Modifying Gobak Sodor into A Learning Medium for Improving Students' Scientific Attitude

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Abstract
This study aims to improve scientific attitudes by modifying Gobak Sodor, a team-based game in which two teams of three members each attempt to beat one another. One team plays as the defender, while another team acts as the attacker in a square field with boundaries usually marked by chalk. This qualitative study collected the data by observation and documentation, finding that 9 out of 10 2nd-grade students in MI Ma'aruf NU Metro exhibited better attitudes, including honesty, cooperation, optimism, objectivity, and tolerance. Despite the attitudinal improvements made, a number of aspects, including social awareness, courage to express opinion, creativity, and innovation, needed further improvement. This game was proven to be interesting for lower-grade elementary school students. The game could also be played without any special tools, allowing students to develop their scientific attitudes throughout the game.

Keywords: modification, gobak sodor, scientific attitude
INTRODUCTION

Today's technological development is proven to significantly decrease children’s outdoor activities, as they prefer playing with their gadgets rather than playing outside with their friends. Gadget use is known to have addictive effects, especially on children with limited or no parents’ supervision. Children are prone to gadget addiction, a condition believed to adversely affect their behaviors, causing psychosocial problems (Nurhidayah, Ramadhan, Amira, & Lukman, 2021). In this regard, parental supervision is necessary to prevent the negative impacts of gadgets (Palar et al., 2018). Most children seem to be unaware of their surroundings when playing with their gadgets. In the school context, gadget use may adversely affect their scientific attitude and decrease their learning focus. Gadget addiction may demotivate children to engage in social activities, decrease their concentration, cause depression and separate them from their social environment Syahyudin (2020). Gadget addiction is also reported to cause children to find it difficult to interact with their surroundings Ariston & Frahasini (2018). Gadget addiction has been associated with poor eye health and sedentary behaviors, as children prefer their gadget rather than outdoor, physical activities with their friends. Gadget addiction is also linked to students' character. Pratiwi et al. (2022) reported that excessive gadget uses causes students to be less communicative, undisciplined, and lazier to engage in learning activities.

Today’s globalization has modernized and automatized various life aspects, replacing most individuals’ social needs with tools. This condition has significantly decreased individuals’ interaction with other individuals,
nature, and the surroundings. When left unattended, children ‘raised by
gadget’ are at risk of being selfish, passive, and socially insensitive
individuals. Gadget and its sophisticated technology offer innumerable
features, including offline and online games. This gaming feature almost
brings traditional games that used to live in our society to extinction.
Children prefers to play digital games on their gadget rather than hide-and-
seek or Gobak Sodor with their friends, putting positive characters
previously mentioned at the risk of extinction (Fauzia, 2017). The Gobak
Sodor game is a game that starts to be forgotten by today's children as it
increases some great online games in giving coloring life, the game of Gobak
Sodor is arguably rare among today's children (Syihabbudin & Umami,
2021).

Traditional games like hide-and-seek, jump rope, dakonan, and
Gobak Sodor, among others, are difficult to find today and begin to be
replaced by online games because they are considered more accessible and
offer more fun. Children in the past were happy only with simple,
traditional games. In this modern era, although children gather in the same
place, they lack communication as they focus on gadgets in their hands.
This condition results in children’s poor communication. One that can
improve the ability of early childhood cooperation is traditional games
(Idhayani & Kurniawati, 2020). Today’s children are no longer worried
about interactions. One of the traditional games that could develop
children’s cooperation is Gobak Sodor (Anggraini & Nurhafizah, 2020). It is
used to be played by elementary school students (Ariyanti, 2014; Setiawan
& Triyanto, 2014), and previous study has reported that the game is
In accordance with the research (Hardiyanti & Lutfi, 2013; Rahma & Lutfi Achmad, 2013) that the use of gobak sodor traditional game media has increased learning outcomes. In accordance with research Kurniati (2011) that traditional children's games can stimulate children in developing cooperation, help children adjust, interact positively, can condition children to control themselves, develop empathy for friends, obey rules, and respect others.

