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Comparative Study of Written Language Skills of Early Intervened and Late Intervened Children with Hearing Impairment

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Abstract:

The study examines the effect of intervention on the development of written language skills of the hearing impaired children. The sixty subjects had prelingual sensory neural hearing loss and are studying in Hindi medium schools in and around Mumbai. Their age range at the time of data collection are 10-15 years with school age at the range of 6-9 years. Children who were identified and intervened at the age range of 0-3.5 years were taken as early intervened and those who were identified and intervened at 5-9.08 years as late intervened. All of them studied in Special Schools for the Hearing Impaired. The written language samples were collected from these subjects for further analysis. The language triggering material consisted of ten picture description exercises. The collected data in terms of written language samples was analysed with the following aspects:

Types of Sentences

- Correct Sentences
- Repeated Sentences
- Sentences not Related to the Context
- Sentences with Errors
- Incomplete Sentences
- Non-interpretable sentences

The results and tables were edited and statistically analysed for frequency of occurrence and t test. The results were discussed within the frame work of Indian context. Appropriate recommendations were made.

1. Introduction

Language enables us to construct a framework for new concepts and for relating information to the old. It is unique to human beings. They are specially endowed with an innate capacity to acquire language. But in children the language acquisition device if not adequately activated due to the impairment, it affects the development of language. This leads to the lack of adequate language at an early age for interacting and socializing with other, which empower them to develop capacities for develop good personality. Language problems of a child with hearing impairment may reflect in his social, educational and psychological aspects. Therefore, it is the responsibility of the professionals to help the hearing impaired child to develop adequate language so as to develop a better personality.

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This requires identifying the hearing impairment and intervening at the earliest possible time, so as to optimize their language development, cognitive functioning and the

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networking between the two. Downs (1986) has asserted that no other group has more to gain from early identification than to those with hearing impairment. Delayed identification of hearing loss can negatively impact cognitive, emotional and social development leaving the child less equipped to face the world of school and later of work. However, early identification is not enough, it is just as vital to train the child. In Indian context frequently it happens that the child is identified early but the effective intervention programme is not available. Therefore a gap between identification and intervention becomes the key issue in deciding the development of fullest potentials of a child with hearing impairment. Therefore the present study compares the children using the parameters of intervention rather than identification itself. Present study uses written language samples to carry out this comparison.

2. Review of Literature

The review of literature therefore covers the two relevant areas which are, importance of early identification and intervention and analysis of written language skills of children with hearing impairment. A study done by Yoshinaga-Itano (1998) supports that early detection and treatment are crucial for the development of language. Accordingly, children who were identified and intervened before six months of age developed significantly better language skills than those whose impairment was identified and intervened later.

Levit and Mc. Garr (1988) suggests that if delay in identification and intervention is reduced the delay in development and deviation in linguistic behavior that may appear later can be minimized. Some researchers however do suggest that there exists no difference, like the study done by Weisel (1989). He studied the long-term effect of early identification and intervention of 106 hearing impaired children who were enrolled in special pre-schools between the age of one to five years. Results of the study failed to show any significant benefit of early identification and intervention.

The strong interlinks between language and reading/writing explains the difficulty deaf students experience in obtaining the adequate literacy skills. Therefore there is a need to assess 50 as to improve the literacy skills of children with hearing impairment. Literacy skills anyway play an important role in the educational environment and hence need serious attention. Yoshinaga-Itano, Snyder and May Berry (1996b) found that semantic development takes place rapidly than the syntactic development. Kelly (1988) compared deaf college students with age matched hearing students who were unskilled writers. He found that deaf students made more semantic and syntactic errors than hearing students. But fewer punctuation and spelling errors.

