do students like to play at school? (2)Which games help improve social skills and interaction? (3) How does the process of evaluating games go?

RESEARCH METHOD

The research method used in this study is qualitative with a descriptive approach, as it aligns with the research objectives of exploring and describing a natural condition that emphasizes processes, meanings, and understandings in the form of words. The research subjects are 14 elementary school students in the Wringinrejo area of Mojokerto. The subjects were chosen based on the limited interaction of students in Wringinrejo. The data collection techniques used by the researcher are interviews, observations, and documentation. The research procedure follows: (1) Preparation Stage: At the preparation stage, the researcher prepares the research plan and creates interview, observation, and documentation guidelines. (2) In the Implementation Stage, the researcher conducts field studies by carrying out observation, interview activities, and documentation collection. The instruments used include interview guidelines and observation guidelines. In the (3) Findings stage, the researcher analyzes the findings and concludes the research results, followed by the final stage (4), the Research Reporting stage.
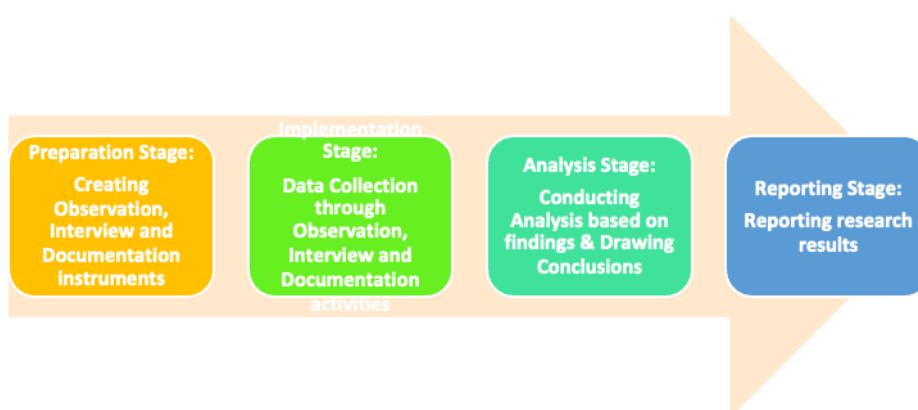

Figure 1. Research flowchart.

The data analysis used in this research refers to qualitative data analysis by Miles and Huberman, which has three stages: data reduction, data display, conclusion, and verification. In analyzing the development of students' social skills, the researcher uses

the social skills development indicators according to Gresham et al. (2011), which consist of cooperation, assertiveness, responsibility, empathy, and self-control, as shown in Table 1.

Table 1. Social skills indicators.

Social Skills	Social Skills Indicator
Cooperation	a. Sharing knowledge, information, and insights with others
	b. Following the agreement
	c. Forming heterogeneous groups
Assertion	a. Giving information to others
	b. Explaining to others
	c. Speaking clearly
	d. Speak politely
Responsibility	a. Accept the assigned task
	b. Completing tasks with full responsibility
Empathy	a. Caring about others
	b. Helping or assisting others
	c. Responding to others
Self-Control	a. Expressing opinions in turn
	b. Accepting others' input with an open heart
	c. Accepting others' advice and criticism with an open heart
	d. Controlling emotions when speaking or giving opinions
	e. Solving problems well

RESULTS AND DISCUSSION
Results
Based on the focus of this research, the results include an analysis of the types of games that can foster interaction and social skills among elementary school students. The findings are as follows.

Students' Favorite Games at School
The research results at the school show that students have favorite games; they are more interested in solitary or group games. This is also supported by the teacher's statement explaining that around 80% of the students like this game. Most students are interested in playing solitary or social games; their perceptions indicate that they are attracted to solitary games because they can play with other friends as social games. The following student statement supports this. "We enjoy playing solitaire because we can play with other friends, it is fun, and we can have a group. Playing alone is less fun, less interesting, and gets boring quickly." Next, the children also mentioned several types of games they like, namely digital and analog games, although not many, only about 20%.

Student Interaction
The analysis results provided information about improving interaction and social skills through group play activities. Moreover, it explains games, play activities, interaction, and social skills and identifies children's needs regarding play and toys. These results can be used to determine what toys they like and can also enhance children's interaction and social skills. The average scores of children's interest in solitary or social games indicate that children enjoy solitary and social games at the same level. Social games

include competitive and collaborative activities that provide opportunities for social interaction and learning social skills. Enhancing interaction and social skills is very important. It should be reinforced in several areas, including initiating effective interactive social games, negotiation and compromise, teamwork, taking turns, sharing limited resources, responsibility, and following game rules. 3. Game Evaluation The evaluation results show that Stick-Ball, Foot-Balance, Hand-Balance, and the Golden Music Circle effectively enhance teamwork, are suitable for competitive games and improve student interaction and social skills. The research results at the school show that students have favorite games; they are more interested in solitary or group games. This is also supported by the teacher's statement explaining that around 80% of the students like this game. Next, the children also mentioned several types of games they like, namely digital and analog games, although not many, only about 20%. Field observations indicate that 10 of 17 social skills are important in reducing conflicts.