This game is played by two teams consisting of three members each. One team plays as the defender, while another team acts as the attacker in a square field with boundaries usually marked by chalk. The ability to cooperate which is one of the components of ability in the social-emotional field is an important thing to develop in children (Idhayani & Kurniawati, 2020). Rochmawati, Sutarto, & Anni, C. (2017) explained that the ability to work together in each student can create an attitude of tolerance, respect for the opinions, attitudes, and actions of other people who are different from themselves. Science learning media in elementary schools that can improve the scientific attitude of students include honesty, cooperation, optimism, objectivity, and tolerance, caring for the environment, daring to express opinions, being creative and innovative. In this regard, Gobak Sodor may serve as a means to internalize values of cooperation and group interaction in children. Because the ability to cooperate or so-called cooperative attitude has an important meaning in forming positive friendships that need to be accustomed from an early age (Idhayani & Kurniawati, 2020). Gobak Sodor is reported to improve children's
cooperative attitude Puspitasari, Masuf’ah, & Pratiwi (2022). Another study conducted by Listyaningrum (2018) found that students engaging in Gobak Sodor exhibited better social attitudes than those who were not. In accordance with the research Aminah & Sonedi (2020) that the social interaction behavior of students has increased after using the Gobak Sodor game learning media.

METHODS
This study applied a qualitative method, a method that generates descriptive data in writing or verbal forms, and on observable behaviors of individuals (Sugiyono, 2019). In this study, interviews, observation, and document analysis were conducted to collect the data (Moleong, 2012). Using descriptive approach, the data in this study were described based on the field facts (Kunto, 2013). The study was conducted in the even semester period in January 2022. It was conducted during the first week. In the second week, the evaluation was performed. The research report was drafted in the third week, while the final report was submitted in the fourth week. The research process is presented in Figure 1. The study was conducted in and limited only to MI Ma’arif NU Metro. Participants were ten 2nd-grade students (4 girls and 6 boys). Students’ outcome was used as the data source.
The study was conducted in the even semester period in January

1\textsuperscript{st} week: implementation stage

2\textsuperscript{nd} week: The evaluation stage

3\textsuperscript{rd} week: Report drafting

4\textsuperscript{th} week: Report submission

Figure 1. Research Procedure

In this study, the data were collected through observation, and documentation. Observation was conducted to view students’ scientific attitude improvement through \textit{Gobak Sodor}. The learning process was directly observed and recorded. The documentation was performed using questionnaire and photograph. The data collection assessment tools used were: Interview instrument, Questionnaire, Documentation.

The data were analyzed by Qualitative descriptive analysis. Qualitative descriptive analysis technique, which encompasses all aspect of data, including honesty, cooperation, optimism, objectivity, and tolerance, environmental awareness, confidence in expressing opinion, creativity, and innovation. Descriptive analysis, namely by describing the facts that are then analyzed and providing sufficient understanding and explanation.
RESULTS AND DISCUSSION

Play activities are believed to be helpful in improving students’ gross and fine motor skills. Play activities should be set by taking students’ psychology into account (Surya, 2015). It potentially develops students’ motor skills and scientific attitudes, including honesty, optimism, objectivity, tolerance, environmental awareness, creativity, innovation, and others. Puspitasari et al. (2022) reported that children’s cooperation could be increased through Gobak Sodor play activity. Scientific attitude is developed through science subjects at the elementary school level. In accordance with research Hardiyanti & Lutfi (2013) that the use of Education Games both theoretically and empirically in learning can improve learning outcomes and student activities, especially in science subjects.

According to Surya (2015), individuals with good adjustability would be able to learn social skills such as the ability to establish diplomatic relations with other people, both friends and strangers, thus showing a positive attitude towards other individuals. Having positive attitudes, children would find it easier to play and interact with their friends, as they tend to possess a high social spirit, be tolerant of diversity, be objective in seeing a problem, and be able to cooperate. Tolerance is an attitude of respect and openness to human differences, it is an important character that must be grown in the soul of a child because the human character as an adult is seen from the process (Rahmawati & Fauziah, 2018). Tolerance is an aspect of peace between children, including caring for each other, loving each other between friends and supporting each
other between friends so that the art of achieving peace emerges (Syihabbudin & Umami, 2021). The Gobak Sodor game is a type of traditional game that has a simple form of artistic value with the concept of dexterity in touching the opponent so that it requires cooperation which will create many advantages in it, one of which is fostering an attitude of tolerance (Oktaria & Kusumawati, 2017). The Gobak Sodor game itself can be improved psychomotor skills of children in terms of art tolerance (Syihabbudin & Umami, 2021). Anggraini & Nurhafizah, (2020) and Anwaria, (2016) also reported that Gobak Sodor game could stimulate and develop students' cooperative abilities, as demonstrated by their scientific attitudes when solving a problem.

Gobak Sodor could also develop students’ Social awareness, which is also reported by Pramantik (2021), showing that it could stimulate students to care for their friends. This scientific attitude can be developed from their daily interactions, such as playing traditional games that require them to interact directly with other people. Play activities are helpful for them to practice their skills, develop their motor skills and character, and improve their scientific attitude.

