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CONSTANT TIME DELAY: A UNIQUE PROCEDURE FOR TEACHING CHILDREN WITH INTELLECTUAL DISABILITY

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ABSTRACT
The purpose of this study was to determine effectiveness of constant time delay procedure on learning to recognise functional sight words with two subjects. The participants were two adolescents with severe intellectual disabilities. A multiple baseline design across participants was employed to evaluate its effectiveness. The results of the present study were effective for subject-1 as he achieved criteria but subject 2 could not achieve criteria of learning to recognise. given 5 sight words, (learnt only 4 words) within 25 sessions. Maintenance sessions were conducted after 2nd and 4th week after intervention and subject-1 retained to recognize only three sight words. Subject -2 retained all four sight words that he learns during intervention.
KEY WORDS: *Functional Sight Words, Intellectual Disability, Constant Time Delay, Single Subject Research Design*

INTRODUCTION
A key element of educational planning is reading, however children with intellectual disabilities find it difficult to acquire it effectively due to their reduced cognitive abilities. Reading comprehension is difficult for children with significant intellectual disabilities since they frequently have speech-language impairments. One intervention strategy that helps children with severe and profound intellectual disabilities is sight word instruction. Children with moderate to severe intellectual disabilities require functional sight word instruction since it is necessary for their independent existence.

Functional sight words are those that can be instantly and automatically identified in print, according to Richek et al. (1996). Students can read effectively in context and understand literature because to this recognition. Students with moderate and severe impairments sometimes struggle to learn emergent literacy skills like word recognition since it is partially dependent on the development of speaking, listening, reading, and writing (Singh & Singh, 1986). Finding effective and efficient teaching methods for word recognition has become necessary due to the significance of this ability for the independent functioning of children with moderate to severe impairments. Researchers have thus created and evaluated a variety of instructional methods and strategies (Wolery et al., 1992).

Children with disabilities are taught sight words using a variety of techniques and approaches. Constant time delay is one of them all. Functional sight words and phrases instruction, which focuses on training children to recognize important words in their surroundings, makes up a large portion of the study on teaching word recognition to students with moderate and severe disabilities (Conners, 1992).

The sig nificance of teaching essential functional sight words and phrases that indicate danger has been underlined by Cuvo and Klat (1992). Behavioral approaches are effective tools for learning basic functional sight words and phrases (Wolery et al., 1990). This is supported by research on learning to read functional sight words and phrases. To teach words, instructors frequently employ strategies including entire words, phonological analysis, structure analysis, and image clues.

Significance and scope of the present study
Developing the capacity to read for information and for protection (such as signs, labels, and directions) is crucial for people with intellectual disabilities to be able to live independent lives. Students' independence and self-esteem will grow when they are taught to read sight words associated with survival concepts. The current study will shed light on how well children with significant intellectual disabilities may learn to recognize sight words using a constant time delay method.

Objectives
The main objectives of the study are
- To find out the effect of constant time delay on teaching recognition of functional sight words using constant time delay procedure to the adolescent with severe intellectual disability
- To find out the effect of constant time delay procedures on maintenance and generalization of acquired functional sight words after the training.

Operational Definitions of the key terms used:
- Constant Time delay: In the present study constant time delay is the 5 seconds delay inserted between the presentation of target stimulus and the controlling prompt over sessions.
- Functional Sight words: It has been defined as “a discrete observable response that is controlled by a printed stimulus”

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- Intellectual Disability: In the present study, intellectual disability refers to individuals having an IQ of 35-20 with deficits in adaptive behaviour.

METHOD

Subjects

Two individuals participated in the study: a 15-year-old with Down syndrome who had a severe intellectual disability, and a 16-year-old with intellectual disabilities who had cerebral palsy affecting both limbs. Both participants met the inclusion requirements of:
(a) Ability to follow verbal instructions,
(b) The ability to respond to auditory and visual stimuli,
(c) The ability to use visual identity matching skills,
(d) The ability to verbally imitate target words
(e) The ability to sit or stand and visually attend for at least ten consecutive minutes,
(f) The ability to wait five second for a verbal prompt,
(g) The ability to comply with verbal directions,
(h) The ability to use appropriate eye contact with the teacher and stimulus materials.

