Use of Shaping to Overcome the Fear of Entering a Restroom: A Case Study of a Preschooler with Autism

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Abstract

Teaching toilet training skills to children with autism spectrum disorder (ASD) can be challenging. Many techniques use Azrin and Foxx's Rapid Toilet Training method (RTT). However, some children with ASD find the first RTT step of entering the bathroom or restroom to be challenging due to the relatively loud sound of the toilet flushing. Although more schools and public settings are utilizing the automatic flush toilets, effective strategies for overcoming the fear of the sound is limited to non-existent. The current study utilizes shaping to assist a preschool student with ASD overcome her fear of entering a restroom.

Keywords: Autism spectrum disorder, toileting skills, fear of toilet flushing sound

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According to the Autism and Developmental Disabilities Monitoring Network (ADDM), rates of autism spectrum disorder (ASD) have increased to 1 in 59 children (Baio et al., 2018; Xu et al., 2018). Children with ASD and their families experience many challenges, including toilet training (Francis, Mannion, & Leader, 2017; Cicero & Pfadt, 2002). According to researchers, individuals with ASD are likely to experience toileting problems longer than non-ASD individuals (Matson & LoVullo, 2009). Szyndler (1996) noted that 82% of children with ASD experienced toileting difficulties. Research suggests that when children are not successfully toilet trained, it becomes more difficult to train them as adults (Smith & Smith, 1977 cited in Francis et al., 2017). Dalrymple and Ruble (1992) noted that 39% of individuals with ASD continued to have problems with toileting into their teenage age and adulthood years (mean age of 19.5 years) as reported by their parents. Teaching effective toileting skills during early childhood is critical. Toileting refers to (1) the recognition of the need to go to the toilet and (2) the ability to independently complete the sequence of behaviors necessary to successfully eliminate in the toilet (Francis et al, 2017; Lott & Kroeger, 2004). When toileting skills are not learned, the quality of life and independence of individuals decrease (Kroeger & Sorensen-Burnworth, 2009). Moreover, Joinson et al. (2007) found that children who experienced toileting difficulties were more likely to be victims of verbal and physical bullying compared to children who did not experience toileting difficulties.

Literature Review

Toileting difficulties with individuals with developmental disabilities have been identified as an area in need of further exploration (Matson & LoVullo, 2009). In reviewing the literature on toileting problems, Francis et al. (2017) found that toileting problems were more often reported with individuals with limited language (48%), more often with preschoolers (53%), and more often with students in special education (50%).

Kroeger and Sorensen-Burnworth (2009) found that the majority of toilet training programs have been modeled after Azrin and Foxx's Rapid Toilet Training method (RTT, 1971) (Francis et al., 2017; Cocchoci et al., 2012). This method uses operant conditioning, such as positive reinforcement, graduated guidance, increased fluid intake to increase urination, scheduled times to visit the bathroom, and chaining procedures. The chaining procedures usually included: (1) walking to the toilet, (2) undressing, (3) sitting on, (4) eliminating, (5) redressing, and (6) flushing. When mastery of one skill set was achieved, the next behavior was paired. The RTT method has been found to be effective and has been modified by other researchers (Chung, 2007).

For some individuals with ASD, the fear of the relatively loud noise of the toilet flushing has prevented them from accomplishing the first step of the RTT chaining process: walking into the restroom. The organization, Autism Speaks, noted that "Some children with ASD are afraid of sitting on the toilet seats or hearing toilets flush" (Autism Speaks, 2012). In addition, there are several blogs that address the fear of using automatic public toilets written by parents and autism experts. However, there is no research on effective strategies to assist individuals to enter the restroom. Some researchers have recommended shaping for treating fears and phobias for individuals who have ASD (Flood & Luiselli, 2016). Shaping refers to using differential reinforcement to produce a series of gradually changing response classes (Cooper, Heron, & Heward, 2007). The current study uses shaping to assist a preschool student with ASD overcome her fear of a stimulus, in this case, the toilet.

Method

Participant

The participant was a 4 year, 10-month old female preschooler with autism ("Kasey"). She lived at home with her parents and two older siblings. Her language abilities were very limited, and was reported to say a couple of words, such as "baba" for bubbles. She maintained eye contact and communicated by pointing and nodding her head. Kasey was not toilet trained and wore a diaper to school. When asked to enter the restroom to have her diaper changed, Kasey regularly protested by moaning and dropping to the ground. During a meeting with her parents, they disclosed that Kasey was afraid of the loud noise of automatic toilets flushing. She would cry, scream, and drop to the floor when her parents guided her to public restrooms. Kasey was comfortable entering the bathroom in her house.

