

*Appraisal of Physical Environment of Special
Schools for Children with Hearing Impairment
in Mysore*

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Register No. 07MSED02

*A Dissertation Submitted in Part Fulfillment of Degree of Masters
of Special Education (Hearing Impairment) University of Mysore,
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APRIL 2008*

Certificate

This is to certify that this dissertation entitled '**Appraisal of Physical Environment of Special Schools for Children with Hearing Impairment in Mysore**' is a bonafide work in part fulfillment for the degree of master of special education (Hearing Impairment) of the student Register no. 07MSED02. This has been carried under the guidance of a faculty of this Institute and has not been submitted earlier to any other university for the award of any diploma or degree.

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Declaration

This is to certify that this master's dissertation entitled '**Appraisal of Physical Environment of Special Schools for Children with Hearing Impairment in Mysore**' is the result of my own study and has not been submitted earlier to any other university for that award of any degree or diploma.

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April, 2008

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE NO.
I	INTRODUCTION	1 - 6
II	REVIEW OF LITERATURE	7 - 13
III	METHOD	14 - 24
IV	RESULTS AND DISCUSSION	25 - 36
V	SUMMARY AND CONCLUSIONS	37 - 39
	REFERENCES	40 - 44
	APPENDICES	i - viii

LIST OF TABLES

S.NO	Title	Page No.
1	Table 3.1: Areas and Number of Statements	18
2	Table 3.2: Judges' Responses for the Checklist of Teachers.	19
3	Table 3.3: Areas and no. of Statements under each Area after Judges' Approval	20
4	Table 3.4: Experts' Responses for Draft Checklist of Teachers:	21
5	Table 3.5: Experts' Suggestions Related to the Information about Teacher to be Collected	22
6	Table 4.1: Average and Average Percentage Scores of 10 Teachers of Special school 1	26
7	Table 4.2: Average and Average Percentage Scores of 8 Teachers of Special school 2	28
8	Table 4.3: Average and Average Percentage Scores of 7 Teachers of Special school 3	30
9	Table 4.4: Average and Average Percentage Scores of 12 Teachers of Special school 4	32
10	Table 4.5: Consolidated Average Percentage of all 4 Special Schools	34
11	Table 4.6: Consolidated Raw Scores (Chi-square) of 4 Special Schools	34

LIST OF FIGURES

S. No.	Title	PageNo.
1	Figure 3.1: Framework of Steps in Preparing the Checklist	15
2	Figure 4.1: Average and Average Percentage Scores of 10 Teachers of Special School 1	26
3	Figure 4.2 :Average and Average Percentage Scores of 8 Teachers of Special School 2	28
4	Figure 4.3: Average and Average Percentage Scores of 7 Teachers of Special School 3	30
5	Figure 4.4: Average and Average Percentage Scores of 12 Teachers of Special School 4	32
6	Figure 4.5: Consolidated Percentage of all 4 Special Schools in Mysore	35

CHAPTER I

INTRODUCTION

"The Physical environment of the classroom is not the determining factor in child's learning, but it can enhance or limit learning". (Lorton, 1979)

Environment is the space which includes the size, division, appropriateness, arrangement of the space and safety. Environment plays an important role in the overall development of the child. It influences emotional well being, socio-moral development and learning of the child. Environment covers all the outside factors which acted on the individual since he began life (Woodworm & Marquis, 1948). Environment can affect how children learn, how content they feel, and how they interact with each other.

The environment affects everything of an individual except his genes (Boning, Lang field & Weld, 1961). The Physical environment has an influence on children that can be positive or negative. It serves functional needs for educational activities and influences development and well being of the child. Hence, a well-designed environment is required to promote emotional well being, pro-social behavior and intellectual growth.

The Environment in which teaching and learning activities are carried out and where students formally learn is usually termed as 'School'. School is an important place of learning as the child spends most of his life's foundation years. Teaching and learning activities can be effective and meaningful in an appropriate environment. The environment which the administrator, the teacher and the architect create: the great teaching machine called school building must receive due importance (Birch &

Johnstone, 1975). Schools are instructional space for both students and teachers. The physical environment of school consists of various types of furniture for the children and the staff, library with suitable books, laboratory, computer lab, staff room, office room, equipment room, playground, facilities of water, toilets, equipments like audio-visual materials, laboratory equipments and other materials (Teaching and Non-Teaching) for learning, recreation and skill development etc.

