

"PREVENTION AND CAUSES OF HEARING LOSS"  
A. TEACHING AID FOR CHILDREN



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**A TEACHING AID FOR CHILDREN**

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A TEACHING AID FOR CHILDREN

Register No. M 9501

An Independent Project submitted as part fulfilment for the  
First Year M.Sc. (Speech & Hearing)  
to University of Mysore.

**ALL INDIA INSTITUTE OF SPEECH AND HEARING**

MYSORE - 570 006

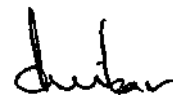
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**Dedicated  
to  
Mommy, Poppy & Thambikin**

## CERTIFICATE

*This is to certify that the independent project entitled "PREVENTION AND CAUSES OF HEARING LOSS - A TEACHING AID FOR CHILDREN" is a bonfide work done in part fulfilment of the first year degree of Master of Science (Speech & Hearing ), of the student with Register No . M 9501.*

Mysore  
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Director

All India Institute of Speech and Hearing  
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## CERTIFICATE

*This is to certify that the independent project entitled*  
"PREVENTION AND CAUSES OF HEARING LOSS - A TEACHING AID FOR  
CHILDREN" *has been prepared under my supervision and guidance .*

Mysore  
1996

  
Dr. (Miss) S. Nikam  
Guide

## DECLARATION

*I hereby declare that this independent project entitled "PREVENTION AND CAUSES OF HEARING LOSS - A TEACHING AID FOR CHILDREN" is the result of my own study under the guidance of*

*Dr. (Miss) S. Nikam, Professor and Head Department of Audiology,*

*All India Institute of Speech and Hearing, Mysore and has not been*

*submitted earlier at any other University for any other Diploma or*

*Degree.*

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1996

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## **ACKNOWLEDGMENTS**

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Reg. No. M 9501



## CONTENTS

	<b>Page No.</b>
1. Prologue	1
2. Methodology	2 - 17
1) Development of teaching aid	2 - 3
2) Developed teaching aid	4 - 16
3) Testing Efficacy of Teaching aid	17
3. Results	19
4. Summary and Conclusion	22
5. Future Directions	22
6. Epilogue	23

## **List of Tables and Graphs**

		Page No.
1. Table I	Questionnaire used to develop teaching aid	18
2. Table II	Pre and Post teaching aid administration scores	19
3. Graph I	Pre and Post teaching aid administration scores	20
4. Graph II	Efficacy of teaching aid	21

## **"Prevention and causes of hearing loss" A teaching aid for children**

### PROLOGUE

The hearing sense develops long before there is awareness of spoken word, infact even before the time of birth.

The hearing sense develops with age, it helps the child perceive the surroundings and form relationships between himself and environment. This sense is most essential for the development of speech and language, if there is any damage to the hearing mechanism the above said functions will be lost either partially or completely. The causes can be direct or indirect which may occur before birth, during birth or after birth.

Hearing loss in adult life is less disabling than hearing loss *in* childhood which causes social withdrawal, irritability, depression, emotional instability etc., and most of all impairment in speech and language, (e.g.: Delay in speech and language development.).

So hence the best policy, as an old saying goes "Prevention is better than cure"

## METHODOLOGY

The teaching aid was developed for the normal Indian school population between the ages 10-12 years.

The teaching aid was constructed in 2 stages.

Stage I : Development of teaching aid

Stage II: Testing efficacy of teaching aid.

### **Stage I : Development of teaching aid**

#### **Subject selection :**

Thirty bilingual school children were randomly selected in age groups 10-12 years with mean age of 11.03 years and median age 11.05 years. The children had English as medium of instruction at school and had no deficits/deviancies in speech, language, hearing and behaviour (based on an informal interview). Two similar groups of 30 subjects were selected for development of teaching aid and testing efficacy.

#### **Instrumentation**

Subject responses were recorded on a TDK - D -90 (high resolution) audiotape by a (in-built microphone) Philips mono floor type tape recorder.

#### **Administration procedure:**

Children were seated comfortably in a quiet room with little distraction, facing the examiner and the test material was placed so that the child could see the pictures without difficulty.

**Instruction :**

The children were instructed to listen to the story told or read it on their own and answer the question section (Table I) and further comment about the moral of the story.

**Recording responses :**

The subjects responses were tape recorded on an audio tape by an inbuilt microphone tape recorder at a distance of 2 ft from speaker.

**Analysis :**

The subjects responses were judged for content and comprehensiveness on the topics that were presented, by three judges separately. They were allowed to listen to each answer sample atleast three times.

