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Toilet-Training a Child with Autism in a School Setting

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Abstract

Children with autism and developmental disabilities typically take longer to learn skills. Specific training that requires more repetition to obtain mastery should be used to teach specific tasks (MacDuff, Kratz, & McClannahan, 2001). Toilet training is no exception and must be directly taught to children with Autism. Toilet training is a fundamental skill for independent living and greatly reduces the work load of care givers (Chung, 2007). The child in this study was chosen based on a toilet training readiness checklist. The present study is a combination of the scheduled sitting protocol by Azrin and Foxx (1971) with the omission of the positive practice procedure. An enuresis alarm was used so accidents could be immediately detected. The child had an average of one accident during the three hour school day. Sitting on the toilet was scheduled in 30 minute intervals and was increased by 10 minutes every third day with no accidents. A 5-second full-physical prompt was used for every step in the bathroom. It is expected that the intervention will decrease the frequency of urination accidents and will increase the child's independence in the classroom setting.

Children with autism and developmental disabilities typically take longer to learn skills. Challenges with skill acquisition may be related to a child's inability to imitate other people. Specific training that requires more repetition to obtain mastery should be used to teach specific tasks (MacDuff, Kratz, & McClannahan, 2001). Toilet-training is no exception and can cause a plethora of challenges due to the complexity of learning a multicomponent behavioral chain. The inability to independently void in a toilet significantly reduces the quality of life for an individual and puts a financial strain on caregivers (Chung, 2007). The present study incorporates an enuresis alarm and a scheduled sitting protocol to teach toileting skills to a child with autism.

Azrin and Foxx (1971) used an enuresis alarm to toilet-train developmentally disabled individuals. The study showed a reduction of incontinence in 9 adult males at a residential hospital. Success was achieved by using an intensive toilet training intervention that provided praise for appropriate urination and defecation. Residents sat within one meter of the toilet and received an edible and social attention every 5 minutes contingent on their pants being dry. Every 30 minutes they sat on the toilet until they voided or until 20 minutes had passed. They were given a large piece of a candy bar and a lot of social attention if they successfully voided in the toilet. If they did not urinate in the toilet they did not receive candy or attention. If they urinated in their underwear they had to perform a positive practice routine that included cleaning the area where the accident occurred, hand washing and hanging up their clothes to dry, and taking a shower. Least-to-most prompting was used for all the steps in the error correction procedure. In 12 days each resident's baseline of urination accidents was reduced by at least 80%. Training time ranged from 1-14 days with a median of four days and an average of six days. Six weeks into the maintenance procedure five of the residents were discontinued, because they hadn't had

an accident in a month. Two more were discontinued nine weeks after training, and the remaining two were discontinued after five months (Azrin and Foxx, 1971).

A study by Cicero and Pfadt (2002), combined mand training with the intensive sitting schedule that Azrin and Foxx used in their study. The children were dressed in a t-shirt and underwear so that accidents could immediately be detected, and they were given access to unlimited liquids. Every 30 min the student was prompted to request the bathroom. The student then sat for 1-3 minutes. If urination occurred, the student got access to highly preferred reinforcers and social reinforcement. If the child did not urinate in the toilet, the session was ended with “Ok, you don’t have to pee,” and no reinforcers were provided. If a voiding accident occurred the teacher would startle the student by saying, “No no no” in order to stop the flow of urine. All three participants were able to spontaneously and independently mand for the bathroom after the intervention. The intervention training time took 7-11 days. (Cicero and Pfadt, 2002).

An intervention conducted by Chung (2007), did not use any enuresis alarms, positive practice, or long training sessions. Chung’s intervention was modeled after the intervention by Azrin and Foxx (1971) but was modified to follow the strict guidelines imposed by the public school. The modified rapid toilet training involved the child sitting on the toilet every half hour for 20 minutes or until urination occurred, this intense schedule lasted for 4 hours. If the child urinated on the toilet he was given a highly preferred reinforcer and additional social praise. After successfully urinating in the toilet, the child was given a 10 minute break before the next training cycle started. After the intensive 4 hour session, the child was taken every 2 hours and seated for 5 minutes. There were three phases to this intervention: pre-training, modified rapid toilet training, and maintenance. Pre-training lasted 14 days and required the child to sit on the

toilet every hour. The child was prompted as needed through all required tasks. Maintenance increased the duration between bathroom breaks and shaped urination while standing. Urination accidents at school eventually fell to 11% and the results of the intervention generalized to the home environment. This intervention demonstrated that positive practice and long training sessions are not always required to successfully toilet-train an individual with autism (Chung, 2007).

The present study is a combination of the scheduled sitting protocol by Azrin and Foxx (1971) with the omission of the positive practice punishment procedure. Manding for the bathroom is also included as in the protocol by Cicero and Pfadt (2002). An enuresis alarm is used to provide immediate feedback to the child and to help interrupt urination accidents.

METHOD

Participant

One child, 3 years and 5 months old, diagnosed with autism spectrum disorder participated in this study. Possible participants were evaluated using a toilet-training readiness checklist (see appendix). Inclusion criteria were based on the readiness skills defined by Cicero and Pfadt (2002). Some examples of the skills assessed included compliance in the bathroom, ability to follow one step directions, motivation for a variety of reinforcers, and several other skills. Exclusion criteria included a child's inability to imitate or follow one step directions, limited reinforcers, significant problem behavior, or the inability to stay dry for 1-2 hours at a time. Significant problem behavior was defined as physical aggression, frequent non-compliance with tasks or transitions, resisting physical prompts, or flopping on the floor.

Design

The present study used a single-subject AB design where one child was used, base line was collected, an intervention was implemented, and the behavior was measured. The dependent variable was urination accidents. The independent variable was a scheduled sitting protocol along with an enuresis alarm and a changing set of reinforcement contingencies effective during different phases of the intervention. This intervention consisted of multiple phases. Data were collected during every trip to the bathroom and recorded on a premade data sheet Treatment integrity was evaluated using a checklist. The intervention was implemented while the child was at school, approximately 15 hours a week, and a simplified version was followed at home.

Procedure

The first phase of the procedure included scheduled sittings at 30 minute intervals. Prior to transitioning to the bathroom, the tutor would prompt the student to request the bathroom by exchanging a picture icon of a toilet. As the student progressed the topography was switched to pointing to a picture of a toilet and saying, “potty”. This is shown by an arrow in *figure 1*. This was done so that the student would eventually be able to independently mand for the bathroom. The child was then immediately taken to the bathroom and 5-second time-delay full-physical prompts were used to have the child pull down his pants and sit on the toilet. A First-Then board and a timer were used. The timer was set for three minutes to alert the child when his sitting time was finished. The first half of the board had a picture of sitting on the toilet; the last half had a picture of a person standing up. The tutor had the child start the timer for three minutes and then point to the board as the tutor said, “First sit on potty, then stand.” The student was given access to a simple activity such as a toy car or playdoh while he sat on the toilet. Toys were slowly faded out until the child no longer required toys to sit independently with no problem behavior.

The tutor prompted the child to urinate every 5-10 seconds by gently removing the toy from the child, prompting the child to aim, and saying, “go potty”. If he urinated in the toilet, praise and highly preferred reinforcers were given to the child for two minutes. The child did not have access to these toys at any other time except during the bathroom routine. If the child did not urinate while on the toilet, the session ended when the timer sounded. The tutor said, “You didn’t have to go potty”, and the child was prompted off of the toilet. Toys were provided to reinforce appropriate sitting and to condition the bathroom as a reinforcer.

If the child urinated in his pants the tutor immediately provided a full-physical prompt for the child to request the bathroom using his Icon Exchange book. The child was then immediately taken to the bathroom, prompted to remove his wet clothes, and instructed to sit on the toilet for three minutes. If he finished urinating in the toilet, highly preferred reinforcers were given. If he did not finish urinating in the toilet, no reinforcers were given. The child was then prompted to wipe himself with a wet wipe, put his wet clothing in a bag to send home, and put on clean clothes.

After 3 consecutive days with no accidents at 30 minute intervals of scheduled sittings, the time between bathroom breaks was increased by 10 minutes. If an accident occurred during the new phase, the interval was reduced by 10 minutes and was kept there until phase change criteria were met again. If the child went one hour with no accidents, the enuresis alarm was discontinued. This one hour period did not include bathroom breaks requested by the student.

After the enuresis alarm was discontinued and the child had no accidents for ___ days scheduled sitting was discontinued. Since the child had the ability to answer yes/no questions in his repertoire, the tutor asked the child if he had to go to the bathroom every hour. If the child

answered “yes” he was taken to the bathroom, if he answered “no”, he was not taken or asked until the next 60 minute interval.

5-second time delayed full-physical prompts were used for every task completed in the bathroom. Tutors gave the instruction and waited 5 seconds between delivering a full-physical prompt which allowed the child time to respond independently. All independent attempts from the student to complete part of the toileting routine were reinforced regardless if the task was completed correctly. For example, if the child independently made an attempt to snap his pants by grasping the snaps and looking at them but wasn't able to or didn't complete the task, he was still praised for his partial response. Any instances of initiation were reinforced to increase the likelihood of independent behavior in the bathroom.

RESULTS

Urination accidents decreased from around one per day to zero due to the toilet training protocol. This protocol was implemented to increase the quality of life for the children and their caregivers. Originally the participant did not request for or use the toilet and wore diapers at all times. The 11th day of the intervention and beyond the child had no accidents and quickly progressed through the following phases. Prior to the 11th day of the intervention the child had an accident 7 out of the 10 days that the procedure was being implemented. Requests for the bathroom did not increase significantly, only one instance of self-initiated requests occurred. Urination in the toilet increased from zero during baseline to an average of one during the initial phase. During phase two and forward there were several days where instances of urination in toilet was two or greater. See, *Figure 1*, for a graph of this data.

DISCUSSION

While appropriate urination in the toilet significantly increased, manding for the bathroom did not rise above baseline levels. This may be due to the prolonged scheduled sitting procedure because motivation never reached high enough levels. Future studies may attempt to avoid this issue by discontinuing scheduled sitting after 3 days with no accidents after the enuresis alarm is discontinued.

Treatment integrity was a significant problem in this study. Because of the nature of the practicum site the child had one group of tutors that left 3 weeks into the intervention due to semesters changing at the local college. Adequate time was not available to sufficiently train all of the tutors. The child frequently had 5 or more people implementing the protocol. Some of these tutors were fill-ins or thesis students who worked with the child one hour a week.

In the early phases of the intervention the enuresis alarm malfunctioned and either didn't go off during an accident or went off while being clipped on. This may have affected the pairing process between an accident and the sound of the alarm. The child did still react strongly to the sound of the alarm throughout the intervention.

Another confounding variable was the lack of a tutor for the child three days a week. This resulted in him having to be put back in a diaper so he could be supervised in the playroom. Research by Cicero and Pfadt (2002), has shown that wearing a diaper during toilet training can significantly increase training time.

A factor that we did not consider was that the child had already been trained to stay near the tutor during school hours. Future studies may consider adding a Listener-Responding procedure that involves the child independently going to the bathroom from several locations. A Listener-Responding by Function Feature and Class or an intra-verbal may be useful in increasing awareness of the function of the bathroom.

This study showed that toilet-training a child with autism at school can be done in a relatively short amount of time and with significant implementation problems. This study shows that protocol implementation does not need to be run at 100% integrity to obtain a reduction in accidents, although it may decrease the number of days to mastery. These results may prompt teachers to try toilet training at school even if they aren't very confident in their ability to follow the protocol.

References

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Appendix B

Treatment Integrity Checklist

Student's Name: _____ Date/Time: _____

Observer: _____ Individual Observed: _____

Protocol Assessed: accident

Checklist instructions: For each checklist item, check either "yes" or "no" indicating if each component was completed correctly during the observation session.

Components	Yes	No	N/A
Urine alarm goes off in booth			
a. tutor stands up and grabs the student's hand to stand them up			
1. Tutor prompts student to exchange bathroom icon and says, "bathroom"			
b. tutor immediately takes child to bathroom			
Urine alarm goes off outside of booth			
1. tutor immediately grabs student's hand and walks toward PECS book			
1. Tutor full physically prompts student to exchange bathroom icon and says, "bathroom"			
1. tutor immediately takes student to bathroom			
1. Tutor alerts supervisor of accident area at earliest convenience			
In bathroom			
c. tutor uses the yellow potty seat			
d. tutor instructs student to pull pants down			
e. tutor unclipped urine alarm			
1. tutor instructs student to pull underwear down			
1. tutor instructs student to sit on toilet			
1. tutor shows student the first then board and says, "first I will sit for 3 minutes then I will stand"			
1. tutor has child press start on timer			
1. Tutor gives small toy to child or engages with them			
1. Tutor prompts student to go to the bathroom by saying, "go pee pee"			
1. Tutor follows 5-second time-delay full-physical prompting for all activities			
Student Urinates			
1. tutor immediately provides praise and an edible			
1. tutor waits for child to finish urinating to prompt off of toilet			
1. tutor prompts student to put new underwear on			
1. tutor re-attaches the urine alarm			
1. tutor prompts student to put new pants on			
1. Tutor gives the child access to a highly preferred reinforcer for 30 sec or edible			
1. tutor prompts student to flush toilet			
1. tutor prompts student to put wet clothes in bag			
1. tutor brings child to play room or other highly preferred activity			
Student does not urinate			
1. tutor prompts student to stay sitting for 3 minutes			
1. when timer goes off tutor prompts student off of toilet			

1. Tutor says, "I guess you didn't have to go potty"			
1. tutor prompts student to put new underwear on			
1. tutor re-attaches urine alarm			
1. tutor prompts student to put new pants on			
1. tutor gives student access to mildly preferred reinforcer for 15 sec or edible			
1. tutor prompts student to put wet clothes in bag			
1. tutor goes back to booth and completes academic task			
Total		/	

Appendix C

OBSERVATIONAL ASSESMENT OF READINESS FOR TOILET TRAINING

This form is an adjunct tool to assist assessors and parents in the assessment and implementation of strategies for the management of urinary and/or bowel incontinence. |

Student Name & Age: _____ Date: _____
 Observer Name: _____ Time: _____

1. Child can stay dry for 1 ½ - 2 hours at a time	Yes	No
2. Child will sit on the toilet for 1-2 minutes with no problem behavior	Yes	No
3. Child can independently follow one step directions	Yes	No
4. Child does not resist prompting during toileting routine (i.e., partial or full physical)	Yes	No
5. Child can push-down pants, pull-up pants, or mand for help	Yes	No
6. Child has a variety of tangible or edible reinforcers <i>List reinforcers:</i>	Yes	No
7. Social praise is a reinforcer for the child	Yes	No
8. Child does not have any major problem behaviors that may hinder toilet training <i>List concerns:</i>	Yes	No
9. Child can imitate basic motor movements	Yes	No
10. Child can independently mand	Yes	No
11. Child mands to have diaper changed	Yes	No
12. Child shows an awareness of having an accident (i.e. grabs diaper, mands for change, etc)	Yes	No
13. Child makes a physical demonstration when having a bowel movement (i.e. grunts, squats, hides, verbalizes).	Yes	No
14. Child has regular, formed, bowel movements at predictable times	Yes	No
Total		/14

Notes/Observations:

Figures

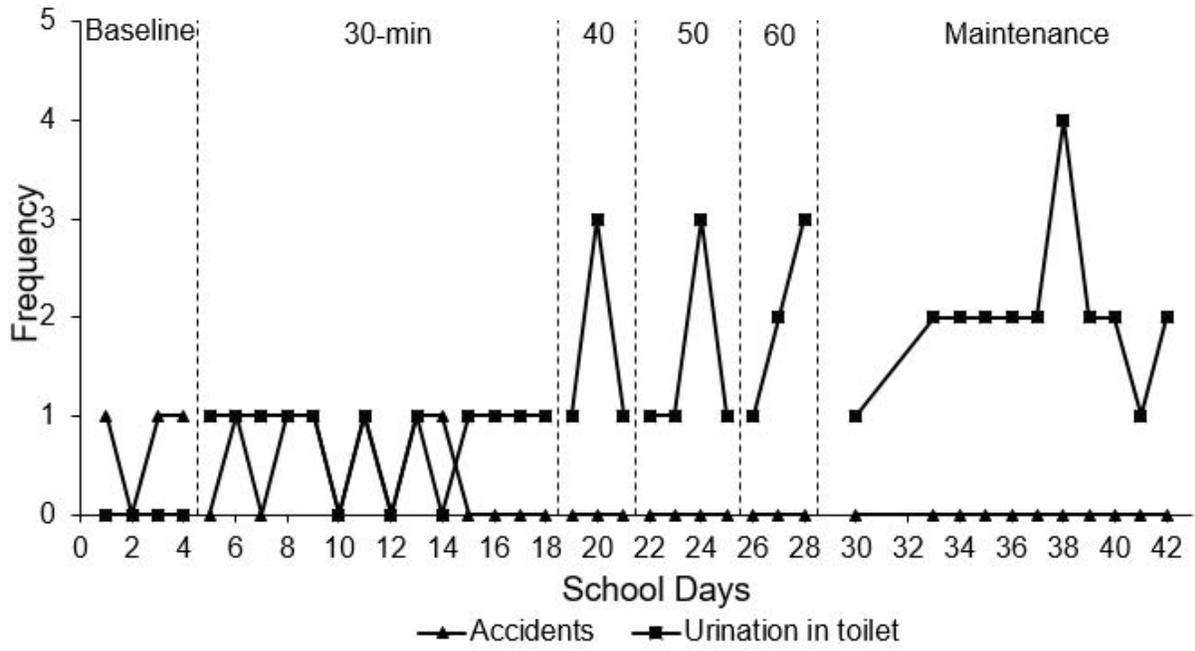


Figure 1. Urination in toilet vs. Accidents in EIBI classroom