Setting

The teaching was conducted in a resource room located at Chetna, Lucknow.
This school serves for students with intellectual disabilities. During instruction, the student was seated at a table, with the instructor seated in front of subject. The study was conducted between 8.15AM to 10.30 AM. All sessions were conducted in a one to one basis. The investigator picked up and dropped the subject off the subjects to the classroom before and after instruction.

Materials

The investigator used following materials/tools for

(a) Laminated picture flashcards was developed for selected sight words. Picture flash cards were given for validation to experts and necessary modifications were done accordingly.
(b) Data collection form
(c) Stop watch

Two sets of materials were needed for each training session. The trainer used one set, and the subject used another. Only one set of materials was used for the probe sessions. Every day, subject was brought to the resource room to get intervention. Recourse room had study table, chair that suited to subject's height.

Dependent and Independent Variable

Effect of constant time delay was independent variable and dependent variable was sight word selected for intervention.

Design

The design of the study was single-subject research design. A multiple baseline design across subjects was used to ascertain the effectiveness of 5 seconds constant time delay procedure..

Maintenance sessions were conducted after 2, 4 weeks after intervention of each student. Programming for generalization was built into the study by training sufficient examples (Stokes & Baer, 1977). In order to change the settings, performance was assessed in each student's home after all maintenance sessions had been completed. These sessions were identical to maintenance session.

Procedure

The researcher used probe to identify known and unfamiliar stimuli before starting baseline. Based on teacher permission and the current IEP goals, the intervention's stimulus were chosen. For subject 1, five unfamiliar stimuli were chosen at random. These were खतरा, (danger) महिला, (woman), पुरुष, (gents) जहर, (poison), and शौचालय (poison). Similarly, बाहर (outside), अंदर (inside), पूछ-ताछ (enquiry), प्रतीक्षा (wait), and खींचो (pull) were chosen sight words for subject 2.

Baseline

During baseline sessions, researcher presented each unknown words sequentially before the subject with prompt "what is it". Researcher provided no corrective feedback if responses were correct or incorrect.

Instructional Sessions

Sessions of instruction were held every day of the week. Every individual underwent 25 sessions. Each session lasted between thirty and thirty-five minutes. Before each session was trained, three instructional probe sessions were held. Trials lasting 0 and 5 seconds were used in instructional sessions. For the first two training sessions, there was a 0-second delay. Every training session after that employed a 5-second delay. The trainer began by introducing sight words as a general attentional signal, such as "are you ready, what is it, or what word?" After receiving a positive reaction, the trainer asked, "What is it?" before introducing the first unknown term. After that, the trainer waited five seconds for the learner to start. If the student did not initiate the desired response within 5 seconds or performed the response incorrectly, trainer provided the pre-determined prompt. During each session, each student will be provided three trials on each word for the five assigned words (3 x 5), for a total of 15 trials per session. This procedure was continued until subject completed all 5 words of set with 100% correct anticipation.

Maintenance probe sessions for the learnt functional sight words were conducted 2nd and 4th week after the subject reached criterion. Maintenance procedures were the same as those used during the probe session.

Generalization

Subject was assessed on their abilities to recognize target words when presented by a person not associated with the study. Performance of subject during generalization was measured by means of the researcher creating a list of sentences for each student that contain all of his/her targeted words

Reliability

A faculty member of special education (Intellectual Disability) and one of the special educators in the classroom served as reliability observers. Twenty percent of probe sessions were used to collect inter-observer agreement on student performance across all words and phrases. During investigations, there was 100% inter-observer agreement.

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Throughout the skill's instruction, there was 100% inter-observer agreement. Inter- observer agreement on errors across all subjects during probe session was from 95% to 100% with mean of 98%. Similarly, inter-observer agreement of errors during instruction ranged from 70% to 100%, with a mean of 93%.

Social Validity

In order to calculate social validity five point Likert scale was used in this study. The respondents were three special educators, three parents and three experts having experience in teaching/research in special education. The scale and its corresponding point values were as follows: strongly agree (+2), agree (+1), undecided (0), disagree (-1), strongly disagree (-2).

Result indicated that all participants strongly agreed that the targeted task was appropriate and important for the subject.

Subject 1

During the baseline (session 1 through 3), subject could not recognise any of the sight words presented and remained stable at zero words correctly. Subject's criterion was set at 100% correct anticipation, which was achieved in the 25th session. Subject took all together 25-intervention sessions to achieve 100% criterion. Details of subject's session to criteria are displayed in the table 1.

