

The Design of Behavior Modification Program with Token Economy in Elementary School

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Abstract

Giving learning material in improving environmental care behavior of elementary school students is not only on environmental education but also needs to be strengthened towards the behavior of these students. Strengthening is provided through a program designed and developed to modify the behavior of the students based on operant conditioning using systematic reinforcement of target behavior. As preliminary research, this research aims to design and develop behavior modification programs through a token economy. Token is given based on the desired behavior performance and can then be exchanged for reinforcement in a predetermined economic system. The design of the token economy starts from identifying the target behavior, determining and selecting reinforcers, identifying the types and schedules of tokens, planning the distribution of tokens and exchanging strategies for applying token systems and planning inflation. The observation between rater shows that an agreement of 0.81 is interpreted as the consistency of the answers of the respondents to the measuring instruments used, there are no differences in assessment between the rater in measuring students awareness of the environment, so that it could be continued with designing token economy programs to improve the environmental care behavior of elementary school students. By the design and development of this program, it is expected that student behavior can be improved and become habituation in their daily activities, which encourages generalizations from the context of the school environment to other environments even though there is no reinforcement given.

Keywords: environmental concern behavior, token economy, reinforcement, elementary school students

1. INTRODUCTION

A token economy is an approach used to manage student behavior (Gallagher, 1988; Kadin, 1977) in general and special education classrooms that requires careful planning and implementation (Schilling & Cavo, 1983). Elementary school students who have low environmental care behavior towards the school environment and its surroundings need to be given a reinforcement to improve their behavior so that the habituation to their environmental care behavior occurs. The previous study explained many ways, methods and learning models carried out as an effort to increase students' awareness of their environment. Wanabuliandari and Rahardjo (2017) research concluded that the EJAS model (*Experiential Jelajah Alam Sekitar*) with a science edutainment approach could improve students' environmental care behavior and responsibility. In addition, character-based pop-up media can also increase awareness of the environment (Rochimah, 2018).

The phenomenon related to the low public awareness of the environment is explained through the results of a 2013 Ministry of Environment survey, which states that the level of public awareness for the environment is only 50%. The data is supported by Badan Pusat Statistik (2012), which shows that

environmental care behavior averages are below 0.57% and are not directly proportional to the community's high knowledge regarding the environment at around 60.2%. This number indicates that society has not behaved environmentally in their daily lives. The society has an understanding of the environment but is not as expected and has not implemented it.

Various approaches and models and learning methods have been reported to be successful in helping elementary school students to improve environmental care behavior. However, research emphasising on behavioral changes that can be observed with the consequences of strengthening to reduce environmental impacts is still rarely found. Geller (2002) concluded that in encouraging pro-environment behavior, awarding is more effective than sanctions because rewards are associated with positive influences and attitudes that support the changes in behavior. Marijan (2012, p. 257-257) also stated that one of school strategies to embed the character of environmental care through habitual behavior towards the environment is to strengthen conditions as means for the practice of habituation to act as expected characters by applying strict rewards and sanctions.

Given that the development of environmental awareness behavior must be sustainable. Thus, if the desired behavior arises in elementary school students as expected, it requires

reinforcement so that it always becomes a habit of positive behavior embedded in students. There is a tendency for children to act the same behavior. It requires positive reinforcement in the form of pleasant things like positive activities or words in order to be able to emerge the desired behavior. Likewise, extrinsic reinforces encouraging in the formation of behavior is the use of gifts. Giving rewards (prizes) aims to ensure that environmental care behavior repeats and motivates the behavior as expected. Students respond positively to the stimulus of school personnel in programs providing content in developing environmental care behavior.

In addition, through giving rewards, it can also increase motivation of elementary school students to achieve high grades and have an interest in their lessons (Riya, Pilanda, & Zhang, 2014). In this regard, the choice of environmentally friendly products and environmental awareness is also influenced by strengthening or reinforcement (Garvey & Bolton, 2017). As stated by Toenlio (News Gloria, 2016), the behavioristic version of educational techniques provides gifts when examples and advice are followed and vice versa.