3. Significance Of The Study

Children with Hearing Impairment (CWHI) are at risk for serious literacy difficulties, that is reading and writing. Multiple factors influence overall literacy development. Degree of hearing loss, age of identification and intervention, amplification received, family background, etc. are contributing factors to attaining success in literacy. However the focus of the researcher is on the most controllable factor, which is age of intervention. Hence, the researcher aimed at finding out learning of written skills of students with hearing impairment studying in 5^{th} and 6^{th} standards in Special Schools for the Hearing Impaired in Mumbai. Learning here is referred to as measurable improvement in written skills over a period of one academic year. Written samples were selected from each for statistical analysis. The students

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were given one familiar and one non-familiar picture for writing descriptions during the start and at the end of the academic year. These samples were analyzed for Types of Sentences. The researcher found that the students could write about 3-4 analysable sentences on ten. They wrote all simple sentences, and made on an average 1-2 errors in a 3-4 word- sentence. children exhibited low ability in writing comprehensive text. Also, there was not much change seen in the scores at the end of the year. It indicates that learning of written skills expected over a period of one academic year did not happen as expected. This is a disheartening picture and demands serious and urgent attention. Hence the educational instructional strategies in Special Schools need to be genuinely looked into for better performance of CWHI.

4. Objectives Of The Study

The present study aims at comparing the Written Language skills of Early Intervened and Late Intervened Children with Hearing Impairment. Thus the specific objective is:

- To compare the Types of Sentences in Written Language skills of Early Intervened and Late Intervened Children with Hearing Impairment.
- To investigate which aspect of written language exhibits better language functioning of early intervened children
- To provide guidelines to classroom teachers on using analysis of sentences and error analysis.

5. Methodology

The present study intends to compare the written language skills of early and late intervened children with hearing impairment. The sixty subjects are prelingually sensory neural hearing impaired and are studying in Hindi medium schools for the hearing impaired. Their age range is 10.01 to 15 years with school age at the range of 5.06 to 9.06 years. Children who were identified and intervened at the age range of 0.9 to 3.05 years are taken as early intervened and those who were identified and intervened at the range of 5.02 to 9.08 years are considered to be late intervened. The language triggering material consisted of five picture description exercises and five speech balloon exercises.

The collected data in terms of written language samples of these subjects thus included five picture descriptions and ten dialogue boxes (of five speech balloon exercises) of each child. The total number of sentences written by the 30 subjects of early intervened group was 1202 (mean being 20.03). The sentences written by the 30 subjects of the late intervened children were 1236 (mean being 20.6). These sentences were analysed using the following parameters.

Type of Sentences

- Correct Sentences - C
- Repeated Sentences – R
- Sentences not Related to the Context – V
- Sentences with Errors – H
- Incomplete Sentences – P
- Non-interpretable sentences -Q

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5.1 Population And Sample

A sample of 61 SWHI were selected based on the following criteria:

- Age: SWHI between 10-15 years of age.
- Hearing Loss: All subjects selected had hearing loss of 85 dB or more in the better ear (PTA in frequencies 500Hz, 1KHz & 2KHz.
- Only the cases with hearing impairment with no other handicap were included in the study.
- Medium of Instruction: Subjects were studying in Hindi Medium.
- Intelligence Quotient: Children with average IQ were selected. No IQ test was specially performed for the present study. But the teacher's estimation on the basis of classroom functioning was considered for subject selection.
- Socio-Economic Background: The children selected were of average socio-economic background as per teacher's understanding and school records.
- School Age: The children selected has an average 5-9 years of schooling.

  Since the study is about two groups, 60 subjects as per the age of beginning of intervention were selected

Group A: This consisted of 31 CWHI who were identified early and given proper intervention. These children were in the age range of 10.01 to 15 years and a mean age of 11.86 years with a mean hearing loss of 101.13dBHL, in the better ear. Out of the 30 subjects 15 were boys in the mean age of 12.00 years with a mean hearing loss of 98.3dBHL in the better ear. The age of intervention of the subjects in this group ranged from 9 months to 3.05 years with the mean intervention age being 2.16 years.