Setting

The setting was a preschool-based program for children with autism spectrum disorder (ASD). The program was five days a week from 8:30 AM to 1:00 PM. Eleven children were enrolled in the program with eight to nine instructional aides and one teacher each day. Data collection

occurred on Mondays when the researcher was on-site. Instructional aides (IA) carried out the procedures the rest of the week.

Procedures

In developing intervention procedures, the researchers (1) conducted informal observations of Kasey before, during, and after diaper changing using A-B-C recording, (2) administered the Functional Assessment Screening Tool (FAST) and Open-Ended Functional Assessment interview with staff, and (3) conducted a brief functional analysis (FA) procedure using four conditions of free play, attention, escape, and alone. A-B-C recording is a form of direct observation of a subject's natural environment where antecedent conditions and consequences of behaviors are continuously noted. The FAST and Open-Ended Functional Assessment interview with staff provide information on their observations of the behavior. The four conditions for the FA (free play, attention, escape, alone) were used to determine the trigger conditions for the target behavior. During the free play condition, preferred activities and attention were available with no demands for two minutes. During the attention condition, attention was withheld from the individual for two minutes unless the target behavior was exhibited. During the escape condition, task demands were given for two minutes ("It's time to change your diaper", "Come to the restroom", etc.) and prompts were ceased if target behavior was exhibited. Finally, during the alone condition, attention, demands and play materials were absent. In each condition, the observed target behavior was moaning, crying, or dropping to the floor. Data were collected using partial-interval recording with 10-second intervals during a two-minute period. If the target behavior of moaning, crying, or dropping to the floor occurred, the researcher recorded it.

Results

Based on observational data collected by the examiner, the following antecedents triggered Kasey's target behavior of crying and dropping to the ground: a) seeing the toilet icon prior to having her diaper changed, b) seeing the instructional aide wear gloves, c) seeing the IA hold the diaper, and d) hearing the words, "time to change" or "time to use the bathroom."
Based on staff's response to the FAST, Kasey scored highest in social reinforcement to escape and in social reinforcement to access specific activities, such as playing with a preferred toy.
Based on the Open-Ended Functional Assessment Interview (completed by the teacher), the hypothesized function of the problem behavior is escape from the demand of changing her diaper and going into bathroom.

As noted, the Functional Analysis (FA) data were collected for two minutes each during four different sessions using four conditions (play, attention, alone, and task demand). Data showed that the target behavior of moaning and crying was most prominent when the task demand of having her diaper changed in the restroom was given, while being alone and playing produced the least number of target behavior incidences (refer to Figure 1 below).