Regarding environmental care behavior, the token economy is also used to reduce littering behavior within the community (Martin & Joseph, 2015, p. 677). The token economy has succeeded in changing the behavior of students in the classroom and developed to be implemented in terms of learning process in the classrooms (O'Leary & Drabman, 1971; McLaughlin, 1981) and students in such learning environments are able to make teachers happy as well as achieve high grades (Boggiano and Katz, 1991).

Therefore, before starting the implementation of the token economy to increase or decrease the desired behavior, there is a need for manual programs that can support the implementation of the token economy in the class for the behavior of students that wants to be achieved. This article writes about how to design a token economy manual program to improve the environmental care behavior of elementary school based on data in the field.

2. METHOD

2.1 Subjects

Subjects in the preliminary research were the first grade of elementary school students in Bandung selected based on the criteria needed for the initial data. The subjects were consisting of 10 students (5 boys and 5 girls). Data retrieval was done by observation, interview and documentation. The main data collection tool in this study used the behavior checklist as the analysis to find out various behaviors emerged during the research. This sheet consists of several columns that contain a checklist for students' behavior referring to environmental care behavior indicators that have been arranged based on theory.

2.2 Procedures

Before the baseline data collection procedure was carried out, the researcher made identification of target behavior that would be reinforced through the token economy in the form of checklist observations from the aspects of environmental care pro-active eco behavior and resources and energy conservation outlined in behavioral indicators and consisting of 22 items before the validation. The identification of the main target behaviors includes students littering especially during recess, students who do not separate waste by type (organic and inorganic), students who do not use materials to do skills/ handicraft assignments, students picking flowers and stepping on grass in the school garden, students who do not turn off the tap after using it, and students scribbleing on tables or walls in the class.

This data collection is carried out in the class, and the school environment is managed by researchers, teachers and three observers to record the behavior of students who appear during the event. The following is a brief token economy program evaluation procedure to improve the environmental care behavior of elementary school students:

- 1) Refer to the right literature as needed.
- 2) Identify the target behavior.
- 3) Retrieves the baseline data of the target behavior.
- 4) Choose the suitable type of the token.
- 5) Choose a supporting reinforces.
- 6) Identify the parties available to help manage the program.
- 7) Decide on specific implementation procedures.
- 8) Make manual of the token economy for students who will undergo the program and for staff/parties who assist the application of the program.
- 9) Implementation of the token economy.
- 10) Designing a strategy to achieve the generality of the results of the program towards the natural environment.
- 11) Monitor and practice relevant ethical guidelines in each step of the token economy.

3. RESULTS AND DISCUSSION

The development of the measuring instrument involves three assessors as scorers of observation instruments on student behavior that will be improved through a token economy. The reliability estimations between rater with the Intraclass Correlation Coefficient (ICC) shows that the average agreement between rater is 0.81. It means there are no differences in assessment between rater (Fleiss, 1975).

Baseline is carried out with preliminary observations to see the daily behavior of elementary school students in general in the school environment; interview with the teacher with regard to any behavior related to students' ignorance of the environment; subsequent observations, see and choose target behavior that is less concerned about the school environment; Interviews with class teachers and students to determine the tokens and supporting reinforcers to be given; and ensuring the willingness of the class teachers to observe the running of the program.

