

Design of the gamifying anti-bullying education: a transformative approach with the giant snakes and ladders bullying game



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ABSTRACT

Bullying in elementary school environments is a serious problem that can hinder children's emotional and social development. This study aims to provide anti-bullying education to elementary school students through interactive game media, namely Giant Bullying Snakes and Ladders. The method used was an in-depth interview with elementary school teachers in Pracimantoro District, Wonogiri Regency. This interview aims to obtain information about the forms of bullying behavior that often occur in schools and educational efforts that have been implemented previously. Based on the results of data analysis, researchers designed a creative solution in the form of an educational game that is not only fun but also full of anti-bullying moral messages. This game is designed on a large scale to attract students' attention and can be played in groups. Each box in the game contains illustrations and educational messages, such as an invitation to stop bullying and empathy for friends. The results of implementing this game show that students become more active in discussing bullying and are more courageous in saying "stop bullying" when witnessing similar incidents. This study contributes to providing innovative and fun learning media, which teachers can use to effectively instill anti-bullying values in children from an early age.



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1. Introduction

Currently, various problems are haunting the world of education in Indonesia, one of which is bullying. This form of violence not only occurs physically but also psychologically in various places such as schools, playgrounds, homes, streets, and vacation spots. Bullying seems to have become an indispensable part of children's lives in the current era, with the increasing number of cases of violence or bullying committed by students in schools being the main spotlight in various print and electronic media [1]. Bullying is a very important issue in educational institutions around the world. Research indicates that between 20% and 54% of students experience repeated involvement in bullying behavior, either as perpetrators or as victims [2], [3]. Research on bullying generally focuses on the characteristics of children when they have been involved in intimidating behavior [4], [5]. Findings from various studies indicate that individuals who act as bullying perpetrators tend to have high levels of aggressiveness and impulsivity in interactions with peers [6], [7]. The term bullying is often used to refer to bullying or humiliation. Cárcamo *et al.* defines bullying as a form of repeated and prolonged aggression characterized by a difference in power between the perpetrator and the victim, intending to harm and contain elements of planned terror [8]. Looking at bullying as a psychosocial problem [9], it is clear that constant humiliation decreases self-esteem, and other similar actions have a detrimental effect on both the bully and the victim of bullying [10]. Sometimes, community members, parents, teachers, and learners may perceive bullying as a harmless joke [11]. Bullying is often taken for granted because it is often perceived as a joke and a way of playing [12], [13]. Many people

perceive bullying as a joke and consider it a natural thing to happen [14]–[16]. Verbal, relational, and electronic bullying is often overlooked. This is largely due to a lack of understanding of the level of development and performance of learners, as well as the absence of an anti-bullying system in schools. Education on bullying is also lacking. Mistreatment and harassment of learners in educational institutions, commonly known as bullying, have become a topic of concern in recent years [17].

Education about bullying is given as an effort to prevent violence in the school environment. Prevention is an action, method, or process carried out to prevent individuals or groups from committing acts of violence within the education unit [18]. Steps that can be taken to help overcome bullying at school include instilling good moral values and explaining or providing an understanding of bullying and its effects to those who are at risk of becoming perpetrators or victims of bullying (IE School students). The behavior of preschool children, emotional and motor conditions, socioeconomic background, and experiences of separation within the family has a significant relationship with their involvement in bullying action [19]. Teachers can prevent cases of bullying in schools through various means, such as information provision services and group guidance services. In order for the service delivery process to be carried out properly, innovative and attractive media tailored to the problems of learners are needed. One of them uses Learning media to develop the Snake and Ladder game. Based on the description above, there is a need for the development of research media that can provide an understanding of bullying education in elementary school students. One of the Learning media that can be used is the game Snake and Ladder (snakes and Ladders). The demand for knowledge of bullying among elementary school students makes researchers interested in developing game media with a play-and-learn approach because this approach is not applied in elementary schools, especially in Wonogiri Regency. The game media that will be developed will combine bullying material with traditional games. The game serves as an efficient educational tool with high appeal, which has been proven to influence user behavior and enhance understanding in various aspects, including mental health [20]. The game is an educational tool that can encourage meaningful change in understanding bullying and cyberbullying and enhance student empathy and assertiveness [21]. The choice of the Snake and Ladder game or Snakes and Ladders as a traditional game that is preferred is based on the many advantages it has compared to other options. This particular game stands out for its widespread popularity in the present, its visually appealing board design featuring bright colors and distinctive snakes and ladders symbols, its easy-to-understand instructions, and its incorporation of valuable characters. In addition, the game of snakes and ladders has a very important cultural value and must be preserved, and the presence of a board with many squares provides an appropriate framework for organizing and categorizing questions in the process of media Development.