Children are constantly in interaction with the physical environment of their schools during structured or unstructured time, consciously or unconsciously. According to Fowler (1980), each setting has its own dimensions and boundaries that determine the direction and range of learning available and he mentions about three conditions of the physical and human world: behavior, dependency and arrangement of the space which can greatly help or hinder young child's learning.

Often classrooms are overcrowded, with no alternative space to learn, and are not attractive. Impoverished classrooms, lack of sunlight and air, sparse furniture, harsh, restricted and uncomfortable atmosphere spells punishment. They cannot lay good foundation for learning. Such environments may drastically affect the teachers' productive output and classroom management. Young children with special needs can learn independence and acceptance, or dependence and exclusion, depending in large part on the physical environment. (Slentz & Krogh, 2001).

Well-planned buildings would help in facilitating learning. But it is difficult to define the characteristics of the space within which children can learn most easily. The child can learn effectively if he is comfortable. The learning environment must be

shaped in such a way to support the effort of the teacher, but above all, it must be designed to stimulate and support the efforts of the children with special needs (Birch & Johnstone, 1975). That means teaching-learning space for a child should be made comfortable and friendly, where he can feel secure and safe, free of tension that may affect his/ her learning.

The school where the child is involved in learning, the whole school building indoors and outdoors, perceptions of parents and teachers must be given importance. The perception and consideration of the critical relationships between a building and its surroundings and the people who use it or are affected by it must be emphasized (Birch & Johnstone, 1975). Yet not enough attention is paid to the importance of physical environment for learning. According to Fowler (1980), even with the best caregiver intentions, barren environments leave perceptions and understanding shallow and dwarfed, dampening knowledge of how to do things, and to develop that knowledge.

According to Ewing (1957), the function of a school for children with hearing impairment is basically the same as that of a school for children with normal hearing. The design of the two types of school must have the common aim of providing a pleasant, attractive building that generates an atmosphere in which children and teachers can work efficiently. But the learning experiences for children with hearing impairment are often different from the learning experiences for typically developing children. As Cruickshank and Query have said, "few school buildings are conceptualized, designed, and constructed to meet the learning needs of the children for whom the structures were intended".

An acoustically good environment is required to provide conditions in which useful sounds can be heard clearly and noise can be suppressed. According to Maltby & Knight (2000) Speech intelligibility is greatly affected by noise and reverberation and most schools provide an acoustically hostile environment that affects hearing aid users in teaching-learning process. The physical environment into which a hearing impaired child is integrated is found to have considerable influence on his/her speech perception (Hotgast, 1981; Nabelak & Mason, 1981).

Need for the Study

Today when so much of development is being made in other sectors with the growing concepts of globalization, till date many existing special schools still remain models of poor planning in terms of facilities, teaching-learning activities etc., despite appropriate funds allocated by the Government. According to the NSSO reports of 2002, 6% children in the educable range of 5-14 years are hearing impaired. The directory of AYJNIHH reports that there are about 550 special schools for children with hearing impairment in India. Though the numbers of special schools are in good number, the literacy rates of persons with hearing impairment are discouraging. According to the NSSO report of 2002, the estimated literacy rates of persons with hearing impairment are 23.3 % up to primary, 6.3 % up to middle, 4.4 % up to secondary and above.

There may be many reasons and one of the main reasons could be either no planning or poor planning of the educational space of children with hearing impairment, as there are no guidelines to plan. According to Mesibov and Howley (2003), all schools should be working towards potential barriers to learning in order to provide opportunities

for pupils to access the curriculum. The influence of physical environment in special schools needs to be assessed from time to time to improve and sustain its quality. Hence, an appropriate approach is required that would lead to suggestions for improvement.

The Persons with Disabilities (Equal opportunities, Protection of rights and Full participation) Act of 1995, promises of liberating mankind of its prejudices and also promises to remove the barriers that have crippled the disabled for centuries. The act spells out equal educational opportunities to the disabled along with their able counterparts and that it endeavors to ensure that every child with disability has access to free education in an appropriate environment till the age of 18 years.

Assessment of physical environment helps the school to know their areas of strengths and weaknesses that in turn helps the school personnel to identify the areas where improvements can be made. It helps in making requests for more resources to be granted accompanied by evaluative evidence. It also helps in making special schools of children with hearing impairment, a better place for teaching-learning activities. Even though it is ideal to concentrate on all aspects of physical environment of the school, only those fundamental, vital and peculiar areas would be concentrated in the present study.

