

THE EFFECTS OF A TOKEN ECONOMY ON PROBLEM BEHAVIOR MAINTAINED BY
COMPLIANCE TO MANDS IN CHILDREN WITH DEVELOPMENTAL DISABILITIES

by

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(Under the Direction of Kevin Ayres)

ABSTRACT

Individuals with Autism Spectrum Disorder (ASD) often engage in repetitive routines that, when interrupted, can result in undesired behaviors. This article assessed the effects of a token economy paired with a discriminative stimulus 'my way' card on problem behavior maintained by compliance to mands. The intervention was successful in reducing disruptive behavior in the individual and brought the behavior down to nearly 0% when the intervention was in place. The results contributed to previous literature and implied that the intervention may be effective in other individuals who engage in problem behavior maintained by adult compliance with mands.

INDEX WORDS: Autism, Token economy, Problem behavior, Mands

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CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

The two most defining characteristics of Autism Spectrum Disorder (ASD) are a deficit in communication and social skills and repetitive behaviors (American Psychiatric Association, 2013). Some individuals with ASD engage in challenging behaviors in order to access certain consequences in their environment such as attention, escape, and tangible items (Eluri, Andrade, Trevino & Mahmoud, 2016). In order to assess the function of certain problem behaviors analyses can be done to manipulate the contingencies in the individual's environment (Schmidt et al., 2016). However, the idiosyncratic nature of some individual's problem behaviors can be more challenging to assess and determine a clear functional relation (Eluri et al., 2015). Due to the deficit in communication skills, it has been hypothesized that individuals with ASD may engage in problem behavior in order to contact certain reinforcers that they cannot functionally request (Nigro-Bruzzi & Sturmey, 2010). Interventions to control for this problem behavior typically involve Functional Communication Training (FCT) or mand training (Bowman, Fisher, Thompson & Piazza, 1997). The purpose of these interventions are to allow the individual to contact a particular reinforcer while using extinction (Austin & Carr, 2000). Extinction is used to terminate the functional relation between problem behavior and a particular reinforcer (Austin & Carr, 2000). In order for the individual to contact reinforcement an alternative behavior must be taught (Austin & Carr, 2000). FCT can be used in various forms such as using a different colored card or having a card with a specific mand written on it to teach the individual how to

appropriately mand for something in their environment (Torres-Viso, Strohmeier & Zarcone, 2017).

In order to determine the maintaining variables of problem behavior in individuals with ASD specific assessments need to be completed in order to implement appropriate interventions (Carr & Durand, 1985). This is typically done by running a Functional Analysis (FA), and the most prominent maintaining variables seen in the literature are attention, escape, tangible, or automatic (Eluri et al., 2016). However, this does not always produce discriminable results and the FA conditions may need to be adjusted (Eluri et al.). Bowman et al. (1997) and Eluri et al. conducted studies on individuals whose problem behaviors were hypothesized to be maintained by mand compliance. An individual who is maintained by mand compliance typically engages in high rates of problem behavior when mands are not complied with by another person (Eluri et al.). Because of the idiosyncratic nature of this behavior a typical FA did not show conclusive results (Bowman et al.; Eluri et al.). In order to manipulate the environment to assess mand compliance as a function of problem behavior both studies reinforced mands from the participants contingent on problem behavior (Bowman et al.; Eluri et al.). This showed discriminable results suggesting that the maintaining variable of problem behavior was mand compliance (Bowman et al.; Eluri et al.). A mand is a very important step in any individual learning to increase their vocal repertoire (Habarad, 2015). It is exceedingly important for the individual to be able to functionally deliver a mand because this step is imperative for the individual to come into contact with a particular reinforcer (Habarad, 2015). Although mands are a functional skill in individuals with ASD, they can quickly turn problematic when the mands are not complied with (Schmidt et. al, 2016). Research has suggested that some individuals who

engage in problem behavior may do so to increase the likelihood of their mands being satisfied by another person (Schmidt et. al, 2016).

In Bowman et al.'s (1997) study on problem behavior maintained by mand compliance FCT was combined with extinction in order to teach the participants to functionally request a particular reinforcer rather than engaging in problem behavior. The results of Bowman et al. (1997) showed a significant decrease in problem behavior and an increase in the FCT response for the majority of participants. When problem behavior occurred mands were not reinforced (i.e. extinction) to prevent the problem behavior from contacting reinforcement (Bowman et al.). Eluri et al. (2016) conducted a similar study to evaluate the effects of intervention on problem behavior maintained by mand compliance. Rather than using an FCT response, Eluri et al. used a token economy combined with extinction. The results of the study showed a significant decrease in problem behavior when the intervention was in place. Eluri et al. differed from Bowman et al.'s study because the token economy component was used to teach the participant a tolerance to denial of the immediacy of compliance with mands. Likewise, the Bowman et al. study required the adult to continually comply with mands in response to the FCT response, which would be highly unrealistic in a natural setting.