2. Method

The research method applied in the development of the game Giant Snakes and Ladders as a means of anti-bullying education is a qualitative research approach with the characteristics of flexibility and the ability to adapt to the situation in the field. Data is collected through this approach in the form of qualitative information, which can be text, documents, images, photographs, artifacts, or other objects found during the research process [22].

2.1. Research Procedure

The first step in research is to formulate a problem. The researcher should identify the phenomena or issues that are urgent in society and need to be addressed, which will be the basis for the preparation of the study. After finding the phenomenon or problem, the researcher will conduct in-depth observation and analysis to ensure the truth of the phenomenon or problem. The data obtained from this process will then be analyzed further to formulate the problem clearly and find the right solution. In this context, the proposed solution is to provide anti-bullying education to Primary School children through the giant game of snakes and ladders as a result of this study. The next stage is data collection. In this study, data collection is done through two types, namely primary data and secondary data. Primary Data were obtained through in-depth interviews, while secondary data were collected through literature studies. Primary data is information collected directly from the researcher's source, which provides high accuracy and relevance [23]. In this study, in-depth interviews became the main method to obtain primary data so that researchers could dig deeper and comprehensively about the issues studied. An interview is an interaction between two parties with a specific purpose, where the interviewer asks questions and the interviewee gives answers [24]. Fig 1 shows the steps of the research method.