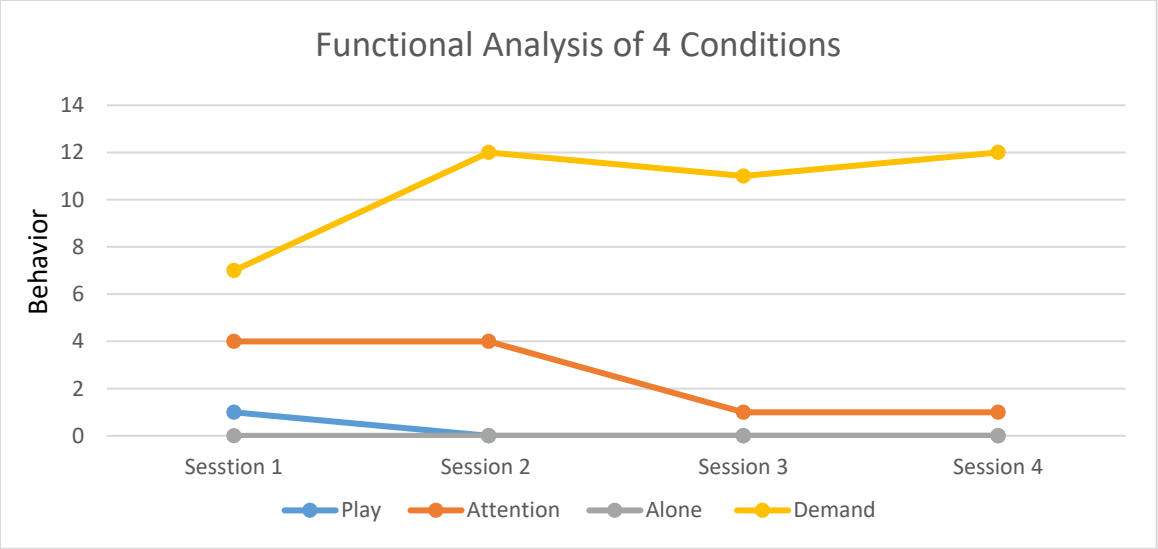

Figure 1. Frequency of target behaviors in four sessions under four conditions of play, attention, alone and demand.

Based on the direct and indirect observations, the following intervention strategies were applied to address Kasey's fear of the public toilet:

(1) Staff noted that Kasey enjoyed coloring with markers. Staff provided Kasey pictures of toilets and restroom signs to color during free play time to desensitize her to fear of toilets. Free pictures of toilets were downloaded from the internet and used as coloring sheets.

(2) Staff used a coloring icon (rather than a toilet icon), to request that Kasey color pictures prior to the diaper changing routine. The table used to color was situated in the room next to the restroom. This table was moved closer to the restroom during as the successive approximation strategies were implemented.

(3) Staff changed Kasey's diaper while she stood up and colored pictures of toilets and bathrooms in the conference room.

(4) Kasey was reinforced with verbal praise while staff changed her diaper. In the beginning, staff provided M & M's as she stood still and did not cry. If she began moaning and crying, the M & M's were withheld until she stopped.

(5) Using shaping, as Kasey became more comfortable coloring in the conference room, staff moved the coloring table closer to restroom. For instance, after Kasey was comfortable being changed in the conference room, the coloring table was moved closer to the door of the conference room. Then, the coloring table was moved to the hallway near the restroom. Finally, the coloring table was moved inside the restroom. Reinforcement consisted of verbal praise and M & M's as necessary. It should be noted that a sticky note was used to cover the automatic toilet sensor to prevent flushing.

(6) Data were collected on Mondays when the researcher was present in the preschool classroom. Staff were not expected to collect data during the week, but provided feedback on Kasey's progress.

Data (Figure 2) show that Kasey decreased the target behavior of moaning, crying and/or dropping to the ground after the intervention strategies were implemented after Session 4. In session 5, Kasey's diaper changing routine occurred in the conference room next to the restroom, and a coloring icon was used rather than the diaper icon. Kasey did not exhibit any problem behaviors while coloring in the conference room as her diaper was changed during sessions 5 and 6. Kasey exhibited a couple of incidences of moaning and crying when the criterion was changed into the hallway (Session 7) but the moaning was minor and occurred briefly. She did not drop to the floor. Staff gave her positive verbal reinforcement ("Good job standing" or "Good job coloring the picture") and candy when she stood still or colored. Before entering the restroom for sessions 7 and later, the toilet sensor was covered with a sticky note to prevent it from flushing. Moreover, the toilet was partially covered with an easel. Kasey did not fully see the toilet in sessions 7 and 8. By week 9, the easel was not covering the toilet and the student felt comfortable entering the bathroom. Kasey did not exhibit any of the target behaviors as her coloring table was moved inside the restroom. By session 9 when the toilet was fully exposed, Kasey moaned a couple of time, but it was minor. She resumed her coloring and playing with a preferred toy. By Session 10, Kasey did not exhibit problem behaviors in the restroom. From the observations and data, it appears the successive approximations with having the student perform a preferred activity (coloring) and covering the toilet sensor helped Kasey overcome her fear of the automatic toilet flushing.