The judges then scored the responses on a 3 - point scale.

Score	Response	Modification
0	• Total error response	• Picture material to be changed completely
1	• Partial answer	• Slight modification to picture material required
2	• Complete answer (Concept clear)	• No modification required.

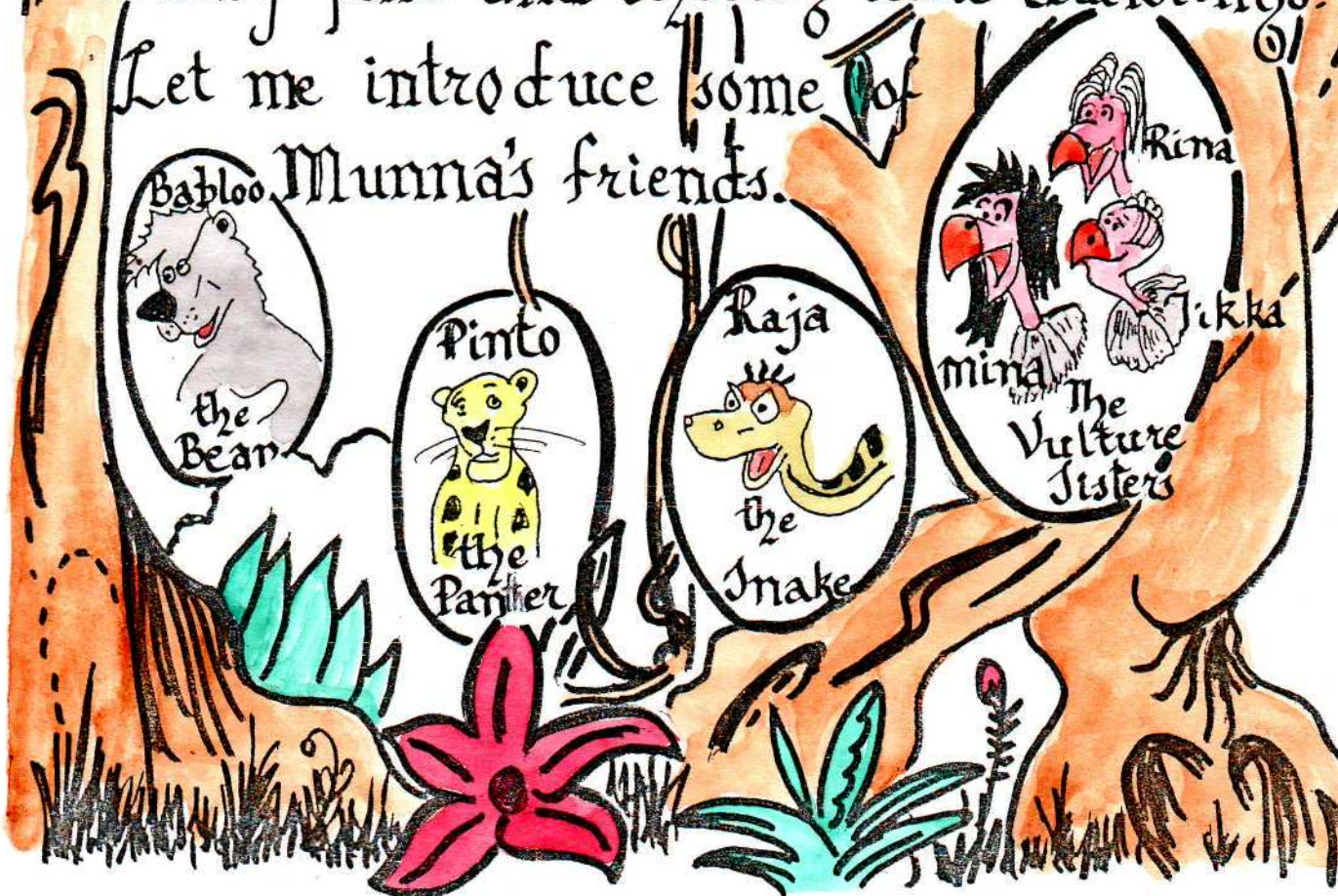
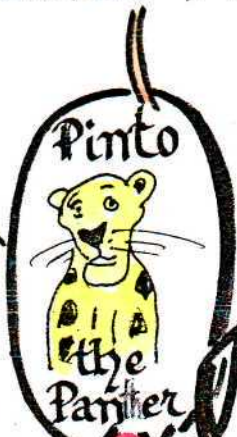
Based on the above scores the required changes were made and the developed material was readministered till a 75% correct response was elicited from the sample of 30 subjects.

