OPEN ACCESS

Manuscript ID: ASH-2024-11036911

Volume: 11

Issue: 3

Month: January

Year: 2024

P-ISSN: 2321-788X

E-ISSN: 2582-0397

Received: 07.10.2023

Accepted: 11.12.2023

Published: 01.01.2024

Citation:

Sajee, D., and V. Thiruvalluvan. "Effect of Discrete Trial Training and Scripting on Third Person Past Tense Marking of Children with Autism and Cochlear Implant in Tamil Language." *Shanlax International Journal of Arts and Science Humanities*, vol. 11, no. 3, 2024, pp. 73–81.

DOI: https://doi.org

https://doi.org/10.34293/ sijash.v11i3.6911



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License

Effect of Discrete Trial Training and Scripting on Third Person Past Tense Marking of Children with Autism and Cochlear Implant in Tamil Language

D. Sajee

Ph.D., Research Scholar, Karur, Tamil Nadu, India https://orcid.org/0009-0006-7808-5317

V. Thiruvalluvan

Vice Chancellor, Tamil University, Thanjavur, Tamil Nadu, India

Abstract

The purpose of the study was to evaluate the effect of Discrete Trial Training and scripting on third person past tense marking in children with Autism and cochlear implanted children in Tamil language. Total of 8subjects, 4 children with Autism and 4 with cochlear implant with age group between 6 to 12 yrs. Both the groups were assessed using past tense scoring. Both groups scored 0% in pre therapy assessment. Whereas both groups scored 100% in post therapy assessment. Drastic improvement was recorded. The conclusion of this study indicates that the Discrete Trial Training and Scripting are effective in improving past tense marking of children with Autism and cochlear implant.

Keywords: Autism, Cochlear Implant (CI), Discrete Trial Training (DTT) and Scripting

Introduction

Autism is a complex neuro developmental disorder that is defined on the basis of symptoms in three behavioural domains: Problem in social interaction, Problem in communication and Restricted repetitive and stereotyped patterns of interests and activities (American psychiatry Association). The pragmatic language impairment noted in autism include a restricted range and less frequent use of communicative function. The most significant effect of hearing impairment in children is its impact on the development of spoken language and communication. Hearing in children is most important because the ability to develop and use oral language is closely related to their ability to process speech through hearing Erber. The recent findings suggest that phonetic and phonological delays influence vocabulary growth in young children with cochlear implant. The hearing impaired children have abnormalities in all aspects of language, form, content and use. The abnormalities seem to be associated with these children's inability to convert oral language and speech.

The children with Autism and cochlear implant who were language impaired showed high rates of omission of tense marking. They labelled verbs in daily life and from pictures using the present tense in simple. They have not used the past tense when they talked about what they had just done or what they did yesterday Discrete trial training is a one to one instructional approach used to teach skills in a planned, controlled and systematic manner. Discrete is used when a learner needs to learn a skills best taught in small repeated steps. Each trial or teaching opportunity has a defined beginning and end. Within the Discrete trial training the antecedents and consequence is carefully planned and implemented. Positive praise and tangible rewards are used to reinforce desire skills or behaviours.

Scripting provide specific appropriate models for language and social behaviour in structured way that will support the learner in engaging in a communication interaction with a partner then transferred to use in real situation

Aim: The present study is to evaluate the effectiveness of Discrete trial training and scripting on Autism and Cochlear Implanted children in their learning skill in particular to third person past tense.

Objectives

To assess third person past tense marking skills of children with Autism and Cochlear Implanted children.

Alternative Hypothesis

There will be significant change in third person past tense marking skills after giving Discrete trial training and Scripting to children with Autism and Cochlear Implanted.

Null Hypothesis

There will be no significant change in third person past tense marking skills after giving Discrete trial training and Scripting to children with Autism and Cochlear Implanted.

Methodology

The purpose of the study is to evaluate the effectiveness of discrete trail training and scripting on Autism and cochlear implanted children in their learning skills in particular to third person past tense.

Research design: The present study was carried out in two groups- Children with autism and cochlear implanted children. Non-concurrent multiple baseline design is followed in this study.

Study Setting

Srinidhi audiology and speech therapy centre, Karur.

Sample size: Total Eight Subjects

- 1. Four subject with autism
- 2. Four subject with cochlear implanted children.
- Study duration: Eight weeks

Intervention Period

Total period of intervention was eight weeks. Sessions were given for one hour per day in alternate days, total of twenty four sessions.