Group B: This consisted of 30 CWHI who were identified late and admitted to special schools for the hearing impaired. These children were in the age range of 11.01 to 14.09 years and a mean age of 12.92 years with a mean hearing loss of 98.68dBHL, in the better ear. Out of the 31 subjects 20 were boys in the mean age of 13.14 years with a mean hearing loss of 96.80dBHL in the better ear. The age of intervention of the subjects in this group ranged from 5.0 to 9.08 years with the mean intervention age being 6.77years

Table1:Tabulation of Sample

Group	No of SWHI	Boys	Girls	Mean Age	Mean HL(dBHL)
A	31	20	11	12.92	98.68
B	30	15	15	11.86	101.13

5.2 Data Collection:

Preparation of Language Triggering Material:

Two types of exercises are carried out to collect the written language samples

- Picture Description Exercises
- Speech Balloon Exercises

25 pictures from children's story books were collected. Out of these five picture description and five speech balloon exercises were selected on the basis of the following criteria.Colourful

- Interesting
- Clear

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- Non-Animated
- Eventful-Having Potential For Creative Thinking
- Familiarity And Novelty
- Give Adequate Impression That The Characters Are Involved In A Conversation

5.3 Method of Administering the Picture Exercises

The pictures were shown to children in-group and were asked to write the responses on a separate sheet of single lined paper, which was provided by the researcher. The instruction given to the student was as follows, "there are four different pictures. On a given paper write few sentences describing each picture".

After giving instructions a demonstration on how to write on the paper was given. The children were asked to leave single line space after each sentence they wrote. Once again the instructions were repeated. The sequence of presenting the material was from familiar to novel.

5.4 Guidelines for Data Collection

- Number of children in a group while collecting the data was less than 9.
- Not more than two sessions were taken on a day.
- Sessions did not long for more than 40 minutes.
- Ten minute per picture was given to the subject to write.

6. Research Design

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine the relevance to the research purpose with economy in procedures.

The present study aims at comparing the Written Language Skills of Early intervened and Late intervened Children with Hearing Impairment. Since the study compare two groups the design is of pseudo experimental type. The two groups differing in their type of intervention were formed. The raw data collected were tabulated accordingly:

6.1 Treatment of Data

After the administration of the exercise the collected papers were ordered according to the name of the student and the number of pictures

The next step done was

a) Editing

The raw data collected were edited to detect errors and omissions to correct those if possible. For eg: If the child had not written the number of the picture, it was written down.

b) Classification and Coding Segments

The sentences were then classified and codes were assigned to them. Two seven column tables were prepares which represented the relevant aspects of the study. The raw score was tabulated by drawing separate tables for each group.

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Table 2: Format for Tabulation of Raw Data

GROUP A

Name	Types of Sentences					
	C	H	P	Q	R	V

GROUP B

Name	Types of Sentences					
	C	H	P	Q	R	V

The following parameters and codes were assigned to them

6.2 Categorization of Sentences

The sentences were categorised into six groups and were marked with appropriate symbol using green colour.

a. Correct Sentences were marked as -'C'.
eg: Sonu likes chocolates.
b. Sentences with Errors as-'H'
eg: Capseller being selling caps..
Reconstructed sentence- The capseller is selling caps.
c. Incomplete Sentences were marked as – 'P'
eg: Tree man sit
Reconstructed sentence- The man is sitting on a tree.
d. Non-interpretable Sentences as- 'Q'
eg: Building women diety.
e. Repeated Sentences as – 'R'
f. Sentences not related to picture as -'V'

6.3 Operational Definitions

Incomplete Sentences (P): A sentence whose appropriate verb was present was considered a complete sentence.

Correct Sentences (C): A sentence where the subject, object and verb where in appropriate positions and were present appropriately were considered a Correct Sentence.

Non-interpretable Sentences (Q): A sentence which was unable to be interpreted at any level either by rearranging or substituting or adding the term was termed as non-interpretable sentence.

Sentences not Related to the Picture(V): A sentence which the subject has written which has no relation with the picture shown for eliciting the response was termed as Sentences not Related to the Picture.

SWHI are known to use carrier phrases excessively. These carrier phrases repeatedmore than thrice were not considered. They were given a square frame with blue colour.

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During the process of data help of the panel of judges was taken since Hindi is not the mother tongue of the researcher. This panel comprised of five teachers who taught Hindi as a subject in various schools.