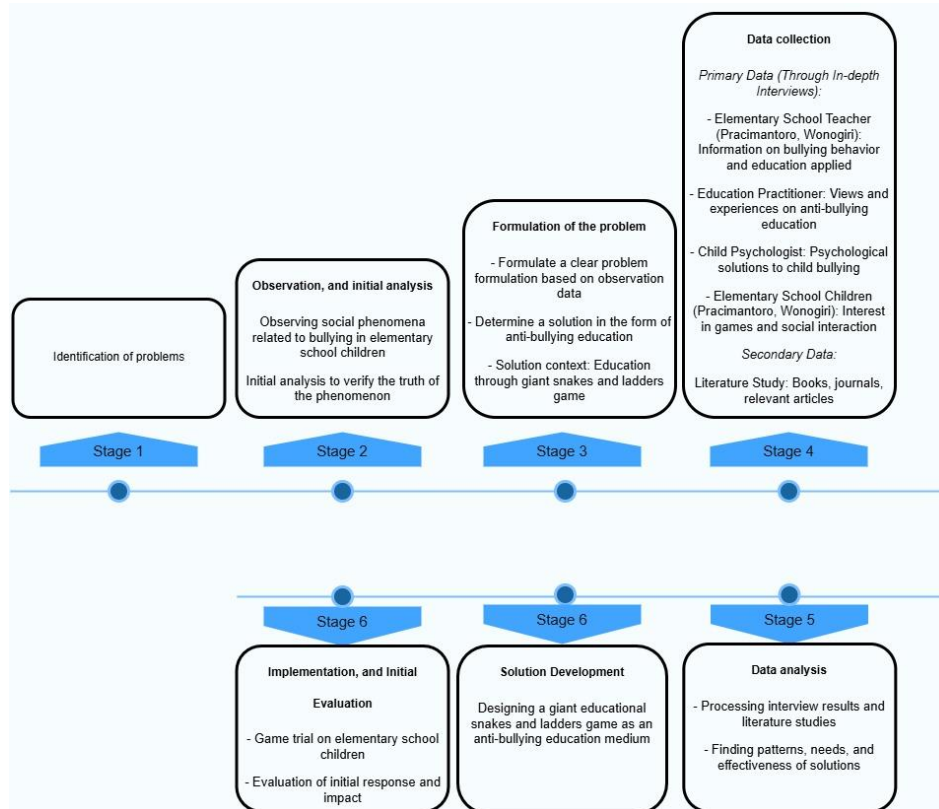


Fig. 1. Research method step

In this study, in-depth interviews were conducted with four different interviewees to collect primary data. First, interviews were conducted with elementary school teachers in the Pracimantoro subdistrict, Wonogiri regency, to explore information about bullying behavior that often occurs in schools and anti-bullying education efforts that have been implemented. Second, interviews with education practitioners aim to find out their views, experiences, and insights related to various aspects of education, the challenges faced, the effectiveness of educational programs, as well as the needs or changes needed to improve the quality of learning, especially those related to anti-bullying education. Interviews with child psychologists aim to find solutions that can be applied in dealing with bullying behavior in children based on the perspective of psychology. Third, interviews were conducted with children attending primary schools in the Pracimantoro Sub-District of Wonogiri Regency to explore their interest in Giant Snake and Ladder Bullying games and their interactions with peers.

Secondary Data is information collected by researchers from existing sources [25]. Secondary Data includes a variety of information relevant to the study, particularly on anti-bullying education for elementary school children and the media game Giant Snake and Ladder Bullying. Secondary data sources can be obtained through documentation, books, journals, and articles that are available both online and in physical form. The use of secondary data is important to support and enrich the results of research conducted. The third stage in the data analysis process has a very important role. Data analysis is an essential step that involves organizing, structuring, and giving meaning to initially unstructured data [26]. In this study, the approach used is qualitative data analysis, which is conducted systematically and continuously during data collection. Qualitative analysis methods applied include fishbone analysis and 5W+1H. Fishbone analysis, which is known as a method for linking cause and effect in a study [27], has a visualization that resembles "fish bones." This method effectively describes the study's initial data because it can describe the characteristics of the research method and highlight cause-and-effect relationships. Through Fishbone analysis, it is expected that creative solutions can be found to support the design of Giant Snake and Ladder Bullying educational games aimed at preventing bullying. 5W+1H analysis is a method that uses key questions: What, Why, Who, Where, When, and How to understand a topic thoroughly. Each element in 5W+1H has a different function: What focuses on the object, Why gives an explanation, Who describes the figure, Where shows the location, When refers to time, and How explains the method. In this study, the analysis of 5W+1H aims to design a creative concept of anti-bullying messages for children in elementary school.

3. Results and Discussion

3.1. Data analysis and creative concept of messages

The primary and secondary Data that have been collected are then analyzed using fishbone diagrams, as shown in Fig. 2. The results of this analysis were then used to formulate creative solutions in designing the game Giant Snake and Ladder Bullying for this study.