The traditional game of Gobak Sodor has advantages and disadvantages. The advantages of the traditional Gobak Sodor game are the low costs required because of the equipment used traditionally such as tile shards, bricks or lime. This Gobak Sodor game can also develop children's gross motor skills because in this game many basic movements are carried out by children such as running and jumping. Even the traditional Gobak Sodor game can also develop social intelligence. Meanwhile the drawback is
that this game requires a large area so for institutions that have narrow land, they have to find a place outside where it is possible to carry out the traditional Gobak Sodor game (Erdiana, 2016). When students are carried away by the game, they may unconsciously internalize scientific characters and attitudes. Play activities could serve as a means to improve students’ potential, particularly those that involve movements, scientific attitude, and behaviors. (Jumiati & Noor, 2021).

Furthermore Izza et al., (2018) states that the term Gobak Sodor is going back to the door, which comes from a foreign language which the Javanese people finally call the game "Gobak Sodor" (Izza et al., 2018). The traditional game of Gobak Sodor only requires a field and a line to do it, the Gobak Sodor game can also develop children's motor skills because this game uses a lot of moving, jumping, and running strategies (Erdiana, 2016). Figure 2 illustrate the field shape and size for Gobak Sodor.

The field is usually 12 meters long and 6 meters wide square divided into eight plots of 3x3m each. The playing field is marked with a 5 cm wide line, and the line dividing the field into 2 elongated parts is called the center line. The cross represents the guard, and the front circle represents the opposing player. In addition to knowing the shape and size of the field, in the Gobak Sodor there is a game flow of the Gobak Sodor which can be seen in Table 1.
Figure 2. the field shape and size for Gobak Sodor.

Table 1. Gobak Sodor Game Flow

<table>
<thead>
<tr>
<th>Game Flow</th>
<th>Visible Scientific Attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Players are divided into 2 teams consisting of 3-5 children</td>
<td>Cooperation</td>
</tr>
<tr>
<td>Start to enter the game and obey the rules of the game</td>
<td>Objective and Tolerant</td>
</tr>
<tr>
<td>When one group enters the game, the other group blocks the opponent not to let them pass</td>
<td>Cooperation, optimism, awareness of the surroundings and Courage</td>
</tr>
<tr>
<td>Develop tactics or strategies to get to the finish without being caught by the opposing team</td>
<td>Creative, innovative and cooperative</td>
</tr>
<tr>
<td>Cheating is not allowed</td>
<td>Honest and tolerant</td>
</tr>
<tr>
<td>Reach the finish untouched by the opponent and win the game</td>
<td>Hard work, optimism and courage</td>
</tr>
<tr>
<td>Decision on game winner</td>
<td>Objective and tolerant</td>
</tr>
</tbody>
</table>
Gobak Sodor is a traditional game played by two teams of 3-5 members. This setting may develop students’ cooperative attitudes. One team plays an attacker, while another one plays as the defender whose duty is to prevent attackers from passing them. This team set shows the attitude of objectivity, tolerance, cooperation, optimism, awareness of the surroundings, and courage. The attacker's duty is to reach the finish line without being touched by the defender, which requires creative, innovative, and cooperative attitudes. In accordance with research Fantiro & Arifin (2019) that children who have kinesthetic intelligence have learning models that have abilities in the limbs, such as their hands or body. Like any other game, cheating is not allowed, and players need to be honest and tolerant to adhere to this rule. Attacker’s duty of reaching the finish line without being touched by the defending team demands the former to work hard, be optimistic, and have courage. This game demands players to be always on guard and run as fast as possible to secure victory. The game's core is to prevent the opponent from passing through the line to the last tube back and forth and achieve victory; all group members must go back and forth in a predetermined area. There are lots of values contained when children play gobak sodor, among the values contained in this game, children know each other better, respect friends more without having to differentiate between race and culture because the purpose of this game is only to past opponents and clearly this game prohibits leadership, cohesiveness and tolerance in children (Syihabbudin & Umami, 2021). Figure 3 illustrates Gobak Sodor Game.
The game lasts for 2x 10 minutes. The equipment needed included a scoreboard to record scores, and chalk/flour/paint/line paper. Chalk or flour could be used when the game is played on a grass or ground field. Meanwhile, paint and paper lines are usually used when the game is on a cement floor or asphalt road. This game used two referees to enforce the game rules. Both teams consist of an equal number of players. Attackers who have successfully crossed the entire line, from the front line to the back line and from the back line to the front line, can immediately continue their game as before. The attacker's foot should not touch the outside area of the sideline. Otherwise, he/she is eliminated. A team would be punished when violating the game rule. Rules for the defender include the prohibition to touch/catch the attacker with fists or punch the attacker, push the attacker on purpose, attack the referee and make a fuss. Meanwhile, the attacking team is not allowed to hook the defender's leg or disturb or attack the defender who has been passed. The game is paused for any violation committed. Players who continue to violate the rule are
punished with a red card, and his/her team’s score would be deducted by 1 point.

