

Token Economy to Reduce Aggressive Behavior in Students with Emotional Problems

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ABSTRACT

The purpose of this study was to reduce aggressive behavior in elementary school students with emotional problems through the token economy method. The intervention was conducted on first-grade students aged 7 years and 6 months who exhibited aggressive behavior, such as hitting peers and shouting, as well as difficulty managing angry emotions. The study used a case study approach with a single-subject A-B (baseline-intervention) experimental design. The subject was a first-grade elementary school student aged 7 years and 6 months who exhibited aggressive behavior such as hitting, shouting, and pushing tables. The token economy intervention was conducted over 10 sessions, with tokens given as positive reinforcers for adaptive behavior. Data collection was conducted through direct observation, interviews, and psychological assessments. Descriptive quantitative analysis was used to calculate and compare the frequency of aggressive behavior between the baseline phase and the intervention phase. Data were presented in frequency tables and trend graphs. Additionally, a difference test was conducted using Percentage Change Statistics (PCS) analysis on hitting, shouting, and pushing the table behaviors. The results showed a significant decrease in aggressive behavior. Hitting and pushing the table behaviors decreased by 100%, while shouting behavior decreased gradually to 50%. The average SPP showed a total decrease of 83.3%, indicating the effectiveness of the intervention. The token economy intervention was proven effective in reducing aggressive behavior in students with emotional problems. This strategy can be applied by teachers and school psychologists as a practical approach to managing children's behavior.



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1. INTRODUCTION

Children with unregulated emotions tend to exhibit high impulsivity, unmanaged frustration, and aggression as forms of affective expression (Sousa & Pinheiro, 2023). In this context, it is important to recognize emotional problems as difficulties in recognizing, interpreting, and responding to emotions in an adaptive manner (Larsen et al., 2020).

According to a UNICEF report (2022), approximately 14% of elementary school-aged children in Southeast Asia exhibit aggressive behavior, which impacts learning quality and social relationships. In Indonesia alone, data from the Ministry of Education and Culture (2021) shows that cases of disciplinary violations related to aggressive behavior increased by 12% among children aged 6–12 years. This fact highlights the importance of a systematic intervention approach.

However, studies on token economy interventions to reduce aggressive behavior in elementary school children with emotional problems are still rare in Indonesia, especially those using a single-subject experimental design (SSED). Therefore, this study contributes to filling the research gap by applying a token economy based on SSED in the elementary school context.

Child development will occur optimally if it aligns with the phases and tasks of their development. During the elementary school years, from 6 to 12 years old, children's development follows distinct patterns according to developmental aspects, specifically social and emotional development. Social and emotional development are two interconnected processes that cannot be separated from one another. Social and emotional development significantly influence behavior, self-control, adaptation, and rule-following. Healthy social and emotional development enables children to behave appropriately, understand the meaning of life, and transition from childhood to adulthood without obstacles. Gardner states that a positive environment where children engage in, enjoy, and feel involved in the learning process can maximize their potential (Marsari et al., 2021). When children feel motivated and inspired in a supportive learning environment, they tend to show improvement in creativity, problem-solving, and critical thinking skills. Additionally, their self-confidence will increase as they achieve small successes each day.

Not all children are able to successfully navigate every stage of social and emotional development. On the other hand, some children are negatively influenced by their social environment and unsupportive family members,

leading to problems or obstacles in their social and emotional development. One such problem is aggressive behavior. Aggressive behavior not only affects the individual but also has consequences. In society, within an individual's social relationships. Aggressive behavior does not only emerge in adulthood but also in childhood and adolescence.

Aggressive behavior in elementary school-aged children is a common issue that significantly impacts their learning process and social relationships. Children with emotional issues, such as difficulty controlling anger or frustration, tend to exhibit problematic behavior, such as physically or verbally attacking peers.

Aggressive behavior is a form of reaction, either verbal or physical, aimed at reducing tension and frustration. It is typically expressed through directing others, demanding, attacking, dominating, defying discipline, rebelling, or disagreeing with behavior or opinions to alleviate tension and frustration caused by various factors, including psychological factors or other obstacles. (Baron 2011).

According to Gross (2015), emotional regulation is an individual's ability to monitor, evaluate, and modify intense emotional reactions to suit situational demands. A child's inability to manage anger can lead to emotional outbursts in the form of aggressive behavior. Research by Schäfer et al. (2020) shows that children with emotional dysregulation are more likely to exhibit aggressive behavior at school.

Behavioral intervention approaches such as token economy have proven effective in reducing problematic behavior by providing positive reinforcement for desired behavior. Therefore, this study aims to apply the token economy method to reduce aggressive behavior in children with emotional problems in elementary school.