## **Developed Teaching Aid**

Once upon a time, in a jungle lived a little boy called Munna who would spend all his time running around in the jungle playing, jumping, and fighting with his friends.

That year the jungle was visited by a doctor who told everyone about "EAR CARE". Munna being naughty, never attended the doctor's. At that time he had been swimming in a nearby pond and chasing little ducklings.

Let me introduce some of Munna's friends.





Munna is a naughty boy; who does not take care of his ears. Every one tells munna to take care of his ears, but Munna is too playfull!!



A frog! there must be a pond nearby, I want to go for a swim.

No Munna, swimming in dirty water is not good.



I want to jump and swing from trees

No, you will get hurt!



I'm going to jump and play.

Munna come back



You are not letting me play! ?!

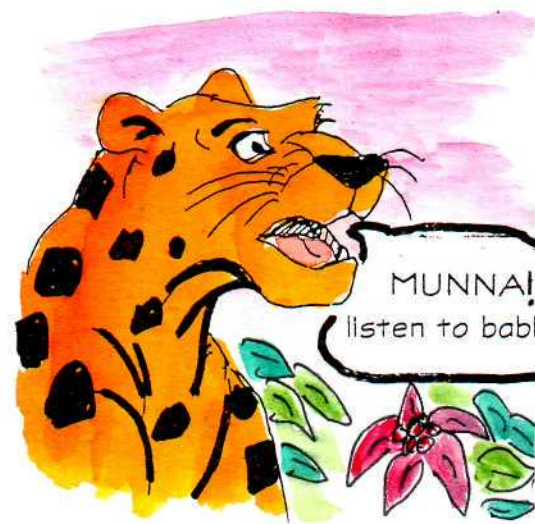
I'm not telling you not to play but you must take care of your ears!



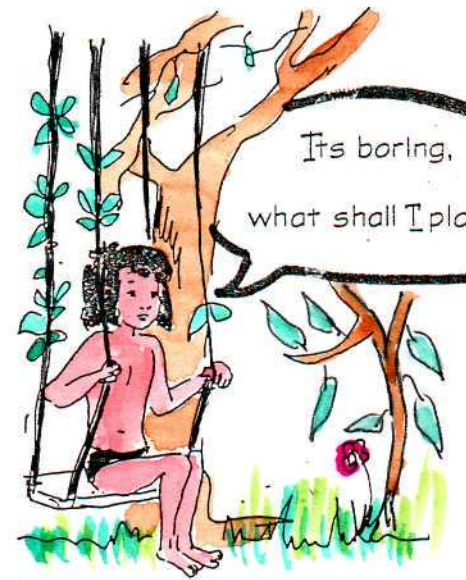
Ear care! Ear Care! I wonder what these people want me to do! ?