The majority of studies conducted on mand compliance are done in relation to mands that are emitted by the child during play. However, there is very little research regarding problem behavior maintained by mand compliance during academic tasks. The purpose of this study was to replicate Eluri et al. (2016) and implement a token economy with response cost on a multiple schedule.

CHAPTER 2

METHOD

Participant and Setting

The participant is a fourth-grade boy with moderate intellectual disability and ASD. The participant is enrolled in a self-contained classroom and has a history of severe problem behavior in the form of aggression, disruption and elopement. The participant emits on average 1,000 to 2,000 mands per day. These mands typically involve manipulations of his environment such as “move please”, “shut door”, and “push in chair”. He also emits mands in a ritualistic way, such as repeating the same set of mands during transitions and frequently engages in problem behavior if the mands are not acknowledged or complied with.

All sessions were conducted in a therapy classroom within an ABA clinic and two staff were present for every session. The therapy room was designed to mimic a typical classroom and had tables, chairs, and a white board. Academic materials were placed at the table with the participant and the person running the session.

Dependent Variable and Measurement

The behaviors of focus were disruption and elopement. Disruption was defined as pushing, throwing or kicking an object more than three inches or more; touching an object from a distance of 4 inches or more in 2 seconds or less; swiping items off of a table; knocking over

furniture; erasing things on the white board without permission from the person running the session; touching teacher materials without permission from the person running the session; and touching or holding items unrelated to the work sessions. Elopement was defined as being more than one foot away from the designated area (including out of chair) without permission from the person running the session. The behaviors were scored following the session from a video recording of the session. Partial interval recording was used, and the intervals were 30 seconds in length. The behavior was scored based on intervals of occurrence. Interobserver agreement (IOA) was taken for 20% of the sessions. IOA was calculated using the Gross Method. If IOA began falling below 80% staff were retrained and IOA was taken again.

Procedures

A withdrawal design was used and included a baseline condition and an intervention condition. Staff moved on to the next condition once data were stable.

Baseline. During baseline the participant was placed at the table and presented a token board with 5 tokens. The person running the session informed the participant that it was time to work and started a 5-minute timer. Tokens were removed on an FR1 (fixed ratio) schedule for demand compliance, and the participant was offered a choice of one of three edibles on an FR5 schedule for successfully removing all tokens. The edible options were presented on a choice board with a visual of each edible. If the participant manded for a reinforcer that was not on the choice board the staff member running the session would point to the choice board and state “this is what’s available” only once. All mands were ignored throughout the session. If disruption or elopement occurred the staff running the session would state “when you’re in your seat, we can

keep earning tokens for fun things” continually every 15 seconds. This continued until the 5-minute timer went off and the session was ended.

Intervention. During intervention the participant was placed at the table and presented a token board with 5 tokens and a red card that said: ‘my way’. The staff running the session started a 5-minute timer and stated to the participant, “okay it’s time to work my way, when all of your tokens are taken off and the card is green we can do things your way”. The card remained on the red side until the participant successfully removed all of the tokens. As soon as the tokens were removed the card was flipped over to the green side and the staff running the session stated, “thanks for working my way, we can do things your way now and you can pick something on your choice board” then the choice board was presented to the participant. All mands were complied with for up to one minute. If the participant manded for something that was unavailable the staff apologized and said that the item was unavailable. After mands were complied with for up to one minute the card was flipped back to red and mands were ignored again. If the participant engaged in any problem behavior all tokens were replaced and the staff continued to state the contingency that when the participant was in their chair they could keep working for fun things. This continued until the 5-minute timer went off and the session ended.

CHAPTER 3

RESULTS

The results of the participants problem behavior are depicted in figure 1 and figure 2 respectively. The individual engaged in high rates of both disruption and elopement during baseline conditions, and rates of problem behavior dropped down to zero in nearly all intervention settings. During baseline the participant's problem behavior remained at a high level with the exception of one session, which was hypothesized to be a confounding variable of a more highly preferred staff member being present. When intervention was put into place levels of problem behavior remained consistently low. This data suggests that the components of the intervention demonstrated high levels of success in decreasing problem behavior.