6.4.Data Analysis and Interpretation

The data were entered in computer using dBase package and were analysed using SPSS package. Simple frequency tables, cross tables and 't' test were used for statistical analysis of the data. In order to find out whether there is any difference between SWHI in Special and Inclusive Schools on various aspects of written language following statistical analysis was carried out.

't' Test Analysis

- Correct Sentences of Group A and B.
- Repeated Sentences and Sentences not Related to Picture of Group A and B.
- Sentences with errors of Group A and B.
- Incomplete Sentences and Non-interpreted sentences of Group A and B.

Frequency Occurrences

- Types of Sentences of Group A and B.
- Correct Sentences and Sentences with Errors of Group A and B.
- On the basis of the results the hypothesis were either accepted or rejected. The results were discussed and justified for all parameters.
- To compare the Types of Sentences in Written Language skills of Early Intervened and Late Intervened Children with Hearing Impairment.
- To compare the error types in the Written Language skills of Early Intervened and Late In
- To compare the punctuation errors in the Written Language skills of Early Intervened and Late Intervened Children with Hearing Impairment.
- To investigate which aspect of written language exhibits better language functioning of early intervened children
- To provide guidelines to classroom teachers on using analysis of sentences and error analysis.

6.5 Results and Discussion

The present study was aimed at examining the Written Language skills of Early Intervened and Late Intervened Children with Hearing Impairment on the parameters given below:

Types of Sentences

- Correct Sentences - C
- Repeated Sentences – R
- Sentences not Related to the Context – V
- Sentences with Errors – H
- Incomplete Sentences – P
- Non-interpretable sentences – Q

Type of Errors

- Substitution
- Omission

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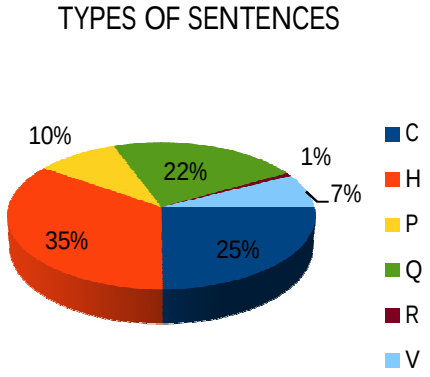
- Distortion
- Addition
- Use of Punctuations

The mean and standard deviation of all parameters in both the groups have been calculated .The difference in any between the groups on each parameter listed above was determined using t-test.

1. Types of Sentences

As seen in the pie diagram no 1 and 2 sentences are of six types.



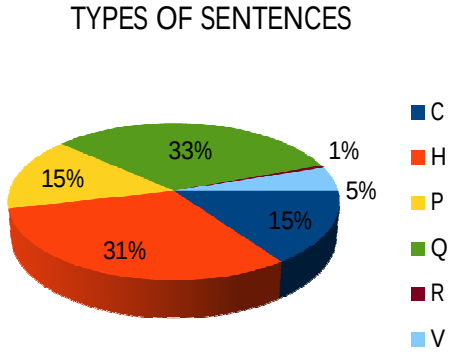


Figure.1 Pie diagram showing Types of Sentences of Group A **Figure.2** Pie diagram showing Types of Sentences of Group B

The categorization of sentences into six types can also be seen as positive and negative measures.Sentence type C, (Correct Sentences) can be taken as positive measures which means, more number of correct sentences indicate better language. On the other hand sentence types P, Q, R and V (incomplete sentences, non-interpretable sentences, repeated sentences and sentences not related to the picture) can be taken as negative measures. More number of theses sentences indicate 'poor' language. As can be seen from the pie diagrams the number of sentences indicating negative measure is higher-although not statistically significant in group B. Sentences with errors (H) can be treated as both positive and negative nature. In this sense sentences with errors are better than sentence types P, Q. R and V. But worse than correct sentences.

A) Correct Sentences:

The values of mean, standard deviation, 't' and 'p" for correct sentences of Group A (Special School) and Group B (Inclusive School) are shown in table 2.