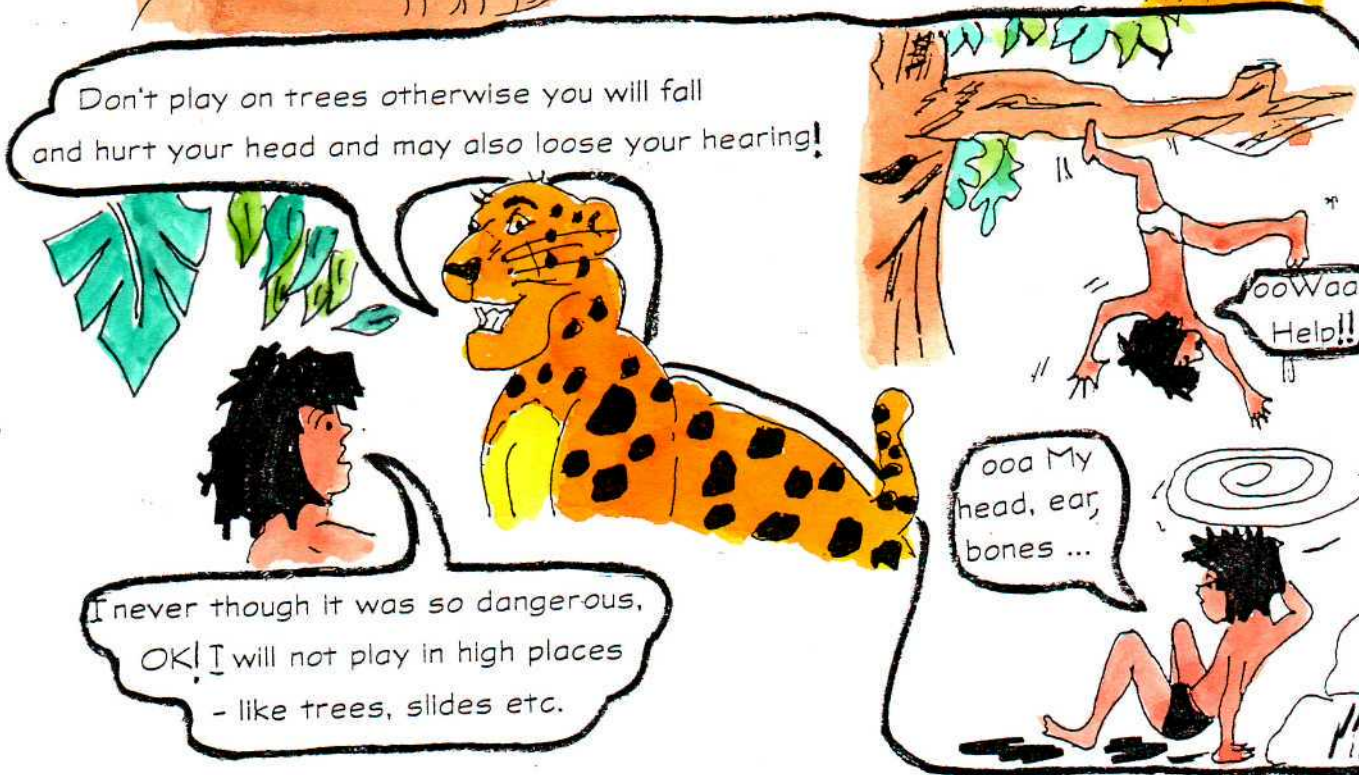
If I should not play with beads, then I will play on trees! there!!



Waaa!  
weeee!

Munna!  
Don't play  
on trees.

Munna!  
I said  
STOP THAT!



Don't play on trees otherwise you will fall and hurt your head and may also loose your hearing!

ooWaaa  
Help!!

ooo My  
head, ear,  
bones ...

I never though it was so dangerous,  
OK! I will not play in high places  
- like trees, slides etc.

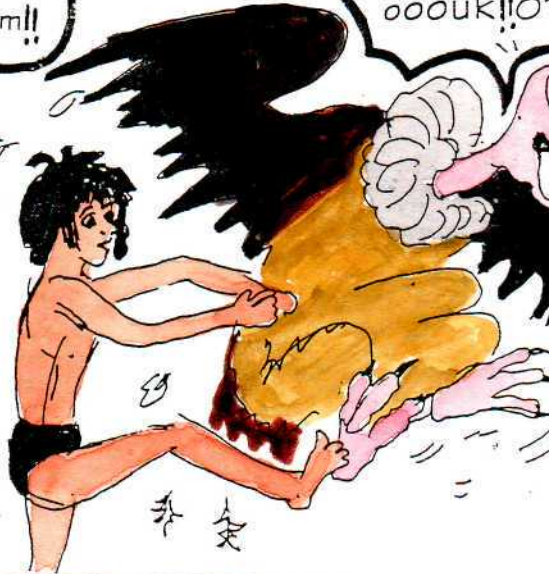


Maybe Pinto is right!  
But I still should have some fun.  
I will go fight with somebody!!



Who goes there

Yeah!  
Kick him!!



ooouk!! O???

STOP THAT!

You take that!

oooch!



Do not fight and especially  
do not hit on ears when you are  
fighting otherwise your ear-  
-drum may burst!

Yup!

.....and you will not  
be able to hear!





All these people are trying to help me why am I a bad boy?  
sob, sob, boo!



Don't cry! we want you to understand that your ears are very important to you we want you to take care of them.



SUDDENLY!!

Munna ! I have a terrible ear pain!



THAT'S BABLOO !! He's got ear pain!!



Babloo !! I am coming, I will pour milk, oil and honey in to your ears It will become alright!!



No Munna! that's wrong, you have to go to a doctor or else...



I think you are right! I will call a doctor.





One Day:

I'm hearing a kind of buzz in my ears always and can't hear properly.

Munna! Munna! Wait! Hey why can't Munna hear me properly?

Boo, Sob, S... can't hear any t... properly my ec... are 'humming' alv... what will I d...

Hmmm! Think I will clean my ears myself.

Munna stop cleaning your ears with a stick you could damage your ear drum!