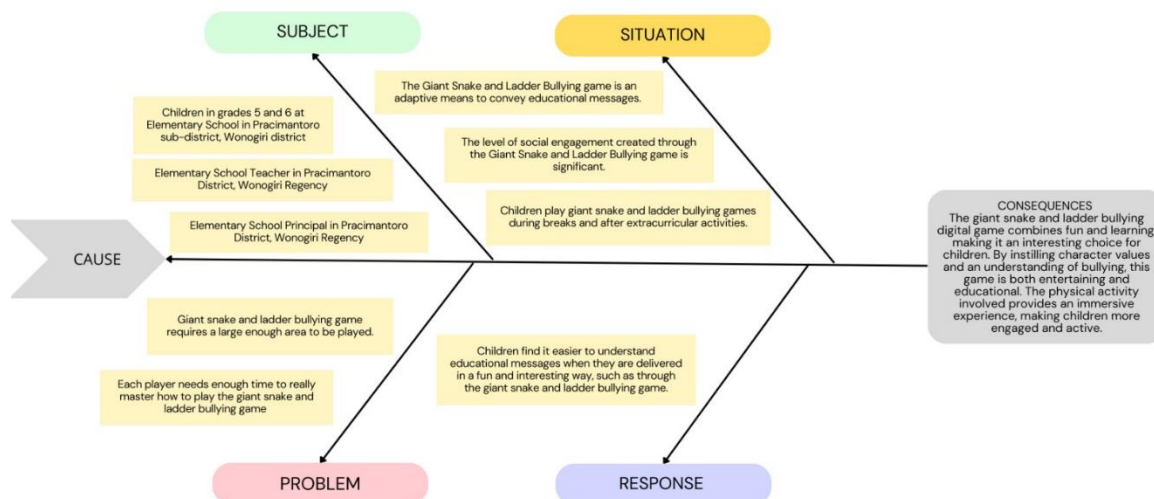


Fig. 2. Schematic of data analysis illustrated through fishbone diagram

In an effort to create a giant snake and ladder bullying game that focuses on anti-bullying education, several strategic steps need to be taken. First, these games should be designed with an appropriate level of difficulty and an ideal duration for elementary school children so that they can enjoy the game without feeling overwhelmed. Furthermore, providing a clear visual guide is important, as it will help teachers and students understand the flow of the game better. In this way, it is expected that all participants can be actively involved and understand the message they want to convey. This giant snake and ladder bullying game was chosen as an effective medium to convey educational messages to children because they tend to be more receptive to information through fun methods such as playing. With an attractive design and a practical component, this game will entertain and encourage children to take a positive attitude towards bullying by inviting them to dare to say "stop bullying" when witnessing such actions in the school environment. Fig. 3 shows the advantages of using the game Giant Snake and Ladder Bullying in conveying anti-bullying messages, based on interviews with educational practitioners and child psychologists, which confirms the effectiveness of this method in educating the younger generation.

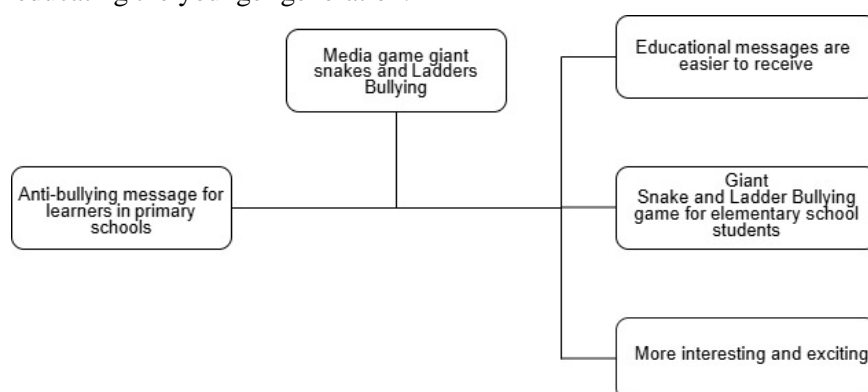


Fig. 3.Media Excellence Scheme Giant Snake and Ladder Bullying game in delivering educational messages about Anti-Bullying to elementary school students

The primary and secondary data that had been collected were then analyzed by applying the formulation of 5W+1H interrogative sentences (What, When, Where, Why, Who, How) to design a creative concept of anti-bullying messages addressed to children in primary schools, see Table 1.