Table 3:'t' Test Analysis- Correct Sentences

Variable	Groups	N	Mean	S.D	T calculated	'df'	't' at 0.05	't' at 0.01	Result
Correct Sentences	Group A	30	6.9	8					Not

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	Group B	30	4.2	5.4	1.54	58	0.129	0.64	Significant

To find out whether there is statistically significant difference in mean 6.9 of Group A and 4.2 of Group B. 't' Test was applied. 't' value calculated is 1.54 for the degree of freedom 58. Since the p-value 0.64 for the calculated 't' value (at 0.01 level of significance) is greater than 0.05, the obtained 't' value is not statistically significant.

Hence the hypothesis 1.a,**"***The number of correct sentences in the written language samples of Early Intervened Children with hearing impairment is greater than that of the written language sample of Late Intervened Children with Hearing Impairment***"**is not retained.

As seen from the analysis done above the performance of early intervened CWHI is no way different from Late intervened CWHI.

Early intervened students could produce same number of Correct Sentences as that of Late intervened CWHI. This shows the depth of linguistic problems of CWHI in general, whether early intervened or late intervened. Even if the children are late intervened there is no significant difference in their performance. This points to the fact that the quality of the educational program needs to be discussed. No difference in the two groups has suggested that even early intervened CWHI are learning the language rather than acquiring it. Both the groups face similar linguistic problems which make them unable to write grammatically correct sentences. CWHI are always known to commit errors like involving markers related to gender, number, person, case, tense, aspect and the concord. Typical written language samples of these children are full of errors related to these linguistic aspects. The qualitative and quantitative nature of the errors committed by these children is discussed ahead as a part of the error analysis. However it could be noted here that both the groups have performed poorly in terms of number of correct sentences as shown in pie diagrams 1 and 2.

B) Sentences not Related to Picture and Repeated Sentences

Same holds good with the other two parameters which are sentence not related to the picture and repeated sentences. Although the number of these sentences are very small, it denotes equal level of performance between the two groups as suggested in the following table

The values of mean standard deviation 't' and 'p' for repeated sentences and sentences not related to picture of Group A and Group B are shown in table 3.

Table 4: 't' Test Analysis: Repeated Sentences and Sentences not Related to Picture

Variable	Group	N	Mean	S.D	't' Calculated	'df'	'p' at0.05	'p' at 0.01	Result
Repeated Sentences	Group A	30	0.067	0.25	0.584	58	0.561	0.28	Not Significant
	Group B	30	0.033	0.18					

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Sentences not Related to the Picture	Group A	30	1.2	2.4	-0.430	58	0.669	0.334	Not Significant
	Group B	30	1.4	1.8					

In order to find out whether the observed difference in mean value 0.067 of Group A and 0.03 of Group B for the number of repeated sentences is statistically significant or not 't' Test was applied.

The obtained 't' value is 0.584. The corresponding 'p' value at degree of freedom 58 for 0.01 level of significance is 0.280 which is greater than 0.05 showing that the obtained 't' value is not statistically significant.

Therefore the hypothesis 1b., *"The number of repeated sentences in the written language samples of Late Intervened Children with hearing impairment is greater than that of the written language sample of Early Intervened Children with Hearing Impairment"* is not retained.

In order to find out whether the observed difference in mean value 2.4 of Group A and 1.8 of Group B of sentences not related to picture is significant or not 't' test was applied.

The obtained 't' value is -0.430. The 'p' value at degree of freedom 58 for 0.01 level of significant is 0,334 which is greater than 0,05, the level of significance. This shows that obtained 't' value is not statistically significant.

Therefore the hypothesis 1c., that *"The number of sentences not related to the picture in the written language samples of Late Intervened Children with hearing impairment is greater than that of the written language sample of Early Intervened Children with Hearing Impairment*" is not retained.

The values of mean, standard deviation, 't' and 'p' for sentences with errors of Group A and Group B are shown in table 4.

