

# Cane Travel Training to Young Visually Impaired Children

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## Background and Rationale for the Study

- Over the past several decades, the profession of Orientation and Mobility (O&M) has revised its teaching strategies to focus upon the needs of young children.
- Within the past nearly 2 decades, a particular emphasis has been placed on the early O&M skills to Preschoolers who are Visually Impaired.
- Providing mobility training at the preschool level promotes the greatest use of the senses in exploring the world. (Eichorn and Vigaros (1997)
- Scott, B (2009) in his case study discussed the philosophy of introducing long cane at early stage which becomes more than just a means of moving around safely.
- With these conceptual frame, the author has conducted a research study intending to bring out specific information on strategies and multimodal approaches for developing O&M skills in young visually impaired Children.
- Teaching O&M Skills to infants and young visually impaired children is a new entity in Indian Context. Hence this study was pursued with the following objectives:  
*‘Developing multimodal intervention package for teaching O&M skills in young visually impaired children and compare the level of skill acquisition before and after intervention’.*

## Sample

- 25 visually impaired children from Grade I to V (School for the Blind, Coimbatore, Tamil Nadu)
- 5 visually impaired children from inclusive school (CSI Primary School, Coimbatore)
- Boys = 16
- Girls = 14

## Design of the Study

- Adopted pre and posttest single group design which is technically known as quasi experimental design.
- In this study, pre experimental observation was made, treatment was given to the group and after treatment, post observation was made. The design as follows.  
$$O_1 \quad x \quad O_2$$
- Here  $O_1$  indicates pre experiment observation,  $O_2$  indicates post experiment observation and x represents the treatment (intervention).

## **Assessment Checklist**

- Based on the standardized tools available, the author developed tools suitable to Indian context.
- Description of the assessment checklist ('Yes' or 'No' option)
- The tool was developed for 4 levels.
  - Level 1 skills include Basic Concept Skills, Body Image, Direction, Environment and Attending Behaviour, Motor and Sensory Development skills
  - Level 2 skills include Sighted Guide Techniques
  - Level 3 skills are Self-Protective Skills and
  - Level 4 skills are Basic Cane Skills.
- Scoring-Each correct response One score and Non-performance Zero score

## **Assessment of Basic Concept Skills**

### ***Example***

- Attending Behavior to noises
- Demonstrating accurate Body Image
- Demonstrating directionality
- Demonstrating positional comparisons (up/down)
- Demonstrating sensory information (identifying odors)
- Identifying geometric shapes
- Ten components and each has five sub skills

## **Assessment of Sighted Guide Skills**

- Maintenance of appropriate posture
- Maintenance of proper sighted guide grip while walking
- Seating with assistance
- Negotiating open door ways with assistance and
- Negotiating stairs with guide
- Five components

## **Assessment of Self Protective Technique**

- Use of upper hand and forearm technique
- Use of lower arm and forearm technique
- Locating dropped objects using protective technique
- Using both upper and lower arm protective techniques while negotiating open space and trailing

## **Assessment of Basic Long Cane Skills**

- Basic Concept about the Long Cane.
- This includes :
  - the purpose of using long cane
  - labeling the parts of the cane
  - cane control while walking with guide

- cane down on the ground and
- side to side and slide it wide.

### Development of Kiddie Cane

- This was a one piece cane made of fiberglass. This is superior conductor of resonance and tactile information. The cane was designed with fiberglass with the length of 80cm and 90cms.
- It has white reflective tape with six inch red stripe.
- Besides, aluminum cane with all long cane features has been developed
- The cane is lightweight, one piece and has a plastic tip which provides information through touch and sound.
- The cane was designed with the technical support of the WORTH Industry, Katpadi, Vellore.
- The industry produces several affordable high quality and appliances for persons with disabilities and supply across Asia.



### Intervention Procedure

- After pretesting, the children were given training in the O&M skills.
- Intervention was provided on Grade-wise keeping 5-7 children in a group.
- Children in Grade I & II required more time to learn the skill.
- Concept Skills, Motor Skills and Sensory Skills have been taught with a variety of activities.
- Training session for these skills was held for 30mts and an additional 15mts for practice for 7 days.

### Children during Training Session - Basic Concept Skills



*Teaching Shape Concept*



*Concept of Smell*



*Teaching Auditory Skills*



*Teaching Direction*



*Training in Motor Skill*

### Training in Sighted Skills

- The training components include: Grip, alignment when walking with the guide, negotiating Narrow Spaces and Stairs
- Each component in the area was trained on individual basis and in group for 7 sessions
- 30mts direct instruction and 15mts practice session for 7 days.



