THE EFFECTS OF A TOKEN ECONOMY SYSTEM TO IMPROVE SOCIAL AND ACADEMIC BEHAVIOR WITH A RURAL PRIMARY AGED CHILD WITH DISABILITIES

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The purpose of the present case report was to evaluate the effects of an individual token economy with a young child with severe behavior disorders. Three behaviors were recorded; time to completion, the number of assignments completed, and the frequency of inappropriate behavior. These data were gathered for 30 minutes each morning. The overall outcomes indicated that the two different token systems were effective in improving the participant's academic and social behavior. The amount of work that was required could be increased without a large decrement in academic output or increases in inappropriate behavior. The program was enjoyed by both the teaching staff and the participant. Suggestions for future research and the maintenance of treatment gains were made.

One of the most powerful and data-based procedures to improve classroom behaviors has been to employ a token economy (Kazdin, 1977, 1982b, McLaughlin & Williams, 1988). A typical classroom token system involves the use of the rules for earning and/or losing tokens (McLaughlin & Williams, 1988; Naughton & McLaughlin, 1993). Some from of exchange of tokens for consequences is required. Finally, students all are allowed to take part in such activities either at school, in the home, or both (McLaughlin & Williams, 1988).

Classroom token reward systems have been effective across various grade levels, school populations, and academic and social behaviors (e. g. Kazdin, 1977, 1982b; McLaughlin & R. L. Williams, 1988; O'Leary & Drabman, 1971; S. G. O'Leary & K. D. O'Leary, 1977; B. F. Williams, R. L. Williams, & McLaughlin, 1988). The token system has been the most widely researched and validated behavioral intervention in the schools (McLaughlin & Williams, 1988; Swain & McLaughlin, 1998). However, even with such an impressive record of positive outcomes, token programs have been the subject of educational controversy. This has ranged from the suggestion that rewards decrease appropriate classroom behavior (Lepper & Greene, 1978) to issues of viewing a token economy systems as a form of bribery (Kohn, 1999).

The purpose of this case study was to increase a kindergarten-aged special education student's assignment completion and decrease her inappropriate behaviors in the classroom. In addition, generalization data (Stokes & Baer, 1977) were gathered when she was later placed in a general education classroom setting.

Method

Participant and Setting

There was one participant in this study. Tasha was a 6-year-old kindergarten student enrolled in the primary kindergarten-third grade developmentally impaired classroom that served children (N = 9) with special needs. This student demonstrated inappropriate behaviors that included, running in the classroom, screaming, refusing to work, refusing to answer questions or participate academically, hitting, kicking and climbing under and over furniture. She was also influenced by other students and would mimic their inappropriate behaviors as they occurred. These inappropriate social behaviors limited her ability to complete assignments and her accuracy was low. For example, when she was tested by the school psychologist for learning disabilities, she refused to speak during testing session

which resulted in her low scores on both her achievement and intelligence testing. These outcomes qualified the participant for special education and she had been placed in the developmentally impaired classroom at the same elementary school. The special education classroom teacher felt this student would be an outstanding individual to work with and after some inclass observations, the first author concurred.

The setting for this study was a special education classroom located in a rural elementary school in the Pacific Northwest. There were nine students, one certified teacher, one student teacher, and three instructional assistants in the classroom. The study took place in the morning because the participant was only at school from 9 a.m. until 11:30 a.m.. because of her high rates of inappropriate social behaviors and she received addition instruction in the home. Each session was conducted with the first author, or one of the adults from the classroom present.

Dependent Variables and Measurement Procedures
When presented a task and given a specific instructions to complete the task appropriately, the child was to complete the assignment. These data were collected by recording the length of time (duration) it took for her to complete a given task. The number of assignments completed during the 30-minute session were also collected. This was done by counting the number of academic assignments she completed within the 30-minute period. The third measure was her inappropriate behavior. This was defined as any behavior that was incompatible with completing an assignment such as running in the classroom, screaming, refusing to work, refusing to answer or participate, hitting, kicking, putting her hand in her mouth, and climbing under or over furniture. The number of these behaviors was recorded per 30-minute period. No attempt was made to record the type of behavior just that it was inappropriate. In this way the ongoing instructional program could continue with minimal interruption.