Table 1. Analysis of 5W+1H in the preparation of the creative concept of the message

5W + 1H	Analysis Result
(What) What are some common types of bullying behavior by elementary school children in the school environment?	An interview with a teacher at Pracimantoro Elementary School, Wonogiri Regency, revealed various forms of bullying among students, such as ridicule, making fun of parents' names, making fun of friends with new items, borrowing items without permission, returning items carelessly, and not saying thank you. In addition, spreading negative gossip and ostracizing friends is also common.
	The results of interviews with two students from a public elementary school in Pracimantoro District, Wonogiri Regency, showed that some forms of bullying behavior that are common in schools include nosy acts, ridicule involving parents' names, beatings, and ridicule.
	Interviews with child psychologists show that common bullying behaviors among elementary school children include taunting, ostracizing, and being picky about making friends.
(When) When is the right time to deliver an educational message about anti-bullying to children?	The results of an interview with an elementary school teacher and child psychologist in the Pracimantoro Sub-District showed that the delivery of anti-bullying educational messages should focus on Grade 5 and 6 students because they have a deeper understanding of the social environment.
(Where) Where is education about anti-bullying delivered to children?	An interview with an elementary school teacher and child psychologist in Pracimantoro District, Wonogiri, showed that anti-bullying education needs to be given in schools because of the high bullying behavior. The method used is the game Giant Snake and Ladder bullying, which allows direct interaction between children and teachers.
(Why) Why introduce anti-bullying education to children?	According to the Indonesian Child Protection Commission (KPAI), cases of bullying among elementary school children continue to increase and often appear in various media. This act of violence has the potential to become a criminal offense and can negatively affect the child's morale and hurt others. Therefore, anti-bullying education at the primary school level is very important as a preventive measure.
(Who) Who receives messages about anti-bullying?	Children in Grades 5 and 6 at Pracimantoro Elementary School, Wonogiri Regency, enjoy activities combining games and learning. They also show great interest in solving problems through various fun games.
(How) How has anti-bullying Education been implemented in schools?	Based on interviews with teachers at Pracimantoro Elementary School, Wonogiri Regency, it was revealed that schools in the area regularly hold various positive activities to support anti-bullying education. These activities include sharing love as part of character education that teaches caring for others, sharing provisions, and helping each other when there are students who experience disasters. In addition, students are also taught to lend things to each other. In the event of bullying behavior, teachers will provide education by delivering positive messages verbally to students repeatedly.
	The results of interviews with four students from private elementary schools and public elementary schools in Pracimantoro district, Wonogiri regency, showed that teachers always emphasize the importance of sharing and helping each other among friends at school. When bullying behavior occurs, such as quarrels or taunts between students, the teacher will reprimand the perpetrator, threaten to report to the principal, and provide punishment in the form of additional assignments outside the classroom.
How to deliver an effective anti-bullying message to children?	Interviews with child psychologists show that educational messages about effective anti-bullying for children can be conveyed through case studies or stories that are able to touch their feelings and arouse their empathy.
How to apply innovative learning models in schools?	The results of interviews with elementary school teachers in Pracimantoro district, Wonogiri regency, show that creative learning models are applied in schools with the Quizziz application. This application is able to help students understand the material in an interactive and fun way so that the learning process becomes more meaningful and relevant for learners.
	Based on interviews conducted with two students from a public elementary school in the Pracimantoro subdistrict, Wonogiri Regency, it was revealed that their teacher had applied more interesting teaching methods in the classroom, such as storytelling and sharing experiences with peers.

After analyzing the situation using the 5W+1H framework, the next step is to create an innovative game to communicate anti-bullying messages to elementary students. Bullying is classified into mild, moderate, and severe levels. Based on Snakes and Ladders, the game helps students absorb important anti-bullying messages through relatable scenarios like ridicule and social exclusion. The 4x5 meter game board is designed for outdoor or large classroom use, featuring squares with bullying-related

messages and illustrations of snakes and ladders. In this interactive game, students act as pawns, with each group selecting a representative to advance based on dice rolls.