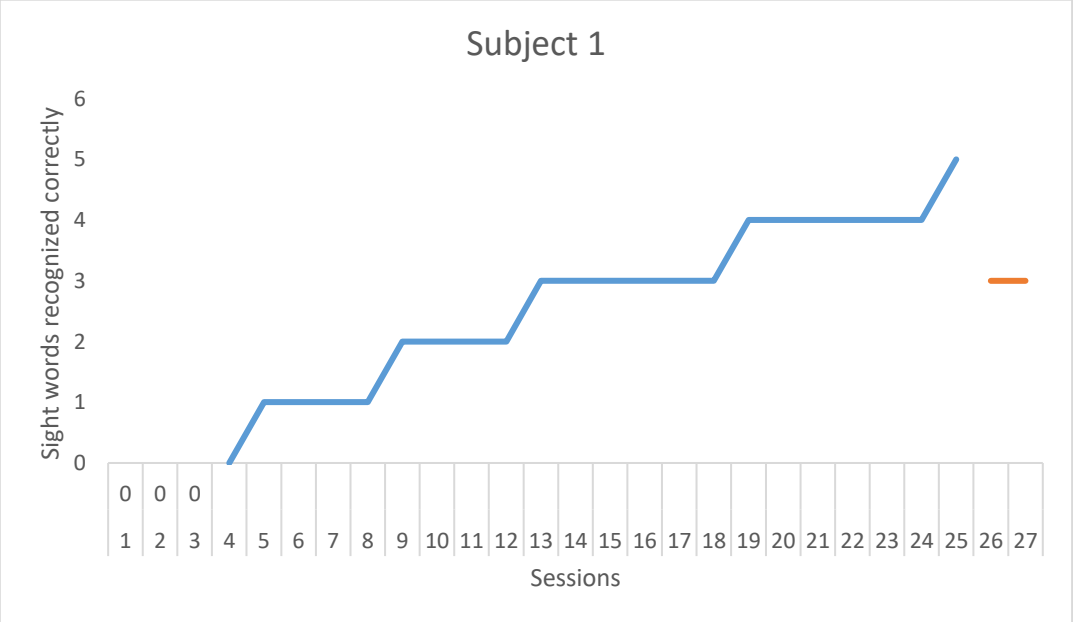
Table :1. Details of session to criteria of subject

S. No.	Sight Words Identified Correctly	Sessions to Criteria	Percentage of Achievement	Errors to Criteria	Duration to Criteria
1	खतरा	5	20%	47 errors (wait error 0, non-wait error 47) Error % 2.57	183 minutes. (Mean of 7.3 minutes
2	खतरा, महिला	9	40%		
3	खतरा, महिला , पुरुष	13	60%		
4	खतरा, , महिला, पुरुष, जहर	19	80%		
5	खतरा, महिला,, पुरुष, जहर शौचालय,	25	100%		

Thus, subject learnt to recognise the first sight word खतरा (danger) in the 5th session with 20% success, महिला, (lady) and खतरा (danger) in the 9th session with 40% success. By 13th session, subject was able to identify three words खतरा (danger), महिला, (lady, and पुरुष (gents) independently. By the 19th session, subject was able to recognise four sight words of खतरा (danger), , महिला (lady), पुरुष (gents), जहर (poison). Finally, by the end of 25th session, subject was able to recognize all five sight words खतरा, महिला, पुरुष, जहर and शौचालय independently with 100% success.

Total instructional time for learning to recognize five sight words was 183 minutes (3 Hour and 3 minutes) a mean of 7.3 minute per session (range =7to 9 minutes). He made 47 errors. All were non-wait errors, out of them 37 were topographical error, 8 sequential and 2 duration errors. Subject1 had error percentage of 2.57.

Maintenance sessions were conducted after 2nd and 4th week after intervention and subject retained to recognize only three sight words. Visual inspection of subject's sessions to criteria is displayed in figure1.