2. LITERATURE REVIEW

A recent study by Griffith et al. (2022) shows that token-based behavioral reinforcement strategies are effective in addressing aggression in elementary school children, especially when combined with teacher involvement and home reinforcement. Token economies have been shown to improve self-control and increase children's internal motivation toward adaptive behavior (Kim et al., 2021).

According to Djaali (2013:23), "Emotions play a very important role in a person's life. Therefore, emotional development is important to understand." Experiencing obstacles in emotional development can be a

cause of the lack of development of social intelligence and personality development. Environmental conditions also shape a person's emotional development. A child raised in a noisy and stressful environment may become unresponsive, anxious, and emotionally unstable.

Emotional problems refer to conditions where individuals, especially children, struggle to recognize and understand emotions, express emotions appropriately, and regulate the intensity and duration of emotions to align with social demands. Emotional problems can affect a child's behavior, social relationships, and academic performance. Children with emotional problems tend to exhibit internalizing symptoms (e.g., withdrawal, anxiety, sadness) and/or externalizing symptoms (e.g., excessive anger, aggression, impulsivity) (Denham et al., 2012; Murray et al., 2021).

A study in the United States (2016) reported that 7.4% of children have behavioral and emotional problems. A study in Japan among children aged 6–12 years found that 15.8% of children have behavioral and emotional problems. Behavioral and emotional issues in children aged 6–12 years can cause various obstacles and learning difficulties, such as lack of concentration and focus, as well as interest in learning, problems in relationships and communication with peers, family, or parents. Research by Wynne states that children with behavioral and emotional issues tend to violate school rules and may be expelled from school (drop out). Children with behavioral and emotional problems can continue into adolescence and even adulthood.

Aggressive behavior is a manifestation of an inability to manage emotions, especially anger. Gross (2015) states that emotional regulation is the ability to monitor, evaluate, and modify intense emotions to suit the demands of the situation. Children who experience emotional problems, such as difficulty recognizing and managing anger, are more likely to exhibit aggressive behavior (Schäfer et al., 2020).

Research by Raval et al. (2021) shows that the use of positive reinforcement, such as token economy, can help children learn to control themselves and change problematic behavior into adaptive behavior. Therefore, the application of token economies is considered appropriate in addressing aggressive behavior caused by emotional dysregulation.

Token economies are a system of behavioral reinforcement that uses symbols or tokens as rewards for desired behavior, which can then be exchanged for real rewards (Kazdin, 2013). This method is effective in

increasing positive behavior and reducing negative behavior, especially in children with special needs or behavioral disorders.

3. METHODS

The research design is part of a Single-Subject Experimental Design (SSED) type A-B (Kazdin, 2019), which consists of two main phases: baseline (A) and intervention (B). This design is commonly used in behavioral intervention research because it allows for in-depth and continuous evaluation of behavioral changes in individuals (Kahng et al., 2020).

The subject of this study is a 7-year-old male first-grade elementary school student exhibiting emotional and aggressive behavioral problems. The forms of aggressive behavior observed included hitting peers, shouting, and pushing tables when reminded by peers or teachers. Aggressive behavior is defined as physical or verbal behavior intended to harm others and is a manifestation of emotional regulation disorders (Baron & Byrne, 2005; Schäfer et al., 2020).

Data were collected through direct observation over 4 days (baseline) and 10 intervention sessions, as well as interviews with classroom teachers and parents, to identify emerging aggressive behaviors, and psychological assessments using graphic tests (Draw a Person and House-Tree-Person) and psychological assessment results from a psychologist.

The intervention was conducted using token economy techniques, a reinforcement system that awards tokens each time the subject demonstrates adaptive behavior, such as controlling anger, following teacher instructions, or completing tasks without disrupting others. Tokens can be exchanged for rewards chosen by the subject, such as stationery or a dinosaur encyclopedia, in accordance with prior agreements. This approach is based on B.F. Skinner's operant conditioning theory, which states that positive reinforcement can increase the frequency of desired behavior (Skinner, 1953; Kazdin, 2013).

This study also emphasizes the role of the social environment, including teachers and parents, as co-regulators in strengthening the emotional regulation learning process (Bridgett et al., 2020). This method is considered appropriate because it is effective in reducing problematic behavior in children with emotional disorders (Kim et al., 2021; Casey et al., 2022).

The token economy intervention was conducted over two weeks (6 sessions). Tokens were in the form of number block stickers collected each time students demonstrated adaptive behavior such as controlling anger, asking for help, or following the teacher's instructions. The collected tokens can then be exchanged for rewards of the student's choice (e.g., stationery, Lego, or a dinosaur encyclopedia).