To clean your ears Munna you have to use ear cleaning buds also you shouldn't clean them yourself you should tell your parents or go to a doctor.

An ear cleaning bud looks like this

Ok! I will!





MEANWHILE



UUUGGGH!  
WHO IS THAT?



RROWRRR

IT'S SHAMNATH - KING of the Jungle!  
He is calling every one  
for a meeting.



lets go  
then

Has every one come ?!



Yes  
Yes  
Yes  
Yes



Listen ! Everyone! Diseases like  
chicken pox, cough, cold e.t.c. are  
spreading, all of you meet the "Doct  
and take medicines, otherwise you w  
have problems in hear ing my call!!

Yup

Yesssh!

OK!

Yes

Sure

OOK OOK OK!



Few days later



ooWaaa, see I can also fly!

Follow me if you can!



Answer your attendence!

Yes

Yes

Yes

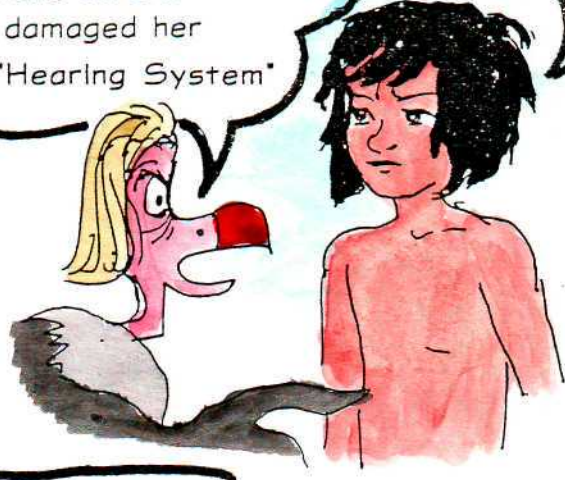
why is quiet?

Hey! why is that bird not talking,

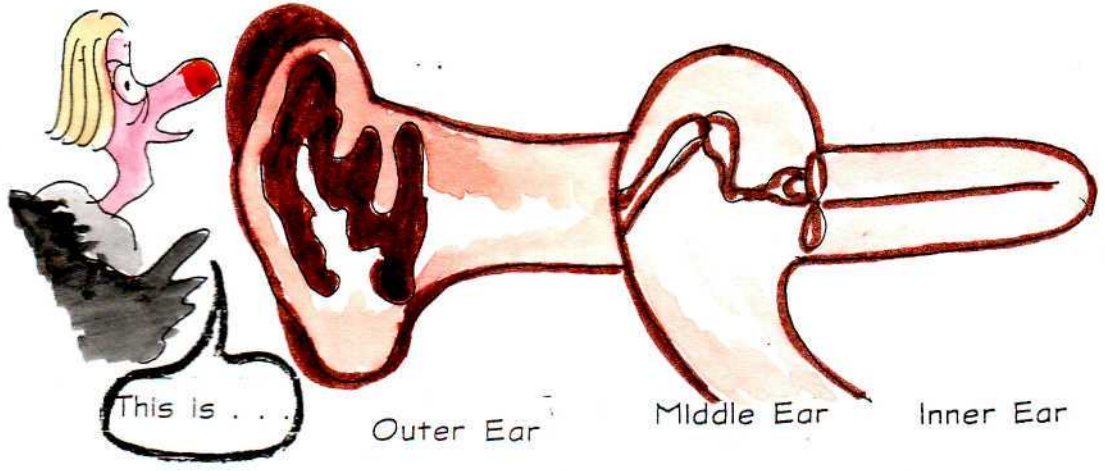


That's because she can't hear, she was also naughty like you, she did not take care of her ears, and thus damaged her "Hearing System"

'HEARING SYSTEM' whats' that?!



Now, Munna gets more interested in the "Hearing sytem"



This is . . .