There are hardly any tools available to assess the physical environment of special schools for children with hearing impairment in Indian context. Hence an attempt is made hereby to prepare a checklist that can assess the physical environment of special schools for children with hearing impairment that can help to identify schools' strengths and weaknesses and to guide action where improvement is needed.

Objectives of the Study:

1. To prepare the checklist to assess the physical environment of special schools for children with hearing impairment in Mysore.
2. To administer the checklist in special schools for children with hearing impairment in Mysore in order to see the utility and appropriateness of the tool.
3. To give the 'order of importance' for improvements to be made.

Operational definitions:**Children with hearing impairment**

Children with hearing impairment are those who have hearing loss of 60dB or above in the better ear in the conversational range of frequencies and who attend special schools for hearing impaired.

Special schools

Special schools are the schools catering to the rehabilitation of children with hearing impairment including educational rehabilitation.

Checklist

A Checklist is a simple device developed by the researcher for teachers. It consists of statements and two options 'Yes/' 'No' to indicate the presence or absence of the relevant item mentioned.

Physical environment

The physical school environment in the present study included the school building and all its contents like equipments, furniture, the site on which the school is located and the surrounding environment including various facilities and materials which are used by children, roadways and other hazards.

CHAPTER II

REVIEW OF LITERATURE

"Each and every environment has distinctive characteristics that influence 'what' and 'how' the child learns ". (Fowler, 1980)

Education has a very significant value in lives of human beings whether abled or differently abled. Everyone has a right to learn and imbibe many things. It can be from family, surroundings, friends, school, teachers etc. From time immemorial, education has its own charm in different perspectives. It is true to say that without education there would have been no progress and development. As the time progressed, formal learning is taking place in a space called 'School' and the environment in school has a greater impact specifically and generally that started influencing the thoughts, ideas and actions of human beings in some way or the other.

Environment

Environment covers all the outside factors that have acted on the individual since he began life (Woodworth & Marquis, 1948)

According to Slentz & Krogh (2001), environmental issues include the size of the space, the way the space is divided for varying activities, the appropriateness and sufficiency of furniture and materials, environmental safety, the appropriateness of the environment to the ages of the children it serves, and the attention given to coordinate the indoor and outdoor settings.

Physical Environment and Schools

The Physical environment into which a hearing-impaired child is integrated is found to have considerable influence on his/her speech perception (Houtgast, 1981; Nabelek & Mason, 1981).

According to Cheng (1994), school internal environment is the context of learning that consists of the physical environment and psychological environment. The physical environment of the school and classroom includes facilities, space, lighting, ventilation, desks and chairs, and air pollution, etc that provide safety and comfort to promote learning and student development.

Heward & Oralansky (1984) define special education as the individually planned and systematically monitored arrangement of physical setting, special equipments and materials, teaching procedures and the other interventions, designed to help exceptional children achieve the greatest possible personal sufficiency and academic success.

Beare & Slaughter (1993) define 'good schools' for the twenty first century with features such as in good schools, it is safe for student to be curious, to play with ideas, to experiment and to make mistakes.

The Assessment of committee on basic education as cited in Aggarwal (1965) mentions the requisites of a school such as adequate craft equipment and repair materials, recreational environment and the school environment. There should be minimum land available, according to local conditions with water facilities, library with suitable books and a place to organize various activities.

Physical environment includes various aspects like noise levels in the school zone, furniture, equipments used, maintenance of various rooms in the schools and other facilities like library, playground, laboratory etc.

Noise

It is a well established fact that in the presence of noise both normal hearing and hearing-impaired individuals have difficulty in understanding speech. This difficulty is more pronounced for those with hearing impairment (Ross, 1978).

Research has shown that a child with a hearing loss has greatly different understanding of normal conversation in even moderately noisy environments (Finitzo-Heiber& Tillman, 1978).

According to Maltby and knight, (2000) speech intelligibility is greatly affected by noise and reverberation and most schools provide an acoustically hostile environment that affects hearing aid users in teaching - learning process.

The combined effect of room noise and a highly echoic room is even more debilitating than would be predicted by assessing the contribution of each variable separately (Finitzo-Heiber& Tillman, 1978).