Data Collection and Interobserver Agreement
Event recording was used for data collection. During baseline and the three-token system the teacher recorded how long it took to complete three assignments, then divided that number by three to obtain the average length of time per assignment for that day. The master teacher also recorded how many activities were completed during a 30- minute period. When the five-token system (Intervention B) was implemented, the same process was employed, but the teacher recorded how long it took to complete five assignments. That number was then divided by five to obtain the average length of time per assignment for that day. The total number of assignments completed within a 30-minute period was also recorded.

The participant in the study was assigned daily work and the teacher recorded the percent correct using a data sheet. The participant also had a token board that allowed her to have a five-minute break after completing a select number of assignments. Data recording accuracy was collected on the data sheets by the teacher working with the participant that day. The special education teacher, three instructional assistants and the researcher rotated being the person who worked one-on-one with the participant.

Interobserver agreement was taken for 33 to 50% of the sessions.. Reliability was calculated by dividing the smaller number by the larger and multiplying by 100. An agreement was scored if each scored the participants behavior in the same manner. Any deviation in scoring was a disagreement. Agreement for both academic and social behaviors was 100%.

Experimental design and conditions
An ABC single-subject design (Kazdin, 1982) was used for this study. Baseline was conducted three sessions for the participant. A three-token system was implemented for six sessions, and a five-token system working toward maintenance was implemented for eight sessions.

Baseline. During baseline, the participant was asked to complete three assignments after instructions were given, and prompting was used to keep the student on task. The class ticket system was in place during baseline, which resulted in negative consequences for inappropriate behavior. If the participant refused to do work or follow directions she was required to *pull a ticket*, resulting in a loss of privileges at the end of the week if three tickets were pulled in a day. The student worked for 30-minutes, or until she completed three activities.

Three-token system. During this phase of the study, the student was again asked to complete three assignments after instructions were given in class. After a student completed an assignment the

researcher checked the participant's work and allowed her to put a poker chip onto a Velcro token board. After the student earned three chips, she was able to choose a preferred activity for a 5-minute break. She then cleared the token board and worked again until she got another break, repeating this until the 30-minute period was over.

Five token system. During this phase of the study, the student was asked to complete five assignments after instructions were made in class. After the student completed an assignment the first author checked the participant's work and allowed her to put a poker chip onto a Velcro token board. After the student earned five chips, she was able to choose a preferred activity for a 5-minute break. She then cleared the token board and worked again until she got another break, repeating this until the 30-minute period was over.

Results

The overall outcomes indicated a decrease in the amount of time required to complete an assignment, an increase in assignment completion, and a decline in the frequency of inappropriate classroom behaviors

During three baseline sessions, the average amount to of time taken to complete an assignment was 10.0 minutes per assignment with a range of from 9 to 12 minutes (See Figure 1). For the first token economy (3 Token System), the mean amount of time taken to complete an assignment to be 4 minutes per assignment (range 3 to 5 minutes. During the five-token system resulted in a small increase in the average amount of time taken to complete an assignments (M = 4.571 minutes; range 3 to 6 minutes). During three baseline sessions, the average amount of assignments completed was 2.0 with a range of 2 to 3 per 30-minute period (see Figure 2). When the first token program was implemented (3 Token System), the number of assignments completed increased to 7.67 (range 6 to 9) per 30-minute period. For the five-token system, a slight decline in assignment completion was seen 6.75 (range 6 to 10). .