3.2. Game Planning Concept

The Giant Snake and Ladder Bullying game is a modified version of the traditional Snakes and Ladders game, designed to convey anti-bullying messages in an interactive and fun way. By utilizing elements of the familiar Snakes and Ladders game, the game provides additional in-depth educational aspects of bullying behavior as well as the importance of positive character values. The Giant Snake and Ladder Bullying game board is large and made of flexible material that allows indoor and outdoor use. This board features boxes that each describe a situation relevant to the context of bullying. Each box is designed to represent different scenarios or challenges associated with bullying, such as peer pressure, ridicule, or exclusion.

3.2.1. Necessary Play Equipment

The Giant Snake and Ladder Bullying game requires several key pieces of equipment to ensure an engaging and educational experience for students. The main component is a large game board, measuring 4x5 meters, specifically designed for outdoor use or spacious classrooms. The board features boxes containing messages related to bullying and anti-bullying, complemented by illustrations of snakes and ladders. Its size allows students to move freely on the board, creating a physically interactive experience. The board can be adapted to a reduced size for smaller spaces or groups while maintaining its functionality. The pawns in this game are the students themselves. Each group selects a representative to act as the pawn, standing on the board squares and moving according to the dice roll. This direct involvement allows students to experience the game firsthand, physically enacting progress by climbing ladders or setbacks by sliding down snakes, as determined by the square they land on. Additionally, big dice are used to enhance visibility and excitement. These large dice ensure that all participants, even those farther from the board, can clearly see the results of each roll. The dice dictate the movement of the student pawns, with the numbers rolled indicating the number of steps to take. The size and design of the dice also add an element of anticipation and fun, keeping the game dynamic and engaging.

3.2.2. Game Board Plans

The board consists of squares arranged in the classic Snake and ladder pattern but is equipped with educational elements designed specifically to convey a message about bullying. Each box has a design and a message related to the actions and consequences that arise as a result of bullying. This section provides an overview of the two primary types of boxes featured on the game board. The box associated with a ladder symbolizes a constructive action pertaining to anti-bullying, motivating players to advance in the game. For instance, a box might state, "assisting a friend who is experiencing bullying," which allows the player to progress further. This design intends to promote an understanding among students of the significance of positive actions in safeguarding and supporting peers against bullying. Conversely, the box linked to a snake signifies a detrimental action related to bullying, compelling the player to retreat a few spaces. An example of this could be a box that reads "mocking a friend," illustrating the repercussions of such behavior by hindering the player's advancement. This element is designed to make students aware of the harmful impacts of bullying and the necessity of steering clear of such conduct. Additionally, every box on the game board is paired with an educational message concerning bullying. The boxes featuring the ladder and the snake include text that elucidates the nature of the action—whether positive or negative—and its consequences. These messages are intended to facilitate discussions during gameplay, allowing participants to share their experiences and gain insights into the ramifications of their actions and strategies for enhancing their behavior.

3.2.3. Explanation of the Symbols on the Game Board

Understanding board game symbols is crucial for enhancing gameplay and strategy. These symbols indicate actions and resources, with meanings varying by game. In this game, the snake symbolizes negative behaviors to avoid. Landing on a snake square causes a "descent" on the board, reflecting the consequences of actions like mocking or bullying. Each encounter with a snake encourages discussions on the impact of such behaviors and ways to prevent them. Conversely, the ladder represents positive actions that promote personal growth. Landing on a ladder square allows players to "ascend," symbolizing constructive behaviors like reporting bullying or showing empathy. Each ascent provides opportunities to share ideas for fostering a supportive social environment.

