

Considering effective reinforcement in a token economy

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Executive summary

This case study discusses considerations for unwanted side effects of reinforcement within the context of a plan where a token is delivered to the pupil each day based on absence of behaviours that challenge. This token links to a cumulative reinforcement schedule where the magnitude of reinforcement increases according to the number of tokens received across the school week. The first change was to ensure reinforcement was not set so high that withholding reinforcement when unsuccessful evoked challenging behaviour. The second change was to ensure that it was targeted behaviour that reset reinforcement levels rather than the day of the week. These changes appear to have been effective in reducing levels of challenging behaviour in both frequency and duration.

Introduction

This case study is based on a Key Stage 2 pupil who is in Year 4 and communicates using vocals in simple sentences. He is highly motivated to access the computer and watch videos that he likes as well as for edibles that he doesn't gain frequent access to e.g. ice cream, popcorn, cake. Historically this pupil has engaged in high levels of behaviour that can be perceived as challenging both in the school setting and at home. These behaviours include aggression towards others, including peers, and property destruction. When they occur, these behaviours can be of a long duration and high intensity. The function of these behaviours is usually to gain access to preferred items and activities as well as to escape from demands. There has been good progress with the reduction of these behaviours within the school setting over the four years that he has attended BeyondAutism schools; however, this has not generalised to the home setting where his behaviour remains challenging for parents to manage and their tolerance to interrupts and demands is lower. The long-term aim for this pupil is to learn to manage

their own behaviour and to extend an effective intervention into the home setting. This study aims to outline the reasons for making changes to a plan that was in place before discussing the results of these changes.

Hypothesis: For reinforcement to be effective it should be directly related to the target behaviour and not set high enough that if the reinforcement is withheld this evokes higher levels of challenging behaviour.

Method

The plan previously in place consisted of the pupil being given school rules to follow and receiving a bonus token at the end of the day if he didn't engage in Level 2 specified behaviours. The reinforcement attached to this token was cumulative across the week as outlined in Table 1.

Through observation and referral to data it was noted that if the pupil did not gain access to this token early on in the week, meaning he would be unable to gain access to the highest level of reinforcement, this would have a negative impact across the entire week. For example the pupil would persistently ask if he could have that reinforcer and engage in a higher duration of Level 1 challenging behaviour. He also appeared to have lower tolerance to the demands of school across the day. It should also be noted that on this schedule the reinforcement reset every Monday, so if he did not earn the token on a Monday or Tuesday he would be unable to reach the highest level of reinforcement again for seven school days even if he then earned his token every day.

Based on this the decision was made to adapt the token system in two areas. The first was to ensure that reinforcement only returns to the lowest level based on the occurrence of challenging behaviour rather than the day of the week. The second was to adapt the reinforcement to a level that was motivating enough to be motivated to earn the token, without being set so high that withholding it would evoke challenging behaviour in itself. With these changes, as the pupil would then potentially have access to the top level of reinforcement every day unless he engages in Level 2 behaviour, it also needed to be a level of reinforcement that wasn't too unhealthy or negatively impacted his learning time at school. See Table 2.

These changes were implemented on 16th March 2020. The new token system was explained to the pupil, who now at the end of each day checks his calendar if he has earned his token. He is learning to count how many tokens in a row he has earned and then check the board to see what reinforcement he can access.

Results

This is a recent change to this pupil's behaviour plan and therefore further data will be required in order to assess success; however, the early data looks promising. There is a clear reduction in the duration of Level 1 behaviour which had been on an upward trend previously (Figure 1).

So, far with the new system in place the pupil has not become so focused on the highest level of reinforcement that they continually ask about it; however, this will continue to be monitored (Figure 2).

Discussion

This study has aimed to highlight the importance of considering the potential negative side effects of reinforcement when setting up any behaviour system. This includes ensuring that reinforcement is not set so high that withholding reinforcement when a target is not achieved results in regular challenging behaviour. It is also suggested that reinforcement schedules should ideally be attached directly to target behaviours rather than experiencing a reduction in reinforcement due to the day of the week.

If this plan is successful in reducing challenging behaviour further and reaches a low stable level then the next step will be working to generalise skills to the home setting.

Number of tokens received	Reinforcement
1 star	10 mins on Netflix
2 stars	15 mins on Netflix
3 stars	20 mins on Netflix
4 stars	An ice cream.
5 stars	40 mins on Netflix and an ice cream.