*Gobak Sodor* appears to be an interesting means to develop students’ scientific attitudes, as they need not only hard work but also strategies to winning the game. They also learn about cooperation and the courage to voice their opinions when designing a winning strategy. Figure 4 illustrates *Gobak Sodor* Game.

![Gobak Sodor Game](image)

*Figure 4. Gobak Sodor Game*

*Gobak Sodor* in this study was proven to develop students’ scientific attitudes such as honesty, optimism, objectivity, tolerance, awareness of the surroundings, curiosity, creativity, and innovation. Students should be honest throughout the game and not cheat to win. Any attempt of cheating would result in team disqualification, thus encouraging them to win the game honestly. As such, students learn to be honest in their daily life. Similarly, Aroyandini, Suwanto, & Hamid, (2021) also stated that *Gobak*
Students’ optimism about winning the game also plays an important role. Their optimism could be seen in their performance when doing the test. Researchers need to be optimistic to achieve optimal results. According to the above, it is not only optimism that a researcher must have. A researcher must have an objective and tolerant attitude. When the research we have done is refuted or criticized by other researchers, we must not respond with a warm heart. It is important to have a broader perspective when considering feedback. As researchers, we must be able to respond objectively and consider it a good input for the development of our research. It is important to be tolerant of the fact presented by other researchers.

### Scientific Attitude Improvement

This section presents the students’ scientific attitude improvement obtained through *Gobak Sodor* game.

Table 2. Students scientific attitude improvement (in percentage).

<table>
<thead>
<tr>
<th>No.</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9</td>
<td>90%</td>
</tr>
<tr>
<td>2.</td>
<td>1</td>
<td>10%</td>
</tr>
</tbody>
</table>

As presented in Table 2, 9 out of 10 2nd-grade students exhibit increased scientific attitudes, especially in honesty, cooperation, optimism, objectivity, and tolerance. Students’ honesty was shown during the game when they played honestly. Their cooperation was also shown when they worked together with their teammates to beat the opponents. Students’ optimism was shown by their efforts to win the game. This finding
supports Prayitno, suryati, Intani, & Pradana (2022), who reported that Gobak Sodor could stimulate students’ honesty.

Table 3. Percentage of scientific attitude in Gobak Sodor

<table>
<thead>
<tr>
<th>No.</th>
<th>Scientific Attitude</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cooperation</td>
<td>35%</td>
</tr>
<tr>
<td>2.</td>
<td>Tolerance</td>
<td>2%</td>
</tr>
<tr>
<td>3.</td>
<td>Objective</td>
<td>2%</td>
</tr>
<tr>
<td>4.</td>
<td>Courage</td>
<td>12%</td>
</tr>
<tr>
<td>5.</td>
<td>Honest</td>
<td>3%</td>
</tr>
<tr>
<td>6.</td>
<td>Hard work</td>
<td>15%</td>
</tr>
<tr>
<td>7.</td>
<td>Optimism</td>
<td>8%</td>
</tr>
<tr>
<td>8.</td>
<td>Environmental care</td>
<td>13%</td>
</tr>
<tr>
<td>9.</td>
<td>Creative and innovative</td>
<td>10%</td>
</tr>
</tbody>
</table>

Despite students’ improvement, their awareness of the surroundings, courage, creativity, and innovation need further improvement. Students’ scientific attitude could be further improved by adding more game rules, such as asking questions to the opponents, which may improve their courage to express opinions. This game could be played without using any special tools and was proven to improve students’ scientific attitude.

CONCLUSION

Gobak Sodor is one of the traditional multiplayer games capable of drawing students’ interest. It has various versions, and in this study, the defender team is required to prevent opponents from reaching the finish line. One team plays as the defender, while another team acts as the attacker in a square field with boundaries usually marked by chalk. In this study, the game rules were adjusted to the research purpose, i.e., to
improve 2nd-grade students’ scientific attitude in MI Ma’arif NU Metro. *Gobak Sodor* could be applied to science subjects to improve students’ honesty, cooperation, optimism, objectivity, tolerance, environmental care, courage to express opinion, creativity, and innovation.

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