Table 5: 't' Test Analysis: Sentences with Errors

Variable	Groups	N	Mean	S.D	'p' calculated	'df'	'p' at 0.05	'p' at 0.01	Result
Sentences with Errors	Group A	30	18.6	11.2	1.70	58	0.095	0.047	Significant difference
	Group B	30	13.7	11.1					

In order to find out whether there is any statistically significant difference in mean (18.6 of Group A and 13.7 of Group B), t test was applied. 't' value calculated is 1.70 for degree of freedom 58. The corresponding 'p' value at 0.05 level of significance is 0.095 at 0.01 level of significance. The obtained 't' value is statistically significant.

From the 1-tail probability calculated it was found that Group A with a mean of 18.6 had more sentences with errors than Group B with a mean of 13.7.

Hence the hypothesis 1d., that is *"The number of sentences with errors in the written language samples of Late Intervened Children with hearing impairment is greater than that of the written language sample of Early Intervened Children with Hearing Impairment"* is

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not retained.

As can be seen from the analysis. The number of sentences with errors is found to be more in Special School Group. This is not surprising if the parameters like productivity of language and correctness of language are seen together. Following table need to be seen in this regard.

Table 6: Frequency occurrence: Correct Sentences and Sentences with Errors

Groups	Sentences with Errors (H)	Correct Sentences (C)	Total
Group A	535	208	743
Group B	411	127	538

As seen here, in terms of productivity of the language (measured in number of correct sentences and sentences with errors) SWHI in Special Schools has performed better,

Presence of errors in any written language sample can be seen from two points of view. Negative point of view suggests that the presence of error means linguistic inability. On the other hand, sentences which consist of errors but serve the purpose of communication can be seen as ability to communicate. In this sense if the students in Special Schools have come out with more number of sentences with errors, this may also mean that their performance is better than Group B, who have failed even in producing sentences with errors. Therefore the language sample of SWHI in Inclusive School consists of more number of incomplete, non- interpretable sentences, sentences not related to picture and repeated sentences as seen in pie diagrams 1 and 2.

These sentences show much serious linguistic problems than the sentences with errors. In this sense students in Special Schools have proved to be having better language abilities than those in Inclusive Schools. Following tables can be seen in the light of above discussion. The values of men, standard deviation, 't' and 'p' for incomplete sentences of Group A and Group B are in table 6.

Table 7: 't' Test Analysis: Incomplete Sentences and Non-Interpretable Sentences.

Variable	Group	N	Mean	SD	't' calculated	'df'	'p' at 0.05	'p' at 0.01	Result
Incomplete Sentences	Group A	30	1.7	3.1	-2.5	46.3	0.015	0.007	Significant
		30	4.5	5.4					
Non-Interpretable Sentences	Group B	30	12.3	7.2	-2.0	48.4	0.053	0.026	Significant
		30	17.3	11.7					

To find out whether there is statistically significant differences in mean 1.7 of Group A and 4.5 of Group B, 't' Test was applied. 't' value calculated is '-2.5'. since the 'p' value 10.007 for calculated 't' is less than 0.05 it is found that the calculated 't' value is statistically significant.

Hence the hypothesis 1e., that is,**"***The number of incomplete sentences in the written language samples of Late Intervened Children with hearing impairment is greater than that of the written language sample of Early Intervened Children with Hearing Impairment"*is retained.

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The value of mean, standard deviation, 't' and 'p' for Non-Interpretable sentences of Group A and Group B are in table

't' value calculated is -2.0 for the degree of freedom 58. since the 'p' value 0.026 for the calculated 't' is less than 0.05 at 0.01 level of significance, the calculated 't' is found to be statistically significant.

From the 1 tail probability calculated it was found that the students in Inclusive Schools with a mean 17.3 had larger number of Non-Interpretable sentences than that of Students in Special Schools with a mean 12.3.

Hence the hypothesis 1f., stands accepted that *"The number of Non-Interpretable sentences in the written language samples of Late Intervened Children with hearing impairment is greater than that of the written language sample of Early Intervened Children with Hearing Impairment "is not retained*.