Selection Criteria Inclusion Criteria

- 1. Children diagnosed as Autism by paediatrician or clinical psychologist. Cochlear implanted children referred by ENT surgeon.
- 2. Age group 6 to 12 years
- 3. Both genders were included.
- 4. Children with reading and writing skills.
- 5. Intellectual level with 80 and above.

Exclusion Criteria

- 1. Children with seizures episodes
- 2. Children before 6yrs and above 12yrs.
- 3. Autism & cochlear implanted children with any other associated medical condition

Variable

Independent variable

- 1. Discrete trail training
- 2. Scripting

Dependent variable

- 1. Gender
- 2. Tense

Procedure

Baseline assessment was carried out by three speech pathologist among four subjects in each group. Among the speech pathologists, one was known to the subjects and involved in assessment and therapy, whereas other two were utilized only for assessment purpose. Assessment was done on weekly basis.

Initially, gender identification assessment was done by sorting out/ picking out male, female photos or in group. The subjects were selected only based on this assessment. They were taught if not aware off. Secondly, the subjects were assessed towards converting the root verbs given in the table appropriately (Annexure 1 & 2). The subjects were trained in such a way that, they were given words to match against the column in the table. This is followed by root verb conversion. 20 root verbs were used. Scoring was given based on the conversion.

 Number of correct verbs
 × 100
 = Conversion percentage.

 Total number of verbs given
 × 100
 = Conversion percentage.

The subjects with zero percentage was included in the study. (All scored only zero %).

All the subjects were given discrete trial training and scripting for 8 weeks on alternate days with one hour each session. Study was done for all the subjects individually.

During the intervention period, the subjects were trained to match the third person past tense word given in the table. They were also trained in converting the root verbs accordingly.

The Details on the subjects (Pre-Therapy)									
Name of the Subject	Age	Sex	Gender Identification	Third Person Past Tense Matching	Conversion of Root Verb	Scoring			
Cochlear implanted children									
1. Tamilisai	6yrs	F	NO	NO	NO	0%			
2. Akash	7yrs	М	YES	NO	NO	0%			
3. Shamitha	7yrs	F	YES	NO	NO	0%			
4. Abinav	6yrs	М	NO	NO	NO	0%			
Autism									
1. Sanjay	7yrs	М	NO	NO	NO	0%			
2. Ashmitha	9yrs	F	YES	NO	NO	0%			
3. DIleepan	8yrs	М	YES	NO	NO	0%			
4. Vaikunth	6yrs	М	NO	NO	NO	0%			

Fable 1 Assessm	ent details of the	subjects	(pre-therapy)
------------------------	--------------------	----------	---------------

Table showing the details of the subjects during pre-therapy assessment. The skill assessment is shown in the column.

S.no	Name	Age	Sex	3 session 1 week	6 session 2 week	9 session 3 week	12 session 4 week	15 session 5 week	18 session 6 week	21 session 7 week	24 session 8 week	No of words needed to occur generalisation
Ι	Cochlear chile	Implan dren	ited									
Α	Tamilisai	6yrs	F	0%	0%	5%	10%	20%	90%	100%	100%	4
В	akash	7yrs	М	0%	5%	5%	10%	25%	90%	95%	100%	5
С	Shamitha	7yrs	F	0%	0%	10%	15%	90%	100%	95%	100%	3
D	Abinav	6yrs	М	0%	0%	0%	10%	20%	20%	95%	100%	5
Π	Children w	vith Au	tism									
Α	Sanjay	7yrs	М	0%	0%	5%	5%	5%	10%	30%	100%	6
В	Ashmitha	9yrs	F	0%	0%	0%	5%	10%	10%	35%	100%	7
С	Dileepan	8yrs	М	0%	0%	5%	10%	5%	20%	40%	100%	8
D	Vaikunth	6yrs	М	0%	0%	5%	15%	20%	100%	95%	100%	4

Table 2 Assessment Details of the Subjects During Therapy

Table showing the progress of the subject during study period. The skill development is shown in the column.