3.2.4. Rules and How to Play

- **Basic Rules Of The Game:** The Giant Snake and Ladder Bullying game is designed for small groups of students. Each group selects one member to act as the moving pawn on the game board while the remaining members collaborate to provide support and devise strategies. The game is played by taking turns rolling a large die, with the pawns advancing according to the number rolled. Players progress by moving to the corresponding square based on the dice roll. If a pawn lands on a square with a ladder, it moves up to a higher square following the ladder's endpoint. Conversely, landing on a square with a snake requires the pawn to move down to a lower square, following the snake's tail. Certain squares on the board feature instructions or messages that the teacher or facilitator reads and explains when a pawn lands on them. The game's ultimate goal is to reach the final square while internalizing anti-bullying messages and character education values introduced throughout the gameplay. While the first group to reach the end is declared the winner, the true success lies in the students gaining meaningful lessons on positive values during the activity.
- **Steps to Play:** To play the Giant Snake and Ladder Bullying game, begin by dividing the students into small groups. Each group selects one member to serve as the pawn that will move on the game board. The facilitator or teacher then explains the game rules, ensuring all participants understand how to navigate the board, use the dice, and interact with the ladders and snakes. The game starts by determining the first group to play, which is decided by rolling the big dice. The designated pawn moves according to the number rolled. When a pawn lands on a square containing a ladder or snake, the player must follow the designated action, either climbing up the ladder or sliding down the snake. If the pawn lands on a box with a special message, the teacher reads the message aloud and guides a discussion on the appropriate response. During gameplay, brief discussions are encouraged if a relevant situation arises from the message box, such as handling bullying or emphasizing the importance of good friendships. After one group completes their turn, the next group rolls the dice, and the game continues in this manner. The game concludes when one group successfully reaches the last square. However, the primary objective is for all students to gain insights into anti-bullying values and character education through participation and collaborative play.

3.3 Game Design Visualization of Giant Snakes and Ladders Bullying

3.3.1. Board Games

In the game of snakes and ladders that researchers have modified, four important terms need to be understood, namely, the game board (64 squares), pawns (10 pieces/player), snakes (6 pieces), and stairs (6 pieces), see Fig. 4.

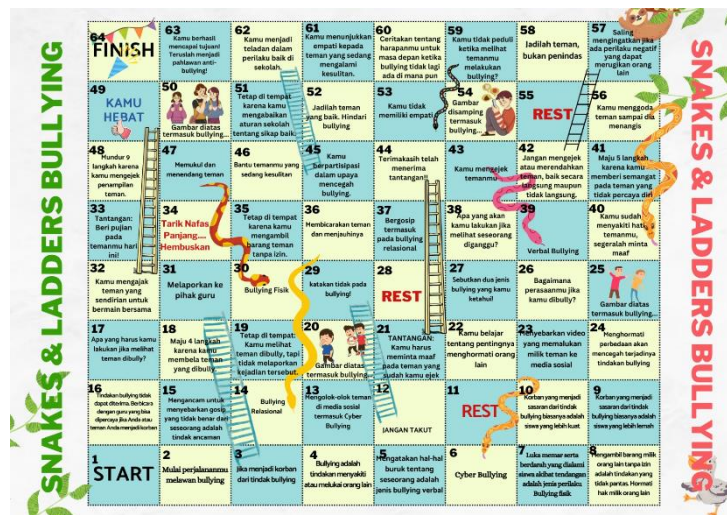


Fig. 4. Giant Snake and Ladder Bullying board game

Here is an explanation of the two main types of boxes on this game board: Fig. 5 is a box with a ladder, and this box depicts a positive action related to anti-bullying, which encourages the player to move forward. This box gives an additional advantage in the form of a step forward.



Fig. 5. Box with ladder

Fig. 6 is a box with a snake, and this box shows negative actions related to bullying, which require the player to take a few steps back. This box can reduce the player's movement. This box aims to help students realize the devastating effects of bullying behavior and the importance of avoiding such actions.



Fig. 6. Box with snake

Fig. 7 is the educational message; each box on the game board comes with an educational message relating to bullying. The box containing the ladder and the snake is accompanied by a text explaining the good or bad action, as well as the impact of the action. These messages serve as discussion material during the game, where players can share experiences and learn about the consequences as well as ways to improve their behavior.