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Subject-2

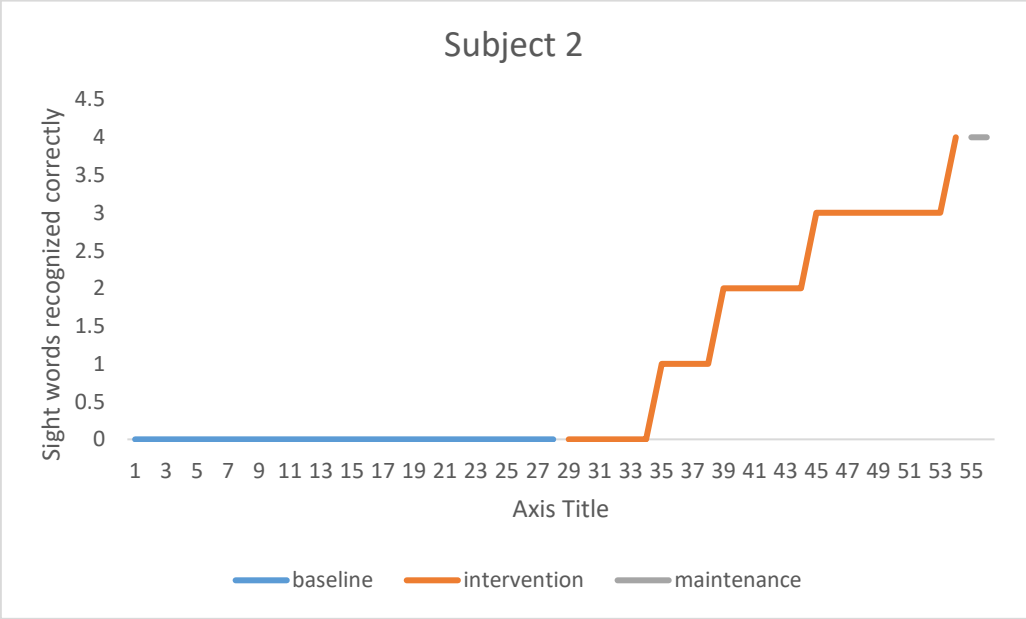
During baseline sessions subject 2 could not recognize any sight words such as बाहर, (outside), अंदर (inside), पूछताछ (enquiry), प्रतीक्षा (wait) and खींचो (pull) correctly and it remained stable at zero. The criterion was set at 100% which subject had to achieve by 25th sessions. Details of subject's session to criteria are displayed in the table 2.

Table :2. Details of session to criteria of subject-2

S. No.	Sight Words Identified Correctly	Sessions to Criteria	Percentage of Achievement	Errors to Criteria	Duration to Criteria
1	प्रतीक्षा	7	20%	49 errors (39 non wait errors & 10 wait errors). Error % 2.59	188 minutes Mean of 7.4 minutes
2	प्रतीक्षा,अंदर	11	40%		
3	प्रतीक्षा अंदर , बाहर	16	60%		
4	प्रतीक्षा अंदर , बाहर, खींचो	25	80%		

With intervention, subject was able to recognise sight word प्रतीक्षा in 7th sessions and प्रतीक्षा andअंदर in 11th session's. By the end of 16th session's subject was able to recognize प्रतीक्षा, अंदर and बाहर and प्रतीक्षा अंदर, बाहर and खींचो by the end of 25th sessions. Total instructional time for learning to recognize five sight words was 188 minutes (3 Hour and 8 minutes) a mean of 7.4 minute per session (range =7to 9 minutes). He made 49 errors (39 non-wait errors & 10 wait errors). Of the non-wait errors, 22 were topographical error, 10 sequential and 7 duration errors. Similarly, out of 10 wait errors 8 were topographical errors and 2 were duration errors Subject1 had error percentage of 2.59.

In his maintenance sessions subject 2 retained all four words. Visual inspection of subject's sessions to criteria is displayed in figure2.



DISCUSSION

The purpose of the study was to examine effectiveness of constant time delay procedure in teaching recognition of sight words to two students with intellectual disability. The results of the present study were effective for subject 1 as he achieved criteria but subject 2 could not achieve criteria within 25 sessions. Subject 2 took long time initially to begin learning recognition first word of प्रतीक्षा. Measures of efficiency suggest that that the procedure resulted in low percentage of errors during training and maintenance. In addition, the data collected for sessions to criteria, instructional time to criteria indicate positive results Furthermore, future research needs to replicate with other children with similar and different conditions.

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