Language sample of CWHI often consists of non-sentences Mykle bust, 1965) these sentences include sentences which are incomplete (sentences without verbs). Non-Interpretable Sentences are also labelled as Non-Sentences from semantic point of view since no meaning can be derived from such a sentence. These sentences appear to be collection of words which are not rule governed. More number of these two type of sentences therefore suggest 'poor language'. These have to be looked into more seriously because although sentences with error suggests grammatical inadequacy the communication does not take place. On the other hand, with these two types of sentences, the language fails in its primary function-communication. It is therefore no surprise that the students in Special Schools performed better on this measure. 't' test analysis was also done for overall difference between the two groups in terms of sentence type. Following are the results

Table 8:'t' Test Analysis: Type of Sentences

Variable	Group	N	Mean	S.D	't' calculated	'df'	't' at 0.05	't' at 0.01	Result
Type of Sentences	Group A	30	39.03	19.2	-1.462	58	2.00	1.671	Significant
	Group B	30	34.57	28.5					

In order to find out whether that observed difference in mean value 39.03 of Group A and 34.57 of Group B for Sentence types is statistically significant or not 't' test was applied. The obtained value is -1.462. The corresponding 't' table value at the degree of freedom 58 for 0.05 level of significance is -2.00 showing that there exists a significant difference in the performance of the two groups. Since there exists a significant difference to find out which group performed better 't' value at 0.01 level of significance was calculated. The critical 't' value at 0.01 level of significance is 1.671 showing that group A with a mean of 39.03 had performed better in the parameter -Types of Sentences.

There fore the hypothesis 1,*"In terms of type of sentences in the written language samples of Early Intervened Children with hearing impairment is greater than that of the written language sample of Late Intervened Children with Hearing Impairment"*is Retained.

As mentioned earlier, Students in Special Schools develop language in various ways. Although we advocate early intervention, the various techniques used by teachers in special schools must have helped the students attain better language proficiency. Even though as per data it is visible that the students probably have not benefited by the fullest utilization of the

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specialized provisions for learning, but certainly the increased span of intervention time in Special Schools have resulted in better performance.

7. Recommendations:

The exercise further developed can serve as an effective model tool for both diagnostic and therapeutic purposes. An effective utilization for formative, summative and functional level of usage for the respective audience is recommended. It is hoped that the use will enable the teachers to find the intricacies linked to writing and will help bridge in between. Based on the study findings and conclusions, the following recommendations have been made:

- It is recommended that teachers for CWHI should be frequently inducted on strategies for teaching writing and projects that could be used to improve writing.
- Teachers need to develop empathy towards CWHI so that they design activities, and strategies that ensure that these students learn the subject under study.
- The teachers on the other hand are also recommended to make use of this respective tool while developing IEP's for writing instructions.
- The applicability of the exercise should also be verified on a larger group of students with writing challenges in lower grades.
- Further, a study in line with this effort should be carried out with a different age group and a wider sample.

Finally, it is recommended that a computer based software may be developed in line with the prescribed elements of this exercise. Likewise, a mobile app location may also be handy with these credentials for a friendly assessment and functional use of writing. The examples of such functional writings may include sending emails, making notes, reminders and communicating through social media.

8. Conclusion:

The raw score was tabulated and statistical analysis of 't' test was carried out to see whether there exists any significant difference between the two groups.

	Variable	Sub-Parameter wise Result	Overall Result
Types of Sentences	Correct Sentences	No Significant Difference	Early intervened children with hearing impairment performed Better
	Sentences with Errors	Early intervened children with hearing impairment performed Better	
	Incomplete Sentences	Early intervened children with hearing impairment performed Better	
	Non-Interpretable sentences	Early intervened children with hearing impairment performed Better	
	Repeated Sentences	No Significant Difference	
	Sentences not Related to Picture	No Significant Difference	

As expected Early intervened children performed better in parameters like Sentences

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with Errors, Incomplete Sentences and Non- Interpretable Sentences. However the parameters where the difference was not seen like Correct Sentences, Sentences Related to Picture, Repeated Sentences need some serious discussion. This could be basically due to the advances age of the subjects at the time of data collection. It is known that the magnitude of language problem increases as the age advances. It could also be stated here that the quality input of intervention program may matter more than the age itself.

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