The following data are reinforcers that will be used in the design of a token economy to improve environmental care behavior:

Table 1.
Table of reinforcers activity

Reinforcers Activity	Reinforcers Symbolic
The activity of cutting folding paper and sticking	Coloring tool set
Make <i>finger painting</i>	Picture storybook set
Read stories loudly in front of classmates	Encyclopedia or set of illustrations of animals and insects, trees/plants (pictorial encyclopedias)
Decorate information boards in class	Socks
Borrow the preferred books in the school library or books provided by program designers	Pencils or stationery sets that can be named
Become a group leader in class activities	Pencil sharpener
Bring home a positive note for parents at home	Cute lunch box (cartoon characters)

In addition to reinforcers, this article also designs a menu or reinforcement systems code for students that will be given token economy interventions to improve their environmental care behavior, which consists of 4 sessions, namely:

Table 2.
Reinforcement system code

Pre-Session (1-2 days)	<p>Before a token economy intervention is given, the program designer provides material related to the importance of environmental care behavior, why this behavior needs to be done, the impact if students do not care about the surrounding environment, an explanation of giving 'tokens' to students and what behaviors they want to improve. At the beginning of the intervention also need to be given a response prompt, namely:</p> <ul style="list-style-type: none"> • Verbal Prompts, e.g.; when completing practical activities, the teacher gives instructions to clean and wash hands to students. • Gestural Prompts, e.g.; when students want to dispose of trash, the teacher shows a trash bin based on the type of trash. • Modelling Prompts, e.g.; the teacher shows the correct trash to dispose of the plastic waste (inorganic trash). • Physical Prompts, e.g.; the teacher shows how to wash hands properly
Session 1	<ul style="list-style-type: none"> • Token exchange 1x per day for the

(1 st Week)	<p>first 3 days.</p> <ul style="list-style-type: none"> • Token exchange with supporting reinforcers can be done if a minimum of 5 tokens has been collected. • Students get the token immediately after performing the target behavior indicator. • For each time the supporting reinforcer given to students, the modifier makes a record in students' token book. • Program implementation is carried out in the school environment.
Session II (2 nd Week)	<ul style="list-style-type: none"> • Token exchange 1x per 2 days in the 2nd week of the program implementation. • Token exchange with supporting reinforcer can be done if a minimum of 7 tokens has been collected. • Students can choose supporting reinforcers with the highest point price if they meet the requirements for the number of tokens provided.
Session III (3 rd Week)	<ul style="list-style-type: none"> • Token exchange 1x per week (decreasing gradually)
Notes	<ul style="list-style-type: none"> • Token exchange with supporting reinforcers that has higher prices for items that is high in demand or difficult to provide.

The groundwork of giving intervention: Stainback, Payne, Stainback, and Payne (1973)

Weaning starts in session III because the token allotment schedule lasts longer, that is on the 5th day in the third week (only on Friday afternoon) token economy intervention is given. It is expected that from this weaning, the target behavior of students is not affected either positively or negatively on tokens. Students who positively improved their environmental care behavior begin not to look enthusiastic about the presence of supporting reinforcers on token exchanges but begin to focus on the target behavior that was getting used to.

There are 2 ways of weaning students from the token economy intervention program given:

- 1) Remove tokens gradually by means of; a) Make the token allotment schedule increasingly disjointed, b) Decreases the number of behaviors that get tokens, c) Increase the delay between target behavior and giving tokens.
- 2) Reducing the value of tokens in stages can be done with; a) Gradually reduce the number of supporting reinforcers that can be purchased by tokens. b) Increasing gradually the delay between acquiring tokens and purchasing supporting reinforcers (Martin & Joseph, 2015, p. 691).

4. CONCLUSION

The token economy is used for various populations, behaviors, environments and objectives. An effective token

economy can reduce disruptive behavior and improve or maintain the behavior of students who support the learning environment, which is the concern of students to the school environment and its surrounding. The token economy planned and implemented with care provides great benefits for teachers and students. Common components of the token economy can be started from identifying target behavior, determining reinforcers, planning token distribution and exchange strategies, and recording procedures. The manual design of token economy can facilitate modifiers or teachers in implementing token economy programs to improve the behavior of elementary school students. The combined efforts of teachers, parents and students create the strength to sustain the social and academic achievements of each student and support future efforts.

5. REFERENCES

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