Outer Ear

Middle Ear

Inner Ear

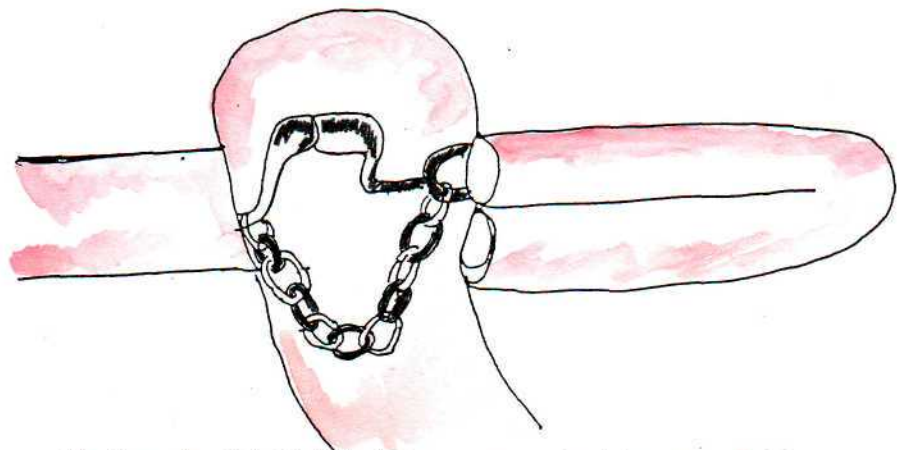


Outer ear



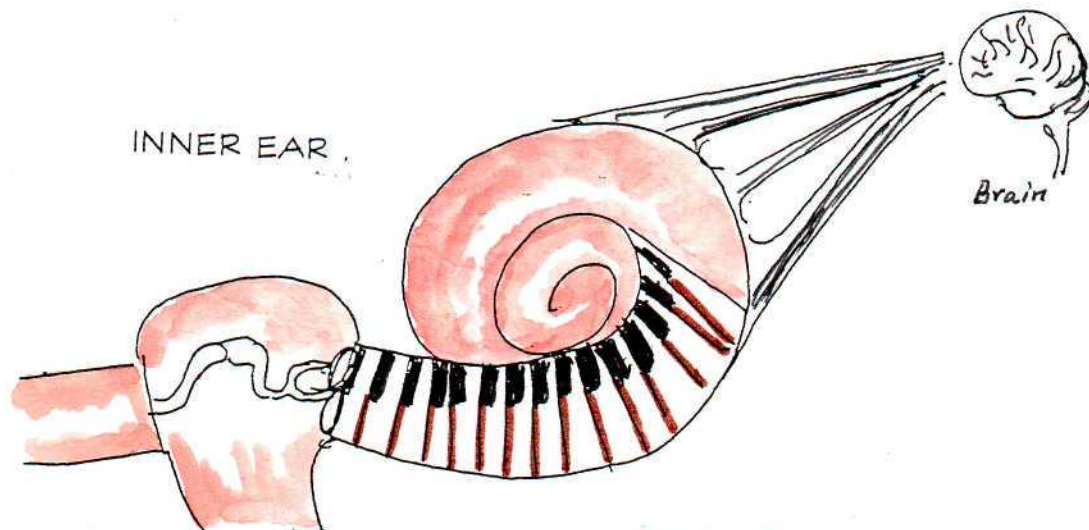
The trumpet like outer ear collects the sound.

Middle ear



Is like A CHAIN, It joins outer and Inner ear.

INNER EAR



Is like a piano, It sends different messages to the brain.

Outer and middle ear problems can be corrected though not completely always, but innerear damage one may be forced to wear a hearing aid.



Munna after understanding about ear and ear care

Hi, Guys! cant hear you,  
I am listening to music!



Hey, look  
thats! babloo!

Do Ba  
Baa Do!!



Babloo, If you listen to loud music  
you could lose your hearing!!



WHAT! then I  
will remove it!



Though you are small  
you are very thoughtful!



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Few days later:

Pinto ! come here fast, babloo is not feeling well!



I will get him some tonic and tablets, he will become alright.

Walt ! I have heard some medicines can cause hearing loss have you checked these medicines for that!



You are right! some medicines can cause hearing loss. But I have checked these. I am surprised !!! Munna you have become a very responsible boy. I want you to help me spread this message of 'EARCARE'!



Yes,



come

Come lets spread the message of "Ear care"

Now Munna has become responsible not only toward his ears but others should also to your friends



responsible not only toward ears also, so like 'Munna' you come forward and tell this story and spread the message

of 'Ear care'

**Stage II : Efficacy of the Developed teaching aid****Testing Procedure:**

A questionnaire (of 10 questions relevant to causes and prevention of hearing loss) was developed ( as shown in table I ) to check statistically the efficacy of the aid.

**Subjects**

Another group of 30 randomly selected school children between the ages 10-12 years who were in English medium class in school.

**Response scoring**

Number of questions answered correctly by the group were taken as mean correct response of the group. Scoring was done twice, once pre and once post administration of the teaching aid.

