USING A TOKEN-ACTUATED TIMER TO REDUCE TELEVISION VIEWING

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A child watching an excessive amount of T.V. was provided a behavioral program featuring a token-actuated timer. Earned tokens were used to activate the T.V. for thirty-minute periods. The token-exchange system effectively reduced T.V. viewing and the reductions were maintained at two follow-up points. The principal contribution of the study is the development and evaluation of an electronically controlled device that was used to check the accuracy of parent-reported data.

DESCRIPTORS: television, timer, token exchange, adolescent

Social scientists and the public have been concerned about the amount of time that youngsters devote to T.V. viewing because of the prevalence of violence on T.V. (Gerbner & Gross, 1976) and the possible relationship between watching T.V. and subsequent aggressive behavior (Lefkowitz, Eron, Walder, & Huesmann, 1977). In addition, heavy viewing is often inversely related to school achievement, and those who watch excessive amounts of T.V. have little time for other critical life experiences (Rubenstein, 1983).

For the past few years, researchers at De Paul University have been exploring a variety of behavioral strategies for reducing T.V. viewing among college students (Jason & Smith, 1980) and adults (Jason & Klich, 1982). In a recent series of studies with children, self-monitoring was effective in reducing T.V. viewing among some children (Jason, 1983) and token exchanges were effective with others (Jason, 1984; Jason & Rooney-Rebeck, 1984). Wolfe, Mendes, and Factor (1984) also demonstrated that token exchanges could reduce children's T.V. viewing. Those studies relied on parents' self-reports to assess T.V. viewing. The principal contribution of this study is the development and evaluation of an electronically controlled device that was used to check the accuracy of parent-reported data.

METHOD

Participant

The child selected for the program was a black, 13-year-old female. Her sister, 2 years younger, was not perceived as having a T.V. watching problem.

Measures and Design

The mother was first asked to estimate the number of hours each of her children watched T.V. during the previous 7 days (baseline 1). For the next 10 days, a token-actuated timer was placed on the T.V. set to assess the target child's viewing patterns more reliably (baseline 2). During the 10-day intervention, tokens to be used with the timer had to be earned (intervention 1). The next baseline phase was 9 days (baseline 3), and this was followed by the reintroduction of the intervention for 45 days (intervention 2). The next phase (maintenance) lasted 35 days, and the contingencies in effect were similar to the baseline phases. Seven days of data were also collected at 6- and 9-month follow-ups. (The token-actuated timer was brought back into the home during these two follow-up periods, although tokens did not have to be earned.)

Apparatus

The token-actuated timer is a monostable multivibrator. A schema of this device, which costs about \$100 to build, can be found in Durbin and Jason (1984).

Requests for reprints or descriptions of the token-actuated timer should be sent to Leonard A. Jason, Psychology Department, 2219 N. Kenmore Ave., De Paul University, Chicago, Illinois 60614.

Each time the 30-min timer was triggered by inserting a token, the token counter was also advanced. The token count was displayed in an inverted binary format. Each day, the mother reported the number of tokens deposited in the timer. Only the mother had the key to open the timer and retrieve the tokens. The mother also reported the light pattern for the token counter, and she did not know what this light pattern referred to. The light pattern provided an independent confirmation of the number of tokens retrieved. The connection between television plug and timer plug was contained in another box that had a lockable hinged lid (only I had access to this key).

Procedures

Both children were involved in the intervention, but only the target child and the mother activated the token-actuated meter. The nontarget child on most occasions watched T.V. after her sister activated the box (for each 30 min of T.V. watching, the nontarget child would place a coupon in a separate box on the T.V. set). On those few occasions when the nontarget child watched a program without her sister, a coupon was exchanged for a specially marked token, and then the mother would place this token in the box. If the target child watched any T.V. during the 30 min after her sibling or parent deposited a token, the target child would have to give the mother a token. (The mother reported that the target child always activated the system herself, and never watched T.V. after the system was activated by her sister or mother.) The specially marked tokens were used on only a few occasions. The mother also used these specially marked tokens if she watched T.V. alone, but she infrequently watched T.V.