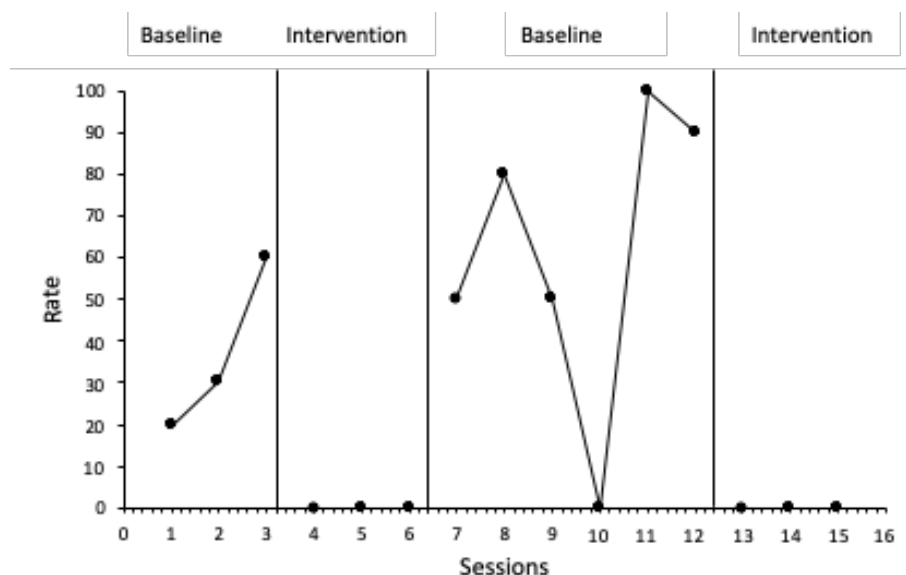


Figure 1. Rate of disruption during baseline and intervention.

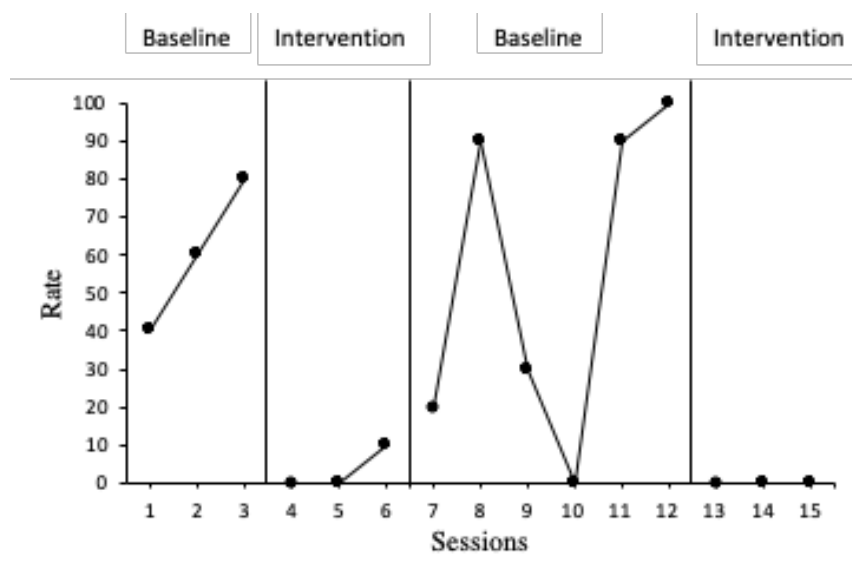


Figure 2. Rate of elopement during baseline and intervention.

CHAPTER 4

DISCUSSION

The purpose of this study was to assess the effectiveness of a token economy on a multiple schedule on problem behavior maintained by mand compliance. These results replicate the conclusions of Eluri et al. (2016) suggesting that instances of problem behavior maintained by mand compliance may be brought under stimulus control of the components of this intervention package. Although the data depicted in the figures suggest a strong functional relation between mand compliance and problem behavior, the study could have been further strengthened by including a functional analysis component. However, a functional analysis was not feasible due to the limited amount of time with the participant and the limited amount of resources.

The results of this study help to further contribute to intervention options for individuals with problem behavior maintained by mand compliance. Because of the idiosyncratic nature of this particular function of problem behavior there is very little literature on intervention options. However, the interventions that are seen in the literature are commonly related to the participant engaging in frequent manding in the play setting. This study contributes new information to this existing literature because it shows the effects of the intervention in an academic setting. Often times in the classroom environment it may not be possible to comply with every mand; this intervention can be used to teach a tolerance to the latency of mand compliance. Future research could assess generalization of the intervention by using it in different environments, such as meal times, during transitions, or in community settings.

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