Discussion
The researcher presents the discussion in this section. There are several discussions based on the researcher's findings during fieldwork. Based on the focus of this research, the results and discussion include the analysis of types of games that can foster interaction and social skills among elementary school students. The findings are as follows.

Students' Favorite Games at School
The pleasure of playing is achieved when desired feelings emerge, and predicted outcomes are attained. Children's favorite games encourage them to play and interact with each other. Most students are interested in solitary or social play; their perceptions indicate that they are drawn to solitary play because they can play with other friends as social play. The following statements from the students support this.

"We enjoy playing solitaire because we can play together with other friends; it is fun, and we can have a lively time. Playing alone is less fun, less interesting, and gets boring quickly".

There is the same educational value in competitive and cooperative games. Children will exhibit cooperative behavior amidst competition because they must agree on and adhere to the rules, all of which require cooperation to compete. Social skills in children's play activities are inseparable from conflicts. Although conflicts in play activities are typical, they are also important for creating situations and conditions where children are trained to interact and understand one another, and automatically, social skills will also be developed (Ali et al., 2021; Maksum et al., 2021; Rizadatun & Banten, 2023; Taufan & Basalamah, 2021; Yao et al., 2022). Although the conflicts that arise must be resolved, they are very engaging for them in their peer environment.

According to them, the interactions are not free from conflicts among children. The conflicts that occur indicate issues such as differences in power and leadership styles, using other children's toys without permission, sharing toys, choosing games and toys, taking turns, game rules and students' unfair attitudes, assigning role-playing games to individual teams, and losing or winning in competition. The most important factor that can create conflict among children is the lack of negotiation and compromise skills, which leads to power and authority conflicts, choosing games and toys, and assigning

role-playing tasks to individual team members. A child psychologist categorizes these issues to identify the child's social skills.

Student Interaction

The analysis results provided information about improving interaction and social skills through group play activities. It also explained play, play activities, interaction, and social skills and identified children's needs regarding play and toys. These results can be used to determine what games they like and can also enhance children's interaction and social skills. The average scores of children's interest in solitary or social games show that children enjoy solitary and social games at the same level. Social games include competitive and collaborative activities that provide opportunities for social interaction and learning social skills (Ke et al., 2020; Laakso et al., 2021; Putu Wulantari et al., 2023; Sumani et al., 2022; Zhong et al., 2022). Therefore, the better type of game used to enhance interaction and social skills is social games aimed at encouraging children to interact with each other. They are not forced to play together. There are educational values in competitive and cooperative play; children will exhibit collaborative behavior amidst competition. The improvement in interaction and social skills is significant. It should be reinforced in several aspects, including initiating effective interactive social games, negotiation and compromise, teamwork, taking turns, sharing limited resources, responsibility, and following game rules.

Types of Games That Can Enhance Interaction and Social Skills

Based on the results of observations and interviews from this research, four games were selected out of several games provided for students. The first game is the golden music circle, a musical instrument containing three music machines. When a child turns the handle of the individual music machine, its sound can be heard. Each machine creates one sound from the trio. Complete music can be heard when three children turn 3 handles regularly and harmoniously. Considering that children may not accurately diagnose the correct application, this operation was transformed into an objective by using 3 colored strips on the toy's body. In this way, the rotation of each strip represents the implementation of each machine. Music is applied correctly precisely when the strips rotate regularly, and similar colors align while rotating. Only in this situation is there no phase difference between the three parts. This device is helpful in solitary or social games and is suitable only for cooperative play. This concept uses music to require the harmony of the team group.

Figure 2. The golden music circle.

The second game is Stick-Ball: This is a playing table with several sticks where children hit the ball to score goals. When the ball hits the noisy surface of the table's walls, it results in simple path deflections and unpredictable movements. This drama has different patterns of social player interactions. For example, group members cooperate and try to defeat the opposing team. Also, if one side is considered an imaginary opponent's goal, someone tries to score a goal, or group members work together to score a goal. They can close the opposing sticks to block the ball from returning to their goal; in this case, cooperative and collaborative play has been implemented.

Figure 3. Stick-Ball

The third game is Foot-Balance: This is a basic balance toy. When the children stand on the podium, they make it unbalanced and move some marbles. The balance board returns to its essential horizontal position when it steps down from the podium. Social and solitary games and competitive and cooperative games are possible. In solitary play, a child guides the marbles by pressing the podium, going down one side and up the other. In social play, children work together to guide the marbles, and they can also compete against each other. For example, the winner is the one whose marble reaches its goal. The rounded shape of the product encourages children to share and interact with each other. Children cannot place their feet on the transparent ball cover and walk on it because of its round shape.