During baseline and maintenance phases, the target child had free access to the tokens, and the nontarget child had open access to coupons. During interventions 1 and 2, the children had to earn tokens or coupons for prosocial activities (one token or coupon could be earned by doing 30 min of any of the following chores: homework, extra-curricular reading, chores, games, sports, playing musical instruments, playing with friends). For ex-

ample, during 1 day of the intervention, the target child earned two tokens for swimming 1 hour, one token for 30 min of homework, one token for 30 min of chores and two tokens for playing with a friend for an hour. On Day 47, the contingencies were raised (i.e., one token for 60 min of these activities). Tokens were dispensed at the time of the activity and could be used at any time. Tokens unused at the end of the week could be exchanged for special rewards (e.g., each token could be exchanged for 25 cents). Each day, the mother recorded the number of regular tokens in the meter box, the number of specially marked tokens that had been used by either the mother or the nontarget child, and the number of coupons used by the nontarget child. On 18 occasions, at least once during each phase, the light pattern (token counter) was also reported.

Consumer Evaluation

At the end of maintenance, the mother and target child answered the following questions: "How did you feel about the program to help reduce T.V. watching?" (1 = very positive, 2 = positive, 3 = neutral, 4 = negative, 5 = very negative). "Did you feel the program was helpful in reducing T.V. watching?" (1 = definitely yes, 2 = yes, 3 = unsure, 4 = no, 5 = definitely no). "Why do you think the program was helpful?"

RESULTS

To calculate reliability for the number of tokens in the meter and the binary token counter, the larger number was divided by the smaller number and then multiplied by 100. The average reliability over 18 days was 99%.

During baseline 1, the mother estimated that her child watched T.V. an average of 7 hours per day, and this was confirmed during baseline 2 with the token-actuated meter (see Figure 1). During the first intervention, T.V. watching averaged 0.8 hours, but increased to 6.2 hours per day during the return to baseline. Viewing decreased to 1.6 hours per day with reimplementations of the inter-

Figure 1. Number of hours T.V. was watched by the target child each day.

vention, and this low rate was maintained during the maintenance phase. At 6- and 9-month follow-ups, the token-actuated meter was attached to the T.V., and the target child was given free access to tokens. T.V. watching averaged 2.1 hours during the 6-month follow-up and 1.0 hour during the 9-month follow-up.

For the nontarget child, the average daily T.V. watching rates were 4.7 hours (baseline 1), 3.0 hours (baseline 2), 0.8 hours (treatment 1), 2.2 hours (baseline 3), 1.0 hour (treatment 2), 0.4 hour (maintenance), 1.9 hours (6-month follow-up) and 1.0 hour (9-month follow-up).

Concerning consumer satisfaction, for both questions the mother and target child gave 1's indicating that the program was very positive and definitely helpful. The target child verbally said the following about the program: "I think the program was very helpful because it helped me stop watching T.V. a lot. It helped me to raise my grades. I think every kid should try it because it helps." The mother said: "It geared her into other areas that she wouldn't have gone into without the program (swimming, musical instruments, interviewer at church). Her grade in science increased from D to A and she recently won the second prize in a science fair."

DISCUSSION

The major finding was that a token-actuated meter could provide an electronic source of data corroborating the parent's self-reports of reductions in T.V. watching. Such a system is advantageous because: (a) in this single-parent family, it would have been difficult to enlist two adults to collect observations of T.V. watching over an extended period of time; and (b) even if two parents were to collect reliability data, it is always possible that the reports are not completed independently. Electronic methods of collecting data provide strong confirmation of the reliability of self-report data. This token-actuated meter has been the subject of several local T.V. broadcasts and articles in newspapers, and two manufacturers have indicated an interest in marketing this device.

Although the first intervention phase was effective in immediately reducing daily hours of viewing, the subsequent baseline data indicated that the changes were not maintained. In other words, 10 days of the intervention were not sufficient to bring about enduring changes. After a more extended period of time, the target youngster did manifest low levels of T.V. watching that were maintained during the maintenance phase. The

success of the second intervention may have been a function of providing the child a long enough period to experience the reinforcement of alternative activities. While the child was earning tokens for going swimming, practicing an instrument, and playing with friends, these alternative activities provided sufficient interest and satisfaction that they continued even when tokens were no longer provided. However, second-order changes were not systematically monitored in this study. In future research, changes in desirable, alternative behaviors need to be reliably observed and documented.

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