Reverberation and noise in the hearing impaired child's environment by proper acoustic treatments of classrooms and learning environments. Such treatment can often be attained rather inexpensively by proper use of curtains, rugs and acoustic tile (Beranek 1954).

Building

The environment which the administrator, the teacher and architect create: the great teaching machine called school building must receive due importance. (Birch and Johnstone, 1975).

The perception and consideration of the critical relationships between the buildings and its surroundings and the people who use it are affected by it and must be emphasized (Birch and Johnstone, 1975).

Instructional Space

Classroom environment may interact with students' personal characteristics and affect their learning attitudes and behavior (Lewin 1943).

In classroom a class teacher (or class master) often plays the role as a leader while students play the role as followers (Machr 1990).

Basic care and hygiene

"The children of today are the adults of tomorrow. They deserve to inherit a safer and healthier world. There is no task more important than safeguarding their environment." This message is emphasized by the Healthy Environments for Children Alliance (HECA), which focuses attention on the school environment as one of the key settings for promoting every child's environmental health. WHO (2003)

An Essential Component of a Health-Promoting School includes information to create a healthy school environment, and to identify and modify aspects of the physical environment that jeopardize safety and health. WHO (2003).

Facilities

Regarding outdoor spaces, adventure-type playgrounds have been found to be associated with more cognitive play while neighborhood play settings are associated with more social play (Moore, Burger & Katz, 1979).

Role of Teacher

"Teacher is a real maker of history ". Wills (1965)

In schools, the most important persons are students, parents, teachers and administrators as they are beneficiaries and the actual service providers. They are continuously associated with the school and its development. Among them teachers are given the most important place.

The University of Education Commission (1948), "No teacher who is not a matter of the field, who is not in touch with the latest development in his subject & who does not bring to bear upon his duties a free and untrammelled mind will never succeed in inspiring youth with the love of truth which is the principal object of all higher education".

Hull & Dilka (1984) mentions the role of the special educator of the children with hearing impairment as having good relationships with all classroom teachers, administrators, nurses, librarian and other support personnel. Maintenance of good public relations with other schools (public or private) and community agencies for hearing impaired persons increases the flow and exchange of materials and information

Different scales developed in assessing educational environments

Shavelson and Stern (1981) agreed that the teaching occurs in the very complex environment which requires both frequent and comprehensive assessment of learning environment.

Four environment indexes, based on Murray's Need-Press Model, were developed as reported in Pace & Stern, (1958), Stern, (1970).

- (a) The college characteristic Index
- (b) The high school characteristic Index
- (c) The Evening College Characteristic Index
- (d) The Organizational Climate Index.

Physical Environment has a very important role to play in education of the child. Especially, it is true with children who are differently abled. Special schools for children with hearing impairment need to have an access for least restrictive and barrier free environment. Even though there are 550 special schools in India according to AYJNIHH

directory, it is strange to note that the literacy rate is decreasing among these children. There can be many, many reasons for their poor performance but one of the reasons could be poor physical environment despite proper allocation of funds by the government.

Even though many scales have been discussed in the literature above, none of them hardly suites to be administered in the Indian context and Special schools in India. Hence an attempt is hereby made to prepare a tool to assess the physical environment of Special schools for children with hearing impairment.

CHAPTER III

METHOD

The present study 'Appraisal of the physical environment of special schools for children with hearing impairment in Mysore'. The research design used for the study is a 'Cross-sectional survey design'. The study was conducted in two phases. First phase included preparing the checklist and the second phase included administering the checklist on the teachers. The steps in preparing the checklist are outlined below:

Phase I

Step 1: Outlining the framework of the checklist

Step 2: Selection of Areas / Domains for Inclusion in Checklist

Step 3: Framing the statements under each area and Field reconnaissance

Step 4: Preparing the checklist

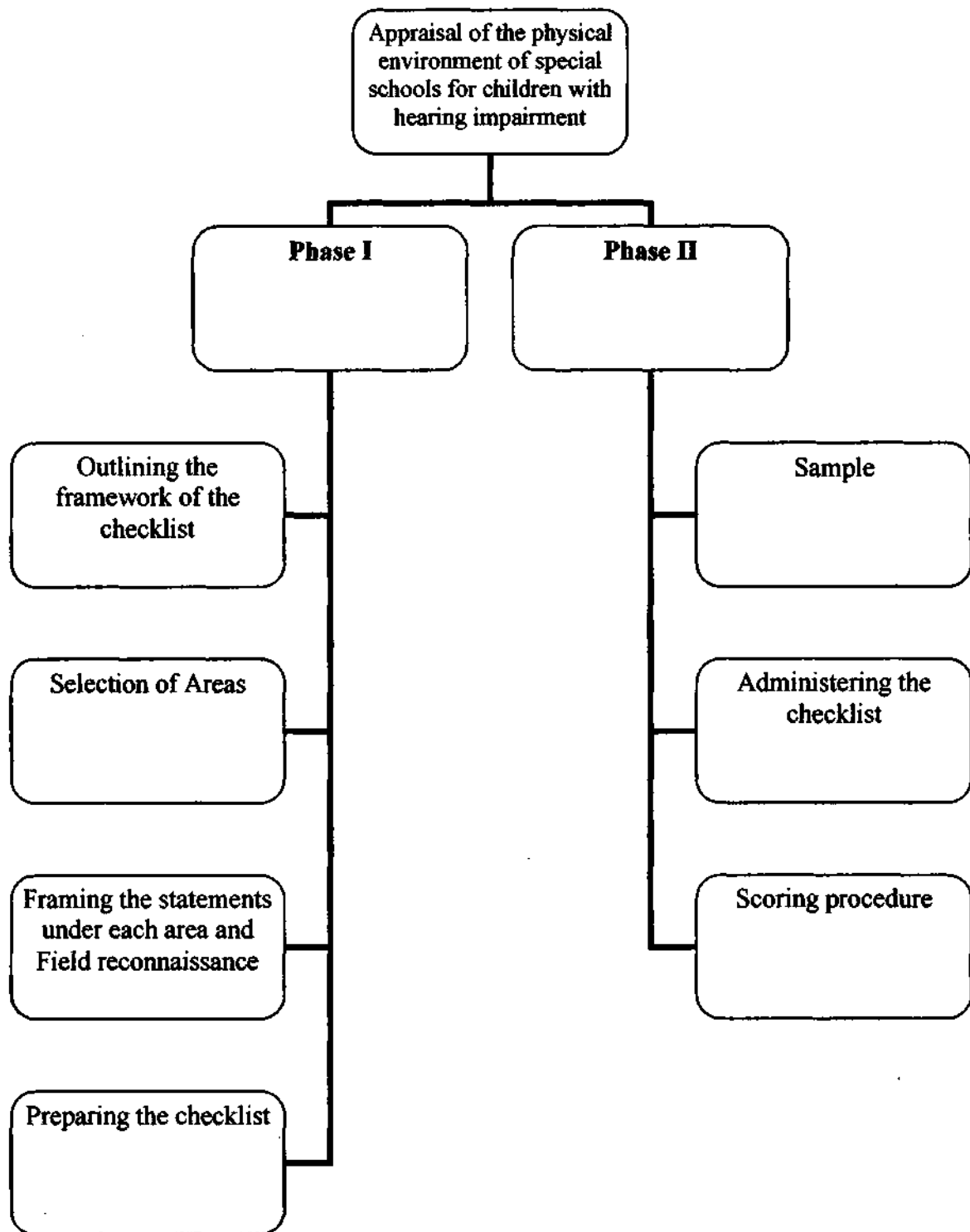
Phase II

Step 1: Sample

Step 2: Administration of the checklist

Step 3: Scoring Procedure

Figure 3.1: Framework of steps in preparing the checklist



Phase I

Step 1: Outlining the framework of the checklist

For the present study 'Physical environment' of the special schools was decided to be measured in terms of different areas, consisting of different statements under each area.

Step 2: Selection of Areas / Domains for Inclusion in Checklist

The second step involved identifying the areas to appraise the physical environment of the special schools. The areas selected were as follows:

1. Noise: Noise is the unwanted and unpleasant sounds produced within the school or from outside of the school which disturbs the teaching-learning process very often.