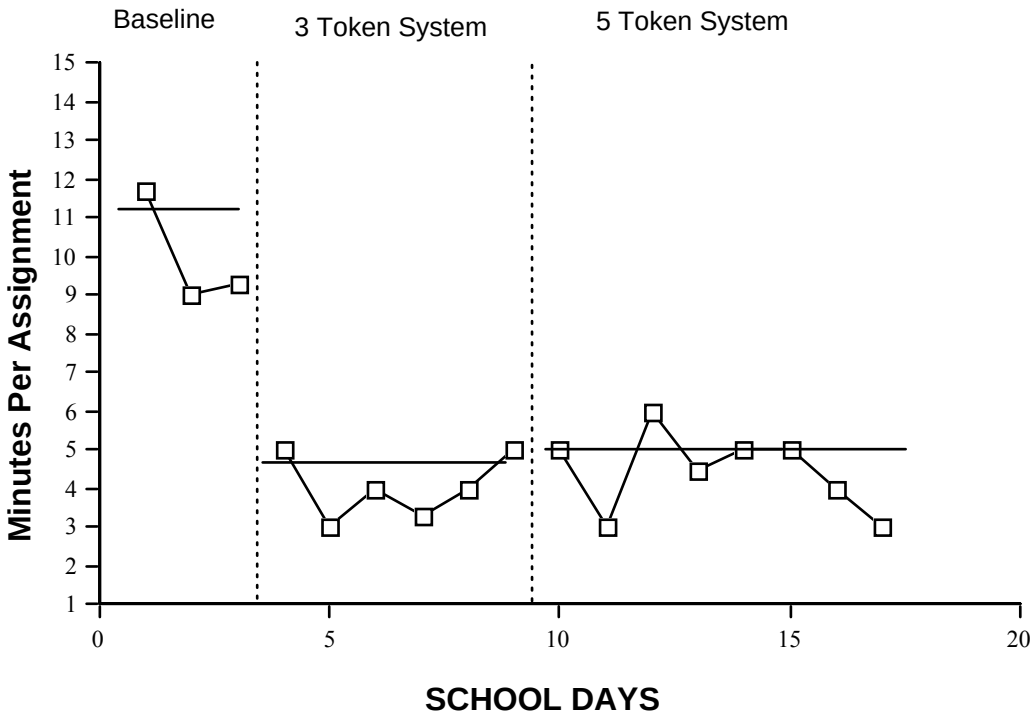

Figure 1.
The duration to complete assignments across the three phases.

The number of inappropriate behaviors can be seen in Figure 3. During baseline, an average of 3.33 behaviors per 30 minute session found (range 3 to 5). For the second token system (3 Token System), no inappropriate behaviors were scored. Only one inappropriate behavior was scored for the third token program (5 Token System).

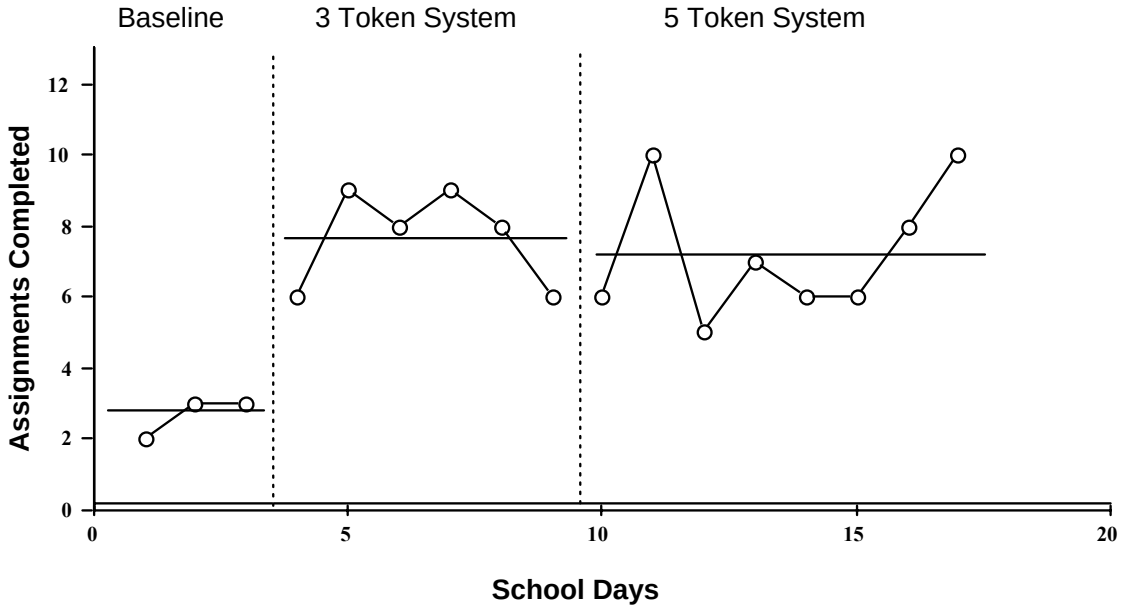

Figure 2.
The number assignments completed for baseline and the two token phases.