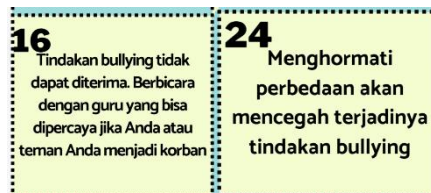


Fig. 7. Educational Message

3.3.2. The explanation of the Symbols on the Game Board.

- Snake, Fig 8: in this game, the snake symbolizes a negative attitude that is best avoided. When a player lands on a Square depicting a snake, they will "descend" to a lower position on the game board. Snakes reflect the consequences of bad actions such as taunting friends, spreading gossip, or engaging in bullying behavior. Each time the player falls into a snake, they will have the opportunity to discuss or reflect on the impact of the behavior, as well as ways to avoid or correct it in the future.



Fig. 8. Symbols on the Game Board (Snake)

- Ladder, Fig. 9: on the contrary, the ladder symbolizes a positive attitude that promotes progress in character development. When a player lands on a square indicating a ladder, they will "move up" to a higher position on the board. Stairs represent good actions such as reporting bullying, helping a friend in difficulty, or showing empathy for others. Every time players move up the ladder; they will be given the opportunity to share ideas or strategies on how to support friends and create a more positive environment.

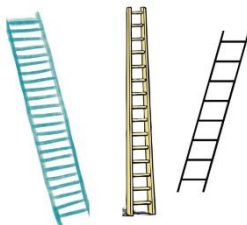


Fig. 9. Symbols on the Game Board (Ladder)

3.3.3. Dice Games

A dice, Fig. 10, is a cube with six sides, each containing a number that the player uses to move from one tile to another.



Fig. 10. Dice Game Display

The Dice Game Guide, Fig. 11, was created to make it easier for users to enjoy the Giant Snakes and Ladders game with a bullying theme. The book "Guide to Implementing Giant Snakes and Ladders Bullying Game Media (To Improve Anti-Bullying Character Education)" combines bullying with character education to help educators effectively teach this issue. Hopefully, this guide makes learning more fun and useful.

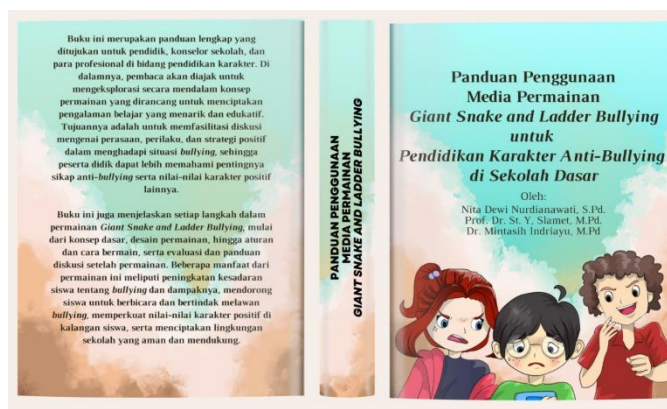


Fig. 11. Guidebook Cover Design

4. Conclusion

The Giant Snakes and Ladders Bullying Game has proven to be an innovative and effective educational medium in conveying anti-bullying values to elementary school students. The results of the study showed that an interactive and fun game approach can improve students' understanding of the forms of bullying, its impact on victims, and the attitudes that should be taken in such situations. Through this game, students naturally learn about values such as empathy, courage, caring, and cooperation in a safe and fun atmosphere. The play activity also encourages reflection and group discussion that strengthens collective awareness to prevent bullying behavior, both in and outside the

school environment. The main contribution of this study lies in the integration of character education and anti-bullying into traditional game media that is creatively adapted. This enriches learning by providing children with meaningful, relevant, and easily accepted learning experiences. However, there are several limitations that need to be noted. First, the effectiveness of this game still depends heavily on the involvement of teachers and facilitators in the implementation and follow-up process. Second, the trial is still limited to certain areas and numbers of participants, so the results cannot be generalized widely. Thus, the study recommends that further research be conducted on a larger scale and with a variety of participant backgrounds to strengthen more significant findings.

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- Conflict of interest** : The authors declare no conflict of interest.
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