Data analysis was conducted using descriptive quantitative methods, comparing the frequency of aggressive behavior between the baseline phase and the intervention phase. Behavioral changes were visualized in tables and trend graphs to facilitate interpretation. Data were analyzed by calculating and comparing the frequency of aggressive behaviors on the behavior observation scale designed by the researcher (hitting, shouting, pushing the table) between the baseline phase and the intervention phase. Results were analyzed using:

Percentage Change Statistics (PCS):

$$PCS = \left(\frac{f_{baseline} - f_{intervention}}{f_{baseline}} \right) \times 100 \%$$

PCS is used to measure the decrease in behavior intensity as an indicator of intervention effectiveness.

Visual Analysis Behavioral changes are visualized in line graphs based on daily frequency to identify trends, levels of change, and data stability. Data triangulation is carried out through observation notes, teacher evaluations, and interviews with parents, which provide a contextual picture of behavioral changes and environmental support.

Since the study uses a single-subject design and involves only one subject, parametric statistical tests such as t-tests are not used. Differences are tested using a non-parametric approach based on percentage changes and visual analysis, in accordance with SSED analysis standards (Kazdin, 2019).

4. RESULTS AND DISCUSSION

These results support B.F. Skinner's reinforcement theory that positive reinforcement increases the likelihood of desired behavior (Skinner, 1953). Economic tokens as secondary reinforcers encourage the internalization of adaptive social behavior (Casey et al., 2022). In addition, teachers and parents act as co-regulators who reinforce the emotional learning process (Bridgett et al., 2020).

The assessment results show that aggressive behavior arises due to low emotional regulation skills, especially when facing frustrating situations or when academic demands are not met. In the pretest phase, aggressive behaviors such as hitting, shouting, and pushing tables occurred every day.

Table 1. The Results

Types of Behavior	Frequency Total In 4 Days	Average/Day	Percentage (%)*
Punching	8 times	2	33,3%
Yelling	8 times	2	33,3%
Pushing Table	8 times	2	33,3%
Total	24times	—	100%

* The percentage was calculated from a total of 24 incidents of aggressive behavior during the 4-day baseline period..

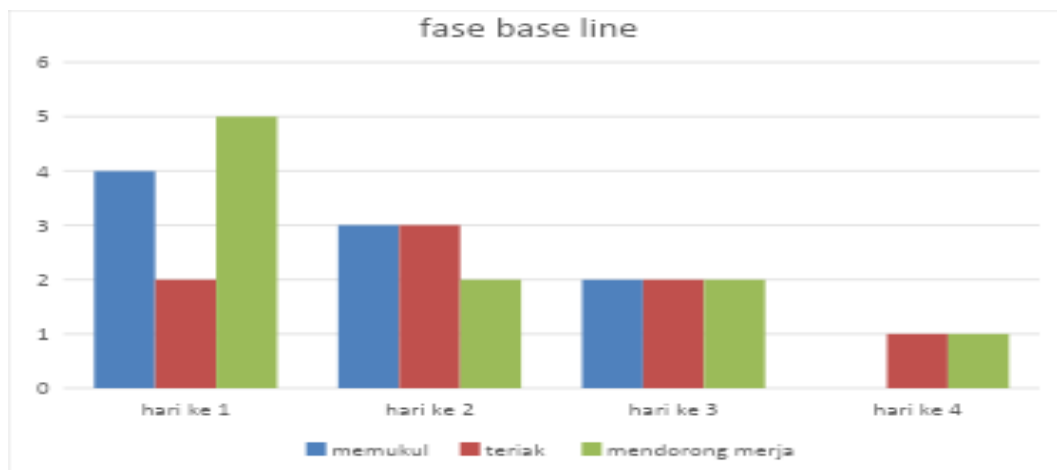


Figure 1. Baseline

Based on the baseline table above, the aggressive behaviors observed in the classroom during the observation were hitting, shouting, and pushing tables. During the 4 days of observation, the average The average intensity of hitting was 2 times, the average intensity of shouting was 2 times, and the intensity of pushing tables was also 2 times. The highest incidence of aggressive behavior exhibited by the client was on observation day 1, and the lowest incidence of aggressive behavior was on day 4.

Table 2. Result

Types of Behaviour	First Day Frequency of Interventions	Last Day Frequency of Interventions	Decrease(%)**
Punching	2 times	0 time	100%
Yelling	2 times	0–1 times (still appearing until day 10)	~50% (gradual)
Pushing Table	2 times	0 time	100%

Table 2. Intervention phase **The decrease is calculated from the change in frequency at the beginning to the end of the intervention..