**TABLE I**  
**QUESTIONNAIRE USED FOR DEVELOPING AND TESTING EFFICACY**  
**OF TEACHING AID**

- 1) What do your ears do? Name the parts of your ear and their function.
- 2) To clear your ears what do/will you use?
- 3) Who should clean your ears?
- 4) What will happen if you swim or bath in dirty water?
- 5) Do you put stones, beads, mud etc. in your ears and play, what will happen if you do so?
- 6) What will happen to your ears, if you fall from a high place and hurt your head?
- 7) Why should you not hit a person on his/her ears?
- 8) What will you do if someone has disease and ear pain?
- 9) Is it good for your ears to listen to loud music?
- 10) If you are ill/sick - [i.e., "not feeling well\*] can any medicine be given to you?

## RESULTS

The results were analyzed statistically using arithmetic mean and percentage scores.

Table II, Graph I and Graph II show pre and post teaching aid administration scores and qualitative item analysis respectively for a group of 30 subjects in terms of mean and percentage scores.

The results show that mean correct response is higher after administration of the teaching aid (Table II and Graph I).

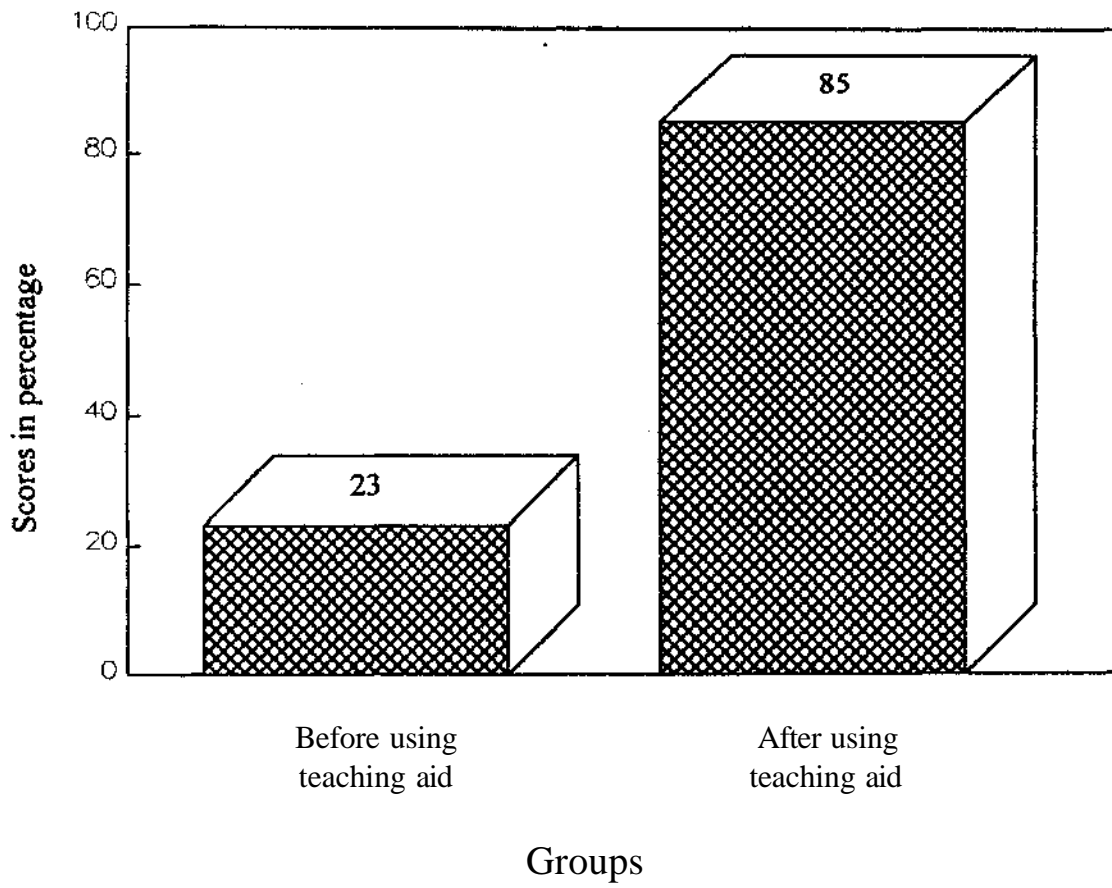
The effectiveness of each item or concept is depicted on the Graph II. Graph II represents percentage scores (y - axis) versus each item/concept (x - axis).