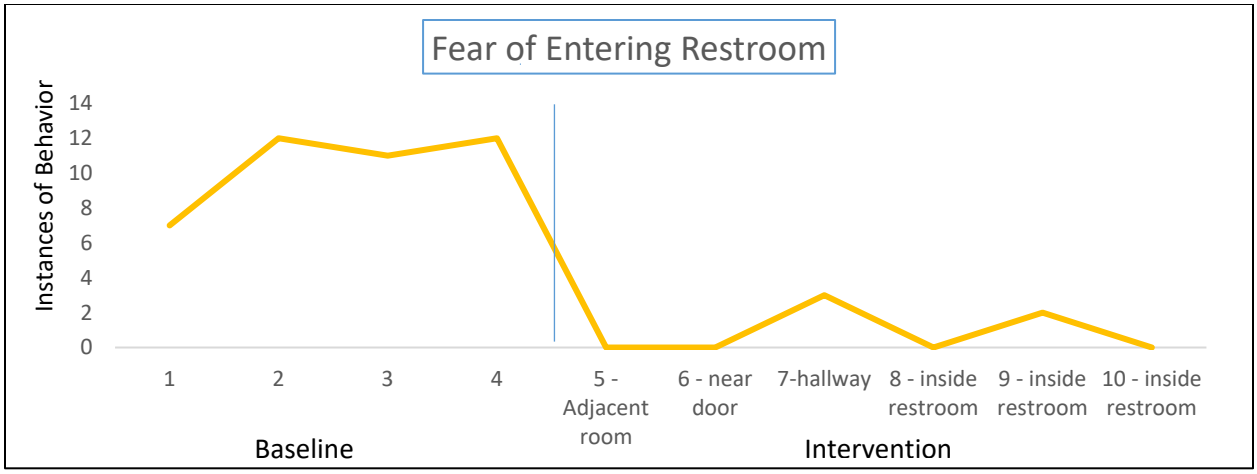

Figure 2. Incidences of target behavior during baseline and intervention sessions

Discussion

According to Cooper, Heron, and Heward (2007), applied behavior analysis is the science in which principles of the analysis of behavior are applied systematically to improve socially significant behaviors and experimentation is used to identify the variables responsible for behavior change (p. 20). Therefore, according to the definition, not only are the methods we use

to change behavior important, but it is equally important how we determine which behavior we wish to target for change.

According to Allyon and Azrin (1968), the relevance of behavior rule states a target behavior should be selected only when it can be determined that the behavior is likely to produce reinforcement in the person's natural environment (p. 56). Socially significant behaviors often meet this criterion. The Center for Autism and Related Disorders (CARD) considers socially significant behaviors to include academics, social skills, communication, and adaptive living skills. Adaptive living skills include gross and fine motor skills, personal self-care, eating and food preparation, toileting, domestic skills, time and punctuality, money and value, home and community orientation, and work skills (CARD, 2019).

In the current study, Kasey cried and dropped to the floor when staff requested to change her diaper in the restroom attached to the classroom. In addition, Kasey's parents noted that she was afraid of public restrooms and the noise of the automatic toilet flushing. Thus, not only was this adaptive skill deficit a problem behavior at school, as it interfered with time taken away from her learning, it was also a socially significant problem behavior, which affected the family's community access.

Behavior analysis that not only target important behaviors but change those behaviors to an extent that a person's life is changed in a meaningful way are said to have social validity (Cooper et al., 2007, pg. 69). In the current study, toileting is a socially significant and valid behavior for this student and her family. Additionally, while toileting is a socially significant behavior, it is also a pivotal behavior (Koegel & Frea, 1993; Koegel & Keogel, 1988; Koegel, Koegel & Schreibman, 1991). A pivotal behavior is a behavior that, once learned, produce corresponding modifications or covariations in other untrained behaviors.

Toilet training is considered a pivotal skill for young children to master. Toilet training based on positive reinforcement can be an enjoyable experience for children with autism. This milestone allows individuals to participate in community activities and decreases a number of negative consequences that may occur (i.e. diminished personal hygiene, stigmatism, and physical discomfort) (Cicero et. al, 2002).

The current case study utilized shaping to assist a preschool student with ASD overcome her fear of entering the restroom near her classroom. The interventions were simple and practical. The case study allowed the researchers to observe, collect data, and evaluate the effectiveness of simple interventions in a natural setting over time for one student.

There are limitations to the current study. First, as a single case study, the researchers are unable to generalize the effectiveness of the intervention. Having more students with the same fear participate in the study would have allowed for generalizability. Another limitation was that the study occurred during preschool hours Mondays through Fridays. The researchers were not aware of toileting behaviors that occurred outside of the school setting, such as at home, which may have affected the student's progress at school. Another limitation was that different instructional aides implemented interventions each week. Consistency of implementation procedures may have varied depending on the instructional aide. However, the simplicity and

practicality of the current intervention and its impact on the socially significant behavior outweighs these limitations.

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