Figure: I Weekly Improvement of a Child with Cochlear Implant - Ia Tamilisai



Figure: Weekly improvement of a Child with Cochlear Implant - Ib Akash



Figure: Weekly Improvement of a Child with Cochlear Implant - Ic Shamitha



Figure: Weekly Improvement of a Child with Cochlear Implant - Id Abinav



Figure: II Weekly Improvement of a Child with Autism - II a Sanjay



Figure: Weekly Improvement of a Child with Autism - II b Ashmitha



Figure: Weekly Improvement of a Child with Autism - IIc Dileepan



Figure: Weekly Improvement of a Child with Autism - II d Vaikunth



Figure: Sessions Needed to Achieve 100%



Figure: Words Needed to Occur Generalisation

Data Assessment and Interpretation

The main purpose of the study is to evaluate the effectiveness of Discrete Trail Training and Scripting among autism children and cochlear implanted children.

Eight subjects were included in this study (four subjects in each group)

Discrete trail training and scripting method was applied. Three speech pathologist were involved in this study. The data obtained and assessed were the average outcome of the speech pathologists.

The intervention period of this study was eight weeks, in alternate days and for an hour/session.

The subjects were taught, assessed as per the standard trail programme. Pre and Post therapy data were obtained and assessed as presented in the table. Among the skills recorded

Gender identification was 50% in cochlear implanted children and 50% in Autism children. There could be no difference among the two groups during pre-therapy assessment. Both groups were able to identify from third sessions onwards.

Third person past tense matching. In the pretherapy assessment, both the groups stood alike. No child was able to match the pictures given. But in post therapy assessment, vast difference among the groups were noticed. Among cochlear implanted children, they were able to do matching from 3rd sessions onwards and the range was 3-5 sessions whereas, among Autism children the process prolonged up to 7sessions. (Table 2)

Conversion of root verb None of the groups was able to carryout this activity before training. After the trail training, both the groups were able to convert the root verb given and matching accordingly. The CI children were doing this from 9-12 sessions whereas among the autism children the learning process was delayed and they could able to convert the root verbs given from 9th sessions. (Table 2 and diagram 1 and 2).

Past tense scoring was worked out after completion of the study period (8 weeks). It was 100% in both CI and Autism children. The study method positively improved the learning skills in both the subject groups .Among CI children, the results are as expected as they are categorized under normal children except the impairment. Among Autism children, even though the skills exists, their outcome is delayed due to neuro developmental syndrome.

Results and Discussion

The present study assessed the effectiveness of DTT and Scripting among the study subjects i.e., Autism and CI children assessment was done in the period of 8 weeks. Gender identification was possible among the Autism children only from the third session of the training. In the same group, the third person past tense matching was possible only from 9th session of training and prolonged upto 24th session whereas in CI children matching was possible within 18th session itself. Root verb conversion and scoring also delayed among children with Autism than CI children (Table 2 diagram 3)

Even though Autism is a complex neuro developmental disorder the children were able to identify match the tense marking and root verb conversion once trained. But their understanding in learning is delayed. They may not learn on par with the CI children due to the disorder. But positively we could record drastic improvement through our training and scripting. Hence, this study indicates that the DTT and scripting are definitely improving the skills of the subjects in particular to Autism children. If the training given in long period the improvement will be much more better and can be sustained.

Annexure 1

Changing the root verb into third person past tense

Male	Female	Plural, male, female with respect		
a:npa:l	penpa:1	palarpa:l		
paţi <u>tt</u> a:n	pa <u>titt</u> a:l	pa <u>titt</u> a:rkal		
sappitta:rkal	sappitta:n	sappit <u>t</u> a:l		
o:tina:l	o:tina:n	o:tina:rkal		

Annexure 2

Root Verb in Tamil	Root verb in English	Male a:npa:l	Female penpa:1	Plural / male, female with respect palarpa:1
utka:r	sit			
ŋil	stand			
nata	walk			
sa:ppiţu	eat			
tira	open			
mu:du	close			
a.ju	cry			
kuli	bath			
kuţI	drink			
utai	kick			
tutai	mop			
maţi	fold			
tattu	knock			
kuți	jump			
paţi	read			
e.utu	write			
i.ju	pull			
<u>t</u> al <u>l</u> u	push			
ati	beat			
siri	laugh			