From Graph II, it is evident that "concepts" of foreign body in ear, fall injury, trauma to ear are more comprehensive than noise induced hearing loss, ototoxicity, function of ear etc.,

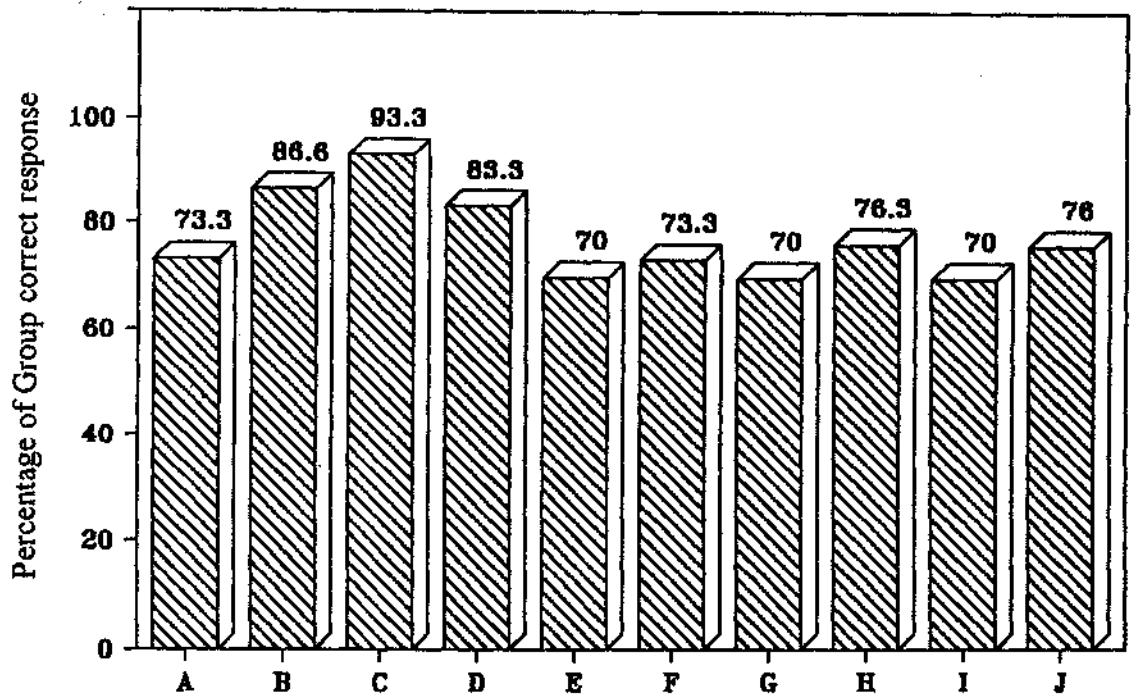
TABLE II

	Before using teaching aid.	After using teaching aid.
Mean number of correct responses	2.3	8.5
Percentage of correct responses	<b>23%</b>	<b>85%</b>

Graph I



Graph II



Key	
Concept/Item	
A	Swimming in infected water.
B	Consequences of introduction of foreign body into ear.
C	Trauma to ear - Fall injury.
D	Trauma to ear - Interpersonal physical abuse.
E	Otalgia.
F	Self aural cleaning consequences.
G	Systemic and other diseases that affect hearing
H	Noise induced Hearing loss.
I	Ototoxicity.
J	Function of ear.



## SUMMARY AND CONCLUSION

### **Purpose:**

The tool has been developed in view of teaching children about causes and prevention of hearing loss. The efficacy of the teaching aid was also tested in a field trial and results indicate that the teaching aid can be effectively used with children in order to teach them causes and prevention of hearing loss.

### **Conclusion :**

Thus it is evident that the developed tool is a very efficient teaching aid to teach children about causes and prevention of hearing loss.

### **Future directions**

- The teaching aid can be utilized by mass media services (Example : Television networks) in the form of cartoon film strips.
- Can be recorded in slide cum tape method and employed in school education programs.
- Slide cum tape forms can also be utilized by social welfare organizations for general public education.
- The teaching aid can be translated into many regional languages.
- Language independent teaching aid material can also be developed which would be interesting and extremely beneficial.

## EPILOGUE

Dear Friends,

Hope you all had a nice experience reading through this, like the character " Munna" each one of you should know about " Ear Care" and spread the message of "Ear Care" to your friends and relatives.

If the fire of curiosity and interest about causes and prevention of hearing loss is kindled in you after going through this vivid story, I would assume that my goal of developing this teaching aid has been achieved.

A final thought

**" Teach them young and you wont have to rehabilitate them later"**

Kindly contribute your valuable criticisms and suggestions to the Department of Audiology, All India Institute of Speech and Hearing, Mysore, Mysore - 570 006.

Thanking You  
**M9501**