*Training in Sighted Guide Technique*

### Self Protective Techniques

- Protective Techniques include:
  - Upper & Lower hand forearm
  - Trailing
  - Search Techniques
- Each skill was given on individual basis initially and as group and then practice session. (30mts for direct teaching and a separate 15mts for practice for 10 days)



*Child being Trained in Protective Technique*



*Child Independent in Trailing*



*Child Independent Protective Technique*

### Basic Cane Techniques

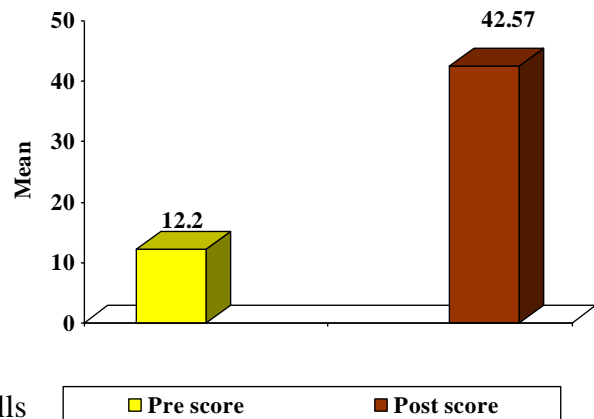
#### *Components:*

- Basic knowledge about Long Cane
- Basic Cane Technique
- None of the children learnt cane skills previously.
- Introduction of cane skills consumed a lot of time.
- 30 mts direct instruction, 15 mts practice for 20 days

### Result 1: Basic Concept Skills

*Testing wise Mean, SD, t-value for Concept Skills*

Testing	Mean	df	S.D	t value
Pre	12.2	29	4.48	32.9**
Post	42.57	29	1.98	

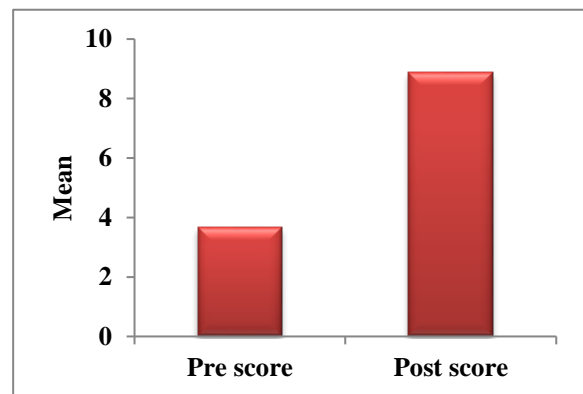


*Conclusion:* Intervention helped in Development of Basic Concepts, Motor Skills and Sensory Skills

### Result 2: Sighted-Guide Technique

*Testing wise Mean, SD, t-value for Sighted-Guide Technique*

Testing	Mean	df	S.D	t value
Pre	3.67	29	1.40	30.80**
Post	8.87	29	1.46	

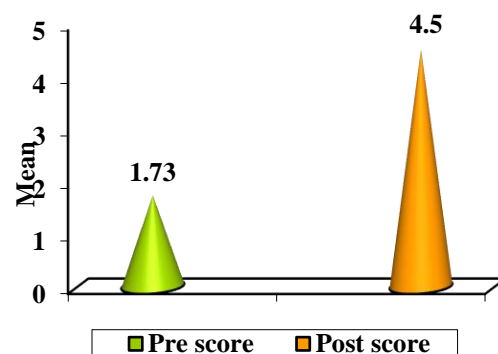


*Conclusion:* Training packages was found to be effective to help children learn Sighted-Guide Techniques

### Result 3: Self Protective Techniques

*Testing wise Mean, SD, t-value for Self Protective Techniques*

Testing	Mean	df	S.D	t value
Pre	1.73	29	0.98	17.66**
Post	4.50	29	0.68	

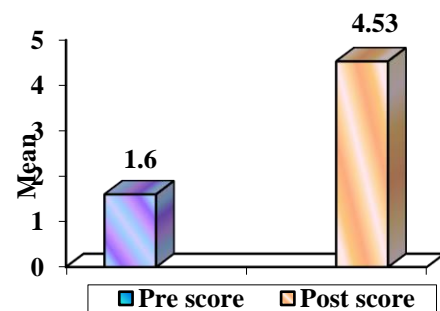


*Conclusion:* Children were independent using Protective Techniques

## Result 4 : Basic Cane Techniques

*Testing wise Mean, SD, t-value for Basic Cane Techniques*

Testing	Mean	df	S.D	t value
Pre	1.60	29	0.81	27.55**
Post	4.53	29	0.73	



*Conclusion:* Children learnt the Basic Cane Techniques

## Training to Special Teacher

- 30 Special teachers working both in the special school and inclusive schools have been a one day training on O’&M skills to young visually impaired children



## Implication and Conclusion

- The way in which cane skills is taught to young visually impaired children differs in a number of ways from conventional training.
- The first modification concerns the type of cane to be used.
- The study stands evidence that children if provided canes at an early age, develop ability to orient themselves in complex environments and the use of cane greatly to improve posture.
- The benefits we have observed form the early introduction of the cane travel have been greatly encouraging. Children were happy to use and their attitude towards using cane was positive.
- For these reasons, we advocate and promote early introduction of the cane skills through our networking with different educational and rehabilitation professional

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