Table 1: Tokens earned and reinforcement from previous plan.

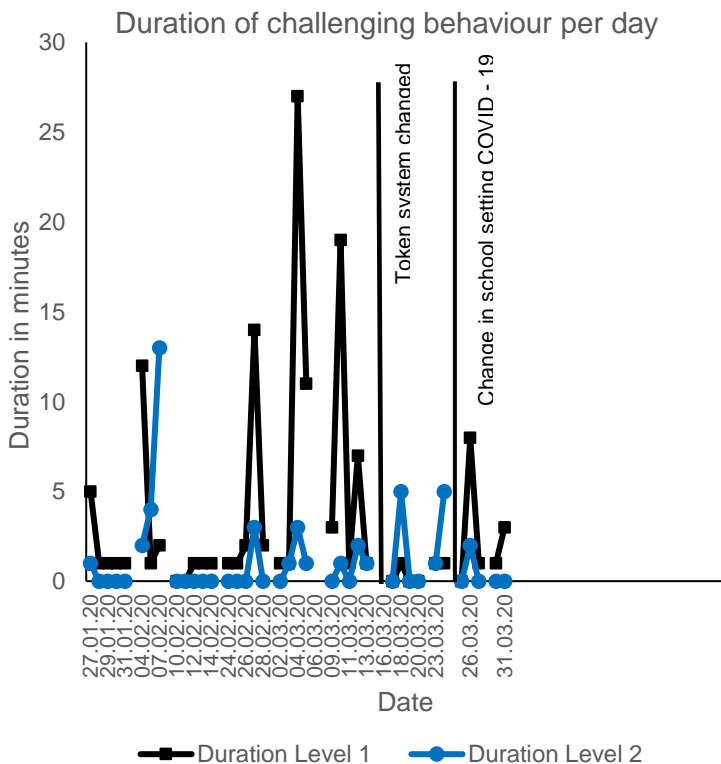


Figure 1

Number of tokens received	Reinforcement
1 star	10 mins on Netflix
2 stars in a row	15 mins on Netflix
3 or more stars in a row	20 mins on Netflix + 10 pieces of popcorn.

Table 2: Tokens earned and reinforcement from new plan.

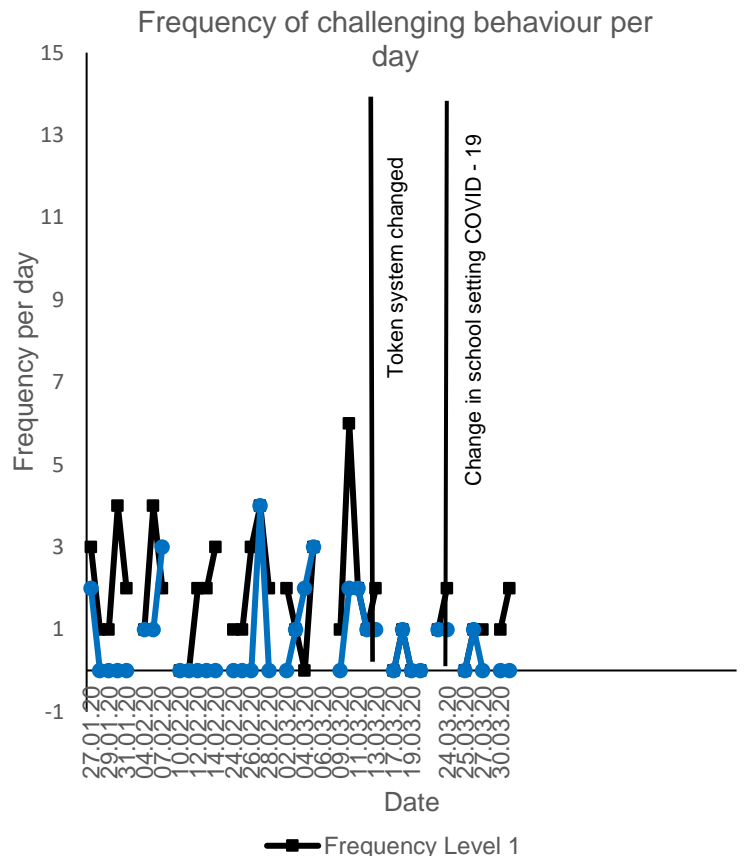


Figure 2