Figure 4. Foot-Balance

The fourth game is Hand Balance: This concept is similar to Foot Balance in many ways, but the balance board does not wobble and is in an unstable equilibrium. Thus, it can be pushed from any point with little effort. As a result, it descends and remains in the same state, where there is no access to lift it from the same point again. The implementation of the game is complex individually because changing the direction of the balance board must first be done in horizontal mode. Thus, the child needs cooperation to tilt the board and move the marbles, as it will be controlled by hand.

Figure 5. Hand Balance

Game Evaluation

The evaluation results show that Stick-Ball, Foot-Balance, Hand-Balance, and Golden Music Circle are effective in enhancing teamwork, suitable for competitive games, and improving student interaction and social skills. However, compared to Foot-Balance and Hand-Balance, Foot-Balance is superior to Hand-Balance due to the nature of the play activity. This shows that the chosen concept can encourage children to engage in social play and enhance their social skills. To play easily and quickly, a player needs the help of others who can provide requests or offers of assistance and initiate effective interactive social games. In social games, children cooperate to guide marbles, and they can also race to direct the marbles to the target. Competitive games also require player cooperation; all players are responsible for their roles. Also, they might need a leader for teamwork.
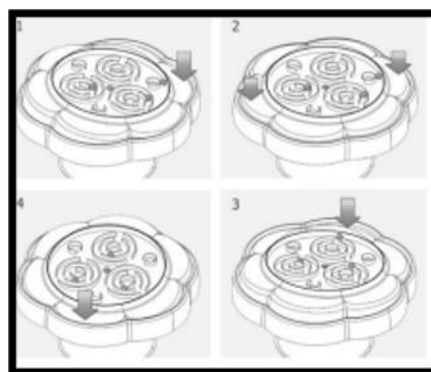

Figure 6. The process of moving the marble from position 1 to 4

The next game is a maze and marble game contained within a maze, creating opportunities for players to set their own goals and rules. In some parts of the maze, gates behind other sections lead to the possibility of success or failure. The player's success in achieving the game's objective requires fine motor skills and reasonable control of the balance board.
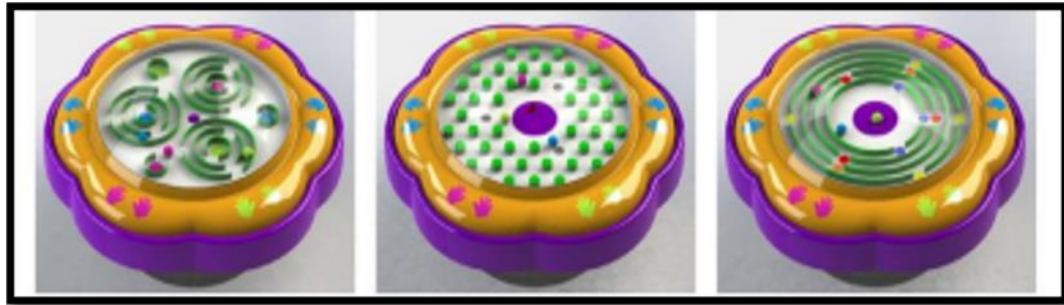

Figure 7. Maze and marbles in a transparent container

Round-shaped toys encourage children to share, and round shapes make children constantly interact and communicate. The toy's edges with teeth indicate the children's standing position and push points. The body is formed from three secondary colors (green, orange, purple) that are not about gender stereotypes. According to cognitive ergonomics, the relationship between color, shape, and function is considered in addition to color psychology when selecting product colors. At this age, children can classify objects based on definable criteria (Bystrova & Tokarskaja, 2023; Cañete et al., 2021; Li et al., 2024; Skulmowski et al., 2022; Solorzano Alcivar et al., 2025). Three mazes and three marbles in three colors (blue, pink, yellow) encourage children to group them and create situations for open play. The color of these hand shapes determines the best position to place the hands and push the toy body. The shape of the hand encourages children and demonstrates the product's performance. Therefore, the chosen and used toys should be in groups, not individual or single-player games. Also, provide solitary and social games; however, focus more on social games to develop children's social skills and encourage their collaborative behavior.

CONCLUSION
Fundamental: Based on the results of observations conducted at the Wringinrejo playground, Sooko, Mojokerto, there has been an improvement in the social skills possessed by elementary school students. Students are encouraged to interact through group play activities and competitive games and can minimize conflicts through the social skills they acquire. Elementary school students learn many things through group play activities, including the effective initiation of interactive social games, negotiation and compromise, teamwork, taking turns, sharing limited play equipment, responsibility, and following game rules. **Implication:** Group games are suitable for stimulating children to interact socially and enhance their social skills. In this study, the analysis of players' social interaction patterns is used to design other games further to enhance interaction and social skills. **Limitations:** This research is limited to analyzing games that enhance interaction and social skills among elementary school students. **Future Research:** The hope for future researchers is to design game products to enhance student interaction and social skills through toy design.

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