References

- Alkaf, Farah Mohd., and Jill B. Firszt. "Speech Recognition in Quiet and in Noise in Borderline Cochlear Implant Candidates." *Journal of the American Academy of Audiology*, vol. 18, no. 10, 2007, pp. 872-83.
- American Psychiatric Association. *Diagnostic* and Statistic Manual of Mental Disorders. American Psychiatric Association, 2000.
- Baltaxe, C., and N. D'Angiola. "Cohesion in the Discourse Interaction of Autistic, Specifically Language-Impaired, and Normal Children." *Journal of Autism and Developmental Disorders*, vol. 22, no. 1, 1997.
- Bartak, L., et al. "A Comparative Study of Infantile Autism and Specific Developmental Language Disorder: I. The children." *The British Journal* of *Psychiatry*, vol. 126, 1975, pp. 127-45.
- Bartolucci, G., and R. J. Albers. "Deictic Categories in the Language of Autistic Children." *Journal of Autism and Childhood Schizophrenia*, vol. 4, no. 2, 1974, pp. 131-41.
- Bartolucci, G., et al. "Cross-sectional Studies of Grammatical Morphemes in Autistic and Mentally Retarded Children." *Journal of Autism and Developmental Disorders*, vol. 10, no. 1, 1980, pp. 39-50.
- Bates, Elizabeth. "Origins of Language Disorders: A Comparative Approach." *Developmental Neuropsychology*, vol. 13, no. 3, 1997, pp. 447-76.
- Belzner, Kate A., and Brenda Seal. "Children with Cochlear Implants: A Review of Demographics and Communication Outcomes." *American Annals of the Deaf*, vol. 154, 2009, pp. 311-33.
- Bennetto, L., et al. "Intact and Impaired Memory Functions in Autism." *Child Development*, vol. 67, no. 4, 1996.
- Bloom, Lois, et al. "Adult-child Discourse: Developmental Interaction between Information Processing and Linguistic Knowledge." *Cognitive Psychology*, vol. 8, no. 4, 1976, pp. 521-52.

- Bloom, Lois, et al. "Complex sentences: Acquisition of Syntactic Connectives and the Semantic Relations They Encode." *Journal of Child Language*, vol. 7, 1980, pp. 235-61.
- Carpentieri, S. C., and S. B. Morgan. "Brief Report: A Comparison of Patterns of Cognitive Functioning of Autistic and Non Autistic Retarded Children on the Stanford-Binet – Fourth Edition." *Journal of Autism and Developmental Disorders*, vol. 24, no. 2, 1994, pp. 215-23.
- Chess, S. "Follow-up Report on Autism in Congenital Rubella." *Journal of Autism and Childhood Schizophrenia*, vol. 7, 1977, pp. 69-81.
- Condouris, Karen, et al. "The Relationship between Standardized Measures of Language and Measures of Spontaneous Speech in Children with Autism." *American Journal of Speech– Language Pathology*, vol. 12, no. 3, 2003, pp. 349-58.
- Dodge, Philip R., et al. "Prospective Evaluation of Hearing Impairments as a Sequela of Acute Bacterial Meningitis." *The New England Journal of Medicine*, vol. 311, 1984, pp. 869-74.
- Folstein, S. E., and J. Piven. "Etiology of Autism: Genetic Influences." *Pediatrics*, vol. 87, 1991, pp. 767-73.
- Godber, T., et al. "The Measurement and Diagnostic Utility of Intrasubtest Scatter in Pediatric Neuropsychology." *Journal of Clinical Psychology*, vol. 56, no. 1, 2000, pp. 101-12.
- Howlin, Patricia. "Outcome in High-Functioning Adults with Autism with and without Early Language Delays: Implications for the Differentiation between Autism and Asperger Syndrome." *Journal of Autism and Development Disorders*, vol. 33, no. 1, 2003, pp. 3-13.
- Migirov, Lela, et al. "Surgical and Medical Complications in Different Cochlear Implant Devices." *Acta Otolaryngologica*, vol. 129, 2009, pp. 741-44.
- Rapin, Isabelle, and Michelle Dunn. "Update on the Language Disorders of Individuals on the Autistic Spectrum." *Brain and Development*,

vol. 25, no. 3, 2003, pp. 166-72.

Stone, W. L., and P. J. Yoder. "Predicting Spoken Language Level in Children with Autism Spectrum Disorders." *Autism: The International Journal of Research and Practice*, vol. 5, no. 4, 2001, pp. 341-61.

Author Details

D. Sajee, Ph.D., Research Scholar, Karur, Tamil Nadu, India, Email ID: sajeesripranav@gmail.com

Dr. V. Thiruvalluvan, Vice Chancellor, Tamil University, Thanjavur, Tamil Nadu, India