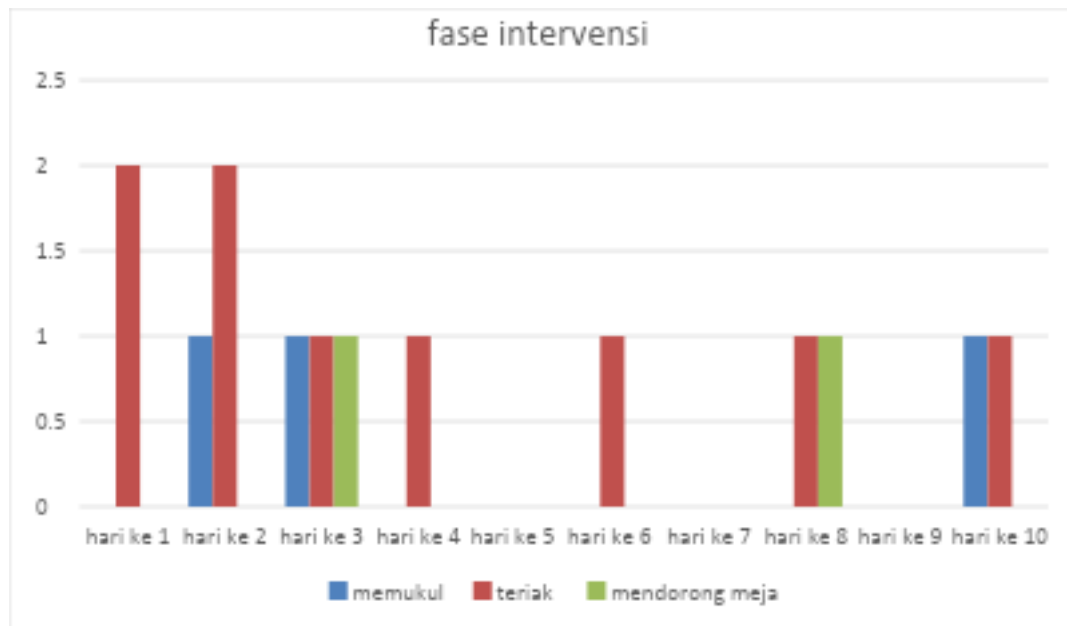


Figure 2. Intervention Phase

After receiving the token economy intervention, there was a gradual decrease in the intensity of aggressive behavior. Tokens were given each time students successfully controlled their anger and used more adaptive methods such as asking for help or calming themselves down. The most significant decrease occurred in sessions 5 and 6. These findings align with a study by Raval et al. (2021), which states that positive reinforcement can improve self-control in children with weak emotional regulation. Additionally, the use of tokens has proven to be an enjoyable and motivating strategy for children to transform negative behavior into positive behavior.

A significant decrease in aggressive behavior was observed from the 4th to the 6th intervention session. The intensity of hitting decreased from 2 times per day to 0, as did the behavior of pushing the table. Yelling behavior still appeared until the third session but then decreased until it was no longer observed in the sixth session. This indicates that the token

economy is effective in teaching children to recognize their emotional triggers and respond in a more adaptive manner.

Additionally, the involvement of teachers and parents made a significant contribution to the success of the intervention. Teachers actively provided tokens and verbal praise, while parents supported the intervention by reinforcing the rules and goals at home. This systemic support aligns with the principle of sustained reinforcement recommended by behavioral theory (Kazdin, 2013).

Based on the intervention results, the client experienced a decrease in the frequency of hitting, shouting, and pushing the table. The first graph shows that there was a decrease in hitting and pushing the table, but the intensity of the client's shouting increased on the first and second days of the intervention. During the initial stages of the intervention, the client still shouted when a peer reminded them to complete the worksheet requested by the teacher. However, on the following day, the client appeared willing to follow the teacher's instructions. The intensity of hitting and pushing the table began to diminish on days 4 and 5, while the intensity of shouting persisted from day 3 to day 10 of the intervention. The reduction in aggressive behavior at school, such as hitting and pushing the table, indicates that token economy can reduce the client's aggressive behavior at school.

The support from parents and teachers greatly supported the intervention process, which was very helpful for the practitioner in carrying out the intervention process and bringing about changes in the client. During the intervention process, the teacher also participated by providing additional data in the form of verbal statements when submitting the checklist. The client's mother also helped motivate the client to achieve the points they desired.

5. CONCLUSION

The long-term effects of this intervention can be reinforced with social support and follow-up emotional regulation programs. This study recommends the integration of token economies into systematic school-based behavioral intervention programs.

Interventions using the token economy method are effective in reducing aggressive behavior in elementary school children with emotional problems, particularly difficulties in regulating anger. This strategy can be

used by teachers and school psychologists as a practical and enjoyable behavioral intervention approach for children.

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