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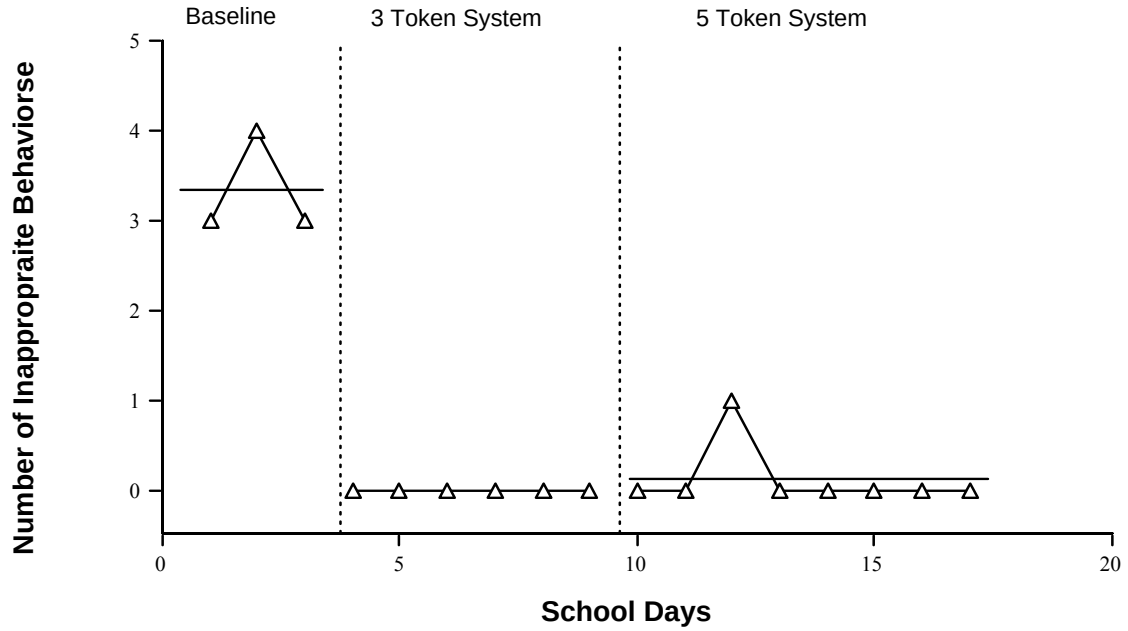

Figure 3.
The frequency of inappropriate classroom behaviors for the participant.

Discussion

The overall results of this study demonstrated that a token-system increased the rate at which box work was completed by the participant. In addition, the token program increased the amount of assignment completion and reduced the frequency in inappropriate classroom behaviors. The results provide an additional replication of our work (McLaughlin, 1981; Swain & McLaughlin, 1998; Truhlicka, McLaughlin, & Swain, 1998) with a younger student in a different setting.

Some of the positive outcomes of this study include the fact that intervention and data recording were very easy to implement and manage for the Reliability of measurement was very high and the implementation was consistent because each adult in the room worked with the participant on a random basis. This allowed the first author to direct what activities were to be completed and record the total time for completion for days where reliability was gathered.

Follow data and analysis indicated that the participant is doing well in her new classroom in general education. She has adjusted to the new classroom in a very positive manner. She is completing her work using her token system and has even requested a larger token board so that she can show her teachers what a hard worker she has become at school. Also, she is attending school fulltime and her parents and the teaching staff attributed this to the improvements in her behavior using the token system. These data provide some initial data regarding the long term generalization (Stokes & Baer, 1977) of the token program. Such a finding would have been more important if we had taken actual data on the child's behaviors in general education.

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he present outcomes replicate much of the data based evidence illustrating the effectiveness of token reinforcement (Kazdin, 1977; 1982b; McLaughlin & Williams, 1988). There no instances of where the staff felt they were bribing the student and there was no evidence that the token reward system was making the participant engage in increasing amounts of inappropriate behavior and decreasing rates of work completion. Therefore the present outcomes do not support either the Over justification Hypothesis suggested by Lepper and Green (1978) or that the child felt she was being bribed which has been a criticism of Kohn, (1999).

Our suggestions for the participant in the next few months include working toward generalization of these new, positive behaviors by having the entire teaching staff reinforce appropriate responses with an intermittent token system. This will involve making a larger token board where the participant will be rewarded for overall appropriate behavior, appropriate social interactions, completion of work, working on a difficult task without using inappropriate behaviors that were seen during baseline, etc. She will not be rewarded with a token for everything she does, but rather at the teacher's discretion, based on observation. Hopefully this will allow the participant to self-evaluate her own behaviors and work to the best of her ability throughout the school day. Also, the participant is motivated to work toward involvement in school functions, including field trips and extra curricular activities. Working with the participant to earn these items may positively affect her other behaviors as well.

Overall, the participant and special education master teacher were very happy with the results of this project and will continue to implement it during box work for at least another several weeks until something more generalized can be implemented.

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