(For example: Rail, Road, Aircraft, kitchen sounds etc)

2. Location: Location of the school is important because it has direct influence on teaching- learning process. Location of a school has a crucial role in special education especially for children with hearing impairment. The teachers, parents, outsiders, students every one are influenced by it. *(For example: Bus facility, Auto facility etc)*

3. Building: Even though Building of the special school is hardly important. Its construction, sound absorption features definitely has a great impact in the learning process of children with hearing impairment. *(For example: The walls of the school building are thick & strong providing for sound absorption)*

4. Instructional space: Instructional space refers to Classrooms. Classrooms in the school play a very important role. The appearance, the maintenance and the arrangement of the classrooms has a direct impact on teaching-learning process of

children with hearing impairment. (*For example: for display of teaching learning materials like charts, models etc to promote aesthetic sense.*)

5. Basic care & hygiene: The safety, the cleanliness and maintenance of all the regularly used places in the schools are important which has a direct impact on health of the children especially in schools where children spend most of their time. (*For example: Toilets thoroughly cleaned regularly*)

6. Furniture & Equipments: The furniture & equipments have a direct impact on teaching-learning process especially in special schools for children with hearing impairment. (*For example: The school provides for 'Group hearing aids' working in good condition like F.M system, Induction loop system etc.*)

7. Facilities: These facilitate the smooth functioning of all activities in the school. They promote enthusiasm in carrying out the activities and retain the interest (*For example: Laboratory facilities, Library, Computer lab facility*)

Step 3: Framing the statements under each area and Field reconnaissance

Stage1: Preparing the draft checklist

The third step involved framing the statements under each area. The areas were divided into two parts:

1) Part -A, consisting of six areas outlined before. Each area consisting of 7 statements and total number were 42 statements in Part A.

2) Part -B, consisting of one area i.e. facilities and a number of 12 statements were framed under Part-B. The total number of statements put together from all the areas

came up to 54 statements from both Parts. The areas and number of statements of each part are given in the table 3.1.

Table 3.1: Areas and Number of Statements

S.No	Areas	No. of statements
I	Part A	
	1. Noise	7
	2. Location	7
	3. Building	7
	4. Instructional space	7
	5. Basic care & hygiene	7
	6. Furniture & Equipments	7
	Total	42
II	Part B	
	1. Facilities	12
	Total	54

Stage 2: Testing the face validity

Face validity of the Areas and the statements of the draft checklist were carried out with the help of a panel of judges. The judges were requested to read each area, the statements under each area and mark whether the areas and the statements are relevant for the checklist and also suggest whether they match the objectives of the study. The judges who have experience in the education of children with hearing impairment and also the parent were selected as judges.

The judges included:

- Lecturers in special education - 3
- Special educators - 2
- Lecturer in Speech language pathology - 1
- Lecturer in Audiology - 1
- Parent of children with hearing impairment - 1

The judges were provided with the following:

- 1) A covering letter (Appendix-1) which comprised of
 - 1) Introduction of the present researcher
 - 2) Topic of the present study
 - 3) Request for suggestions
 - 4) A copy of the 'draft checklist' which included the following instructions for teachers in the draft checklist:
 - i) Read each statement carefully.
 - ii) Please tick (V) whichever statement you feel is most appropriate.
 - iii) Please respond to all the statements.

The statements marked relevant by 70% or above by the judges were selected for developing the checklist. Judges approved the above areas but few statements from some areas were deleted and few additional statements were added in the same area as given in the table 3.2.

Table 3.2: Judges' Responses for the Checklist of Teachers.

S.NO	Areas	Actual statements under each area	Total	Statements marked relevant by 70% or above by the judges	Total
Part-A					
1.	Location	1,2,3,4,5,6,7	7	1,4,5	3
2.	Noise	1,2,3,4,5,6,7	7	2,3,4,6,7	5
3.	Building	1,2,3,4,5,6,7	7	1,2,3,5,6	5
4.	Instructional space	1,2,3,4,5,6,7	7	2,3,4,5,6,7	6
5.	Furniture & Equipment	1,2,3,4,5,6,7	7	1,2,3,5,6,7	6
6.	Basic care & hygiene	1,2,3,4,5,6,7	7	1,2,3,4,6,7	6
Part-B					
7.	Facilities	1,2,3,4,5,6,7,8,9,10,11,12	12	1,2,3,4,5,6,7,8,9,10,11,12	12

In addition, the above few relevant suggestions were incorporated like:

- 1) Detailed information about teachers to be collected,
- 2) Avoiding repetition of statements under two different areas,
- 3) Making the statements simple and short etc.

After incorporating the suggestions of the Judges, the Checklist was prepared randomly mixing the statements of all areas and the total number of statements came up to 60. The areas were combined into 7 areas without any division of Part-A and Part-B as suggested by the judges. The details of additions and deletions of statements for each area and also statements under each area were unequal, as given in the table 3.3.

Table 3.3: Areas and Number of Statements under Each Area after Judges' Approval

S.No	Areas	No. of statements	
		Before	After
1	Location	3	3
2	Building	5	6
3	Noise	5	6
4	Instructional space	6	8
5	Furniture & Equipments	6	8
6	Basic care & hygiene	6	7
7	Facilities	20	22
	Total		60

Step 4: Preparing the checklist

For preparing the final checklist, 4 experts were contacted who have experience in the education of children with hearing impairment. The experts were requested to read each area and statements and to mark whether the 'draft checklist' approved by 8 judges earlier are appropriate for the 'final checklist' and also whether they match the objectives of the study. The experts included:

- Lecturers in special education - 2
- Lecturer in speech language pathology - 1
- Lecturer in clinical psychology - 1

The experts were provided with the following:

1. A covering letter (Appendix- II) which comprised of
 - i. Introduction of the present researcher
 - ii. Topic of the present study
 - iii. Keys for marking the statements as (A -Appropriate, IA -Inappropriate)
 - iv. Suggestions regarding
 - a) Whether the statements mentioned are in accordance with the areas?
 - b) Whether the language, the vocabulary & sentence structure used are appropriate?
 - c) Whether any other relevant information to be collected about the teachers?
- 2). A copy of the modified 'draft checklist'.

Later, the statements marked as 'Inappropriate' by the experts were removed replacing it by another statement and to the existing statements modifications were made in terms of vocabulary, language, etc. as shown in the table 3.4.

Table 3.4: Experts' Responses for Draft Checklist of Teachers:

Area , S.No of the statement in checklist	Pre -modification	Post-modification
Building, (54)	The school building provides a barrier free environment	The building structure is sound absorbing
Building, (7) replaced with Facilities	The school building is welcoming and attractive	The school has fire extinguishers and safety gadgets.

Table 3.5: Experts' Suggestions Related to the Information about Teacher to be Collected.

S.NO	Information to be collected from Teachers	
	Pre- Approval by the experts	Post- Approval by the experts
1	Teacher's Name	1. Name of the school
2	Age	2. School's Address
3	Gender	3. Teacher's Name
4	Educational Qualification	4. Phone number
5	Teaching Experience in the present school	5. Age
6	Are you a parent of child with hearing impairment? Yes/No	6. Gender
		7. Educational Qualification
		8. Teaching Experience
		9. Teaching Experience in the present school
		10. Number of children in your class
		11. Are you a parent of child with hearing impairment? Yes/No

The checklist prepared after experts' suggestions had 7 areas and total number of 60 Statements. The number of statements was not equal under each area. These statements were randomly numbered from 1 to 60 again such that the statements in all areas would be mixed. Then the final checklist for appraising the physical environment of special schools for children with hearing impairment has been prepared. (Appendix-III)

Phase II

Step 1: Sample

Any special schools for children with hearing impairment in and around Mysore were selected. There were only 4 special schools for children with hearing impairment in Mysore. To administer the checklist, each special school was named as school 1, school

2, school 3 and school 4. All the teachers working in 4 special schools were 'respondents' as they are the most important members acquainted with the school. Perceptions of the teachers about the physical environment of their special schools have been decided to be measured. The perception and consideration of the critical relationships between a building and its surroundings and the people who use it are affected by it must be emphasized (Birch and Johnstone, 1975).

Step 2: Administering the checklist

The researcher did the following:

- 1) A covering letter (Appendix-IV) was given to the principal of that particular special school seeking permission by the researcher to administer the checklist.
- 2) Common instructions required and clarifications for filling up the checklist were given to the teachers. The filled checklists were collected personally after 1 week by the researcher.
- 3) A total number of 44 checklists were given to teachers in 4 special schools. But only 37 completed checklists were received by the researcher.
- 4) The data collected thus was compiled in the score sheets and was further analyzed.

Step 3: Scoring Procedure

The checklist of the teachers provided two options 'Yes' or 'No'. If the respondents mark 'Yes' scoring would be '1' (one) and if the respondent mark 'No' scoring would be '0' (zero).

1. There were a total of 7 areas in the Teacher's checklist. The maximum score for all areas put together is '60' and the minimum score is '0'.
2. As the maximum score was different for all areas, the average score for each area of all the teachers were to be calculated.
3. The Average percentage was to be calculated for each area of all teachers.
4. Overall percentage of each Special school was to be calculated separately.

Analysis

To compare between the special schools for children with hearing impairment in Mysore, an appropriate statistical analysis was used to see the significant differences in terms of areas like Location, Noise, Building, Instructional space etc.

CHAPTER IV

RESULTS AND DISCUSSION

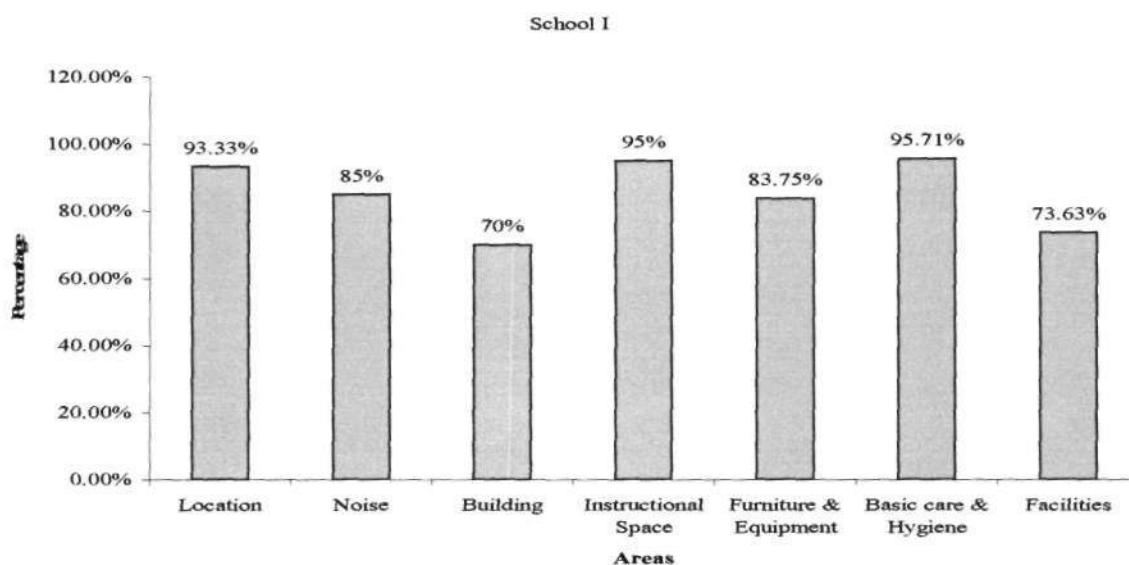
The present study 'Appraisal of physical environment of special schools for children with hearing impairment in Mysore' was aimed at preparing a checklist in order to assess the physical environment of the special schools. It was aimed at administering the checklist on special schools in Mysore. It was also aimed at giving the 'order of importance' for improvement. For this, a '*checklist for assessing physical environment*' was prepared by the researcher. The checklist was administered in four special schools in Mysore. The analysis of the data collected and related discussion is presented in this chapter.

Analysis of Special School 1

Table 4.1: Average and Average Percentage Scores of 10 Teachers of Special School 1

Areas and Total statements	Teachers										Average	Average Percentage (%)
	1	2	3	4	5	6	7	8	9	10		
Location (3)	3	3	3	2	3	3	3	3	2	3	28/30	93.33
Noise (6)	5	6	5	4	6	6	6	4	3	6	51/60	85
Building (6)	5	5	1	4	4	4	6	4	4	5	42/60	70
Instructional space (8)	8	8	6	7	8	8	8	8	7	8	76/80	95
Furniture & Equipment (8)	7	7	5	6	7	7	7	7	7	7	67/80	83.75
Basic care & Hygiene (7)	7	7	6	7	7	7	7	7	5	7	67/70	95.71
Faculties (22)	17	17	11	14	17	17	16	17	19	17	162/220	73.63

Figure 4.1: Average and Average Percentage Scores of 10 Teachers of Special School 1



Discussion

The above figure 4.1 clearly depicts that the area '*Building*' has been rated the lowest (70%) by the teachers' of special school 1. It can be observed that the teachers of this special school rated the building low when compared to other areas like facilities, furniture and equipment etc., of the special school. The environment which the administrator, the teacher and architect create: the great teaching machine called school building must receive due importance. (Birch and Johnstone, 1975).

However, they perceive the area of '*basic care and hygiene*' has quite high. From the above ratings it can be clearly said that all the areas mentioned herein needs improvement, if the school's physical