

Evaluating treatment components for teaching request-based toilet training for individuals with autism



The Vista School[®]

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Introduction

- Current research has offered several treatment “packages” with multiple components
- Most frequently used programs are rapid toilet training method (Azrin & Foxx, 1971; Smith, 1979), and habit training (Chung, 2007; Connelly & McGoldrick, 1976).
- The toilet training literature focuses primarily on the absence of undesirable behavior (i.e. accidents) and or focus heavily on habit training.
- The Vista Toilet Training Protocol (VTTP) is a multi-component intervention package that emphasizes the use of data based decision making to develop an independent request repertoire for learners to access the bathroom.
- Ongoing analysis of the VTTP using between groups treatment design facilitates identification of the relative importance of each treatment component. The results of results of study 1 (presented here) affected treatment package for study 2 and produced an overall reduction of training days.

Methods

Participants and Setting

- Eight participant characteristics are summarized in Table 1
- Seven of the eight participants attend a private school for children with autism, and the remaining participant (#2) attended a full time autistic support classroom in a local school district.

Table 1: Participant Characteristics

Participant	Study Number	Gender	Age	VABS Teacher Composite Score	CARS General Impressions	Modality of Communication
1	1	Male	4	44	Mild-moderate	AAC
2	1	Male	20	52	---	Vocal
3	1	Male	6	56	Moderate	AAC
4	2	Male	5	47	Severe	AAC
5	2	Male	7	45	Mild-Moderate	AAC
6	2	Male	6	66	Mild-Moderate	AAC
7	2	Male	9	35	Moderate	AAC
8	2	Male	6	46	Severe	AAC

Note: VABS=Vineland Adaptive Behavior Scales

Measurement

- Frequency of spontaneous/independent requests for the bathroom
- Frequency of accidents (urine and feces outside the toilet)
- Frequency of prompted requests to use the bathroom
- Total fluid intake (in ounces)
- Latency between sitting on toilet and eliminating urine

Procedures.

Individual participants were monitored throughout VTTP phases with variables systematically manipulated using a standardized data decision model. Training procedures are summarized in Table 2.

Table 2: Vista toilet training protocol components (VTTP) phases for Study 1 and Study 2

Phases of VTTP		
Baseline 1		3 days-no increased fluid intake
Baseline 2		3 days with increased fluid intake
Phase 1	Request Prompts	Prompts to request the bathroom at set intervals based on baseline patterns of accidents
Phase 2	Generalization from training location	Distance fading from training environment to decrease saliency of toileting cues present in immediate environment
Phase 3	Classroom integration	Systematic increase of duration into ongoing activities away from training environment
Phase 4	Use of reinforcement	Use of secondary reinforcers restricted across all environments
Phase 5	Use of increased fluids	Increased fluid intake throughout training to maximize training opportunities

Additional VTTP elements implemented throughout training

Dry pants checks	Prompted at intervals to check pants for accidents and reinforced for remaining “dry” during that interval
Positive practice-overcorrection	Following accidents, participants engaged in behaviors aimed at restoring the environment and over-practicing toileting skills
Urine sensor	To indicate to staff and the individual that an accident has occurred

Major differences in VTTP between study 1 and study 2 included:

- In study 2, researchers discontinued the following two treatment components earlier in than in study 1 with the purpose of decreasing overall training time as well as reducing prompt dependency: (1) the frequency of prompts and (2) the length of treatment time that included prompts to request the bathroom
- Frequency that dry checks were implemented at a reduced frequency

Results

- All participants are toilet trained and maintained request repertoires and less than one accident between 9 months to 2 years following training.
- Treatment components are analyzed and categorized as critical or non-critical to independent toileting.
- Manipulated variables most associated with successful toilet training are retained in VTTP and those components not contributing to success are eliminated, streamlining intervention

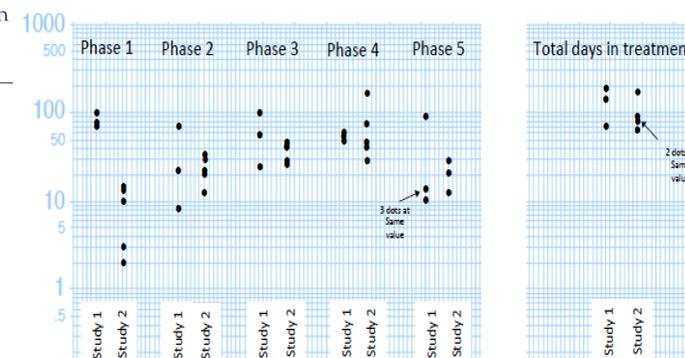
Table 3: Vista toilet training protocol (VTTP) component analysis

Component	Study 1	Study 2	Study 3 (ongoing)
Prompted requests	Critical	Critical	Critical
Clothing manipulation	Critical	Non-critical	Non-critical
Distance to toilet	Critical	Critical	In-process
Ongoing distraction	Critical	Critical	Critical
Secondary reinforcement	Critical	Critical	In process
Flooding	Critical	Critical	Critical
Urine sensor	Critical	Critical	Critical
Dry pants checks	Critical	Non-critical	Non-critical
Positive practice	Critical	Critical	Critical

VTTP modifications in length of time spent prompting the request produced the following changes (see Figure 1):

- A decrease in the mean number of days prompting occurred from 77 days in study 1 with a range of 56–98, to 9 days in study 2 with a range of 2-15 days.
- A decrease in the overall number of training days from a mean of 143 in study 1 with a range of 70-192, to a mean number of days in study 2 of 101 with a range of 65-185.

Figure 1: Days spent in treatment phase per participant across Study 1 & 2



- Participants spent less time in phase 1 and 3 during study 2 than participants in study 1
- During phase 2 and 5 participant data appear more even and less variable in study 2, but no level change was observed.
- Overall duration of VTTP decreased for the majority of participants in study 2 as compared to study 1

Discussion

- The changes made to phase 1 produced overall changes in the mean length of training from study 1 to study 2 (Figure 1).
- VTTP is modified by ongoing research so that it only encompasses necessary and sufficient treatment components.
- Identifying critical treatment components shortens training time.
- This current research exemplifies how the use of a data driven behavioral model affects the length of time it takes to develop request based toilet training skills.

Future Research:

- In study 2, prompted requests were discontinued early in training yet the variability of the rate and accuracy of spontaneous requests continues to be of concern throughout the course of training for most participants.
- It is possible the variability is due to the schedule and type of secondary reinforcement delivered for voids on the toilet (a topic for study 3).
- The pattern was observed across several participants (e.g., 3, 4, 7, and 5).
- Changes to the VTTP will also include accelerated generalization from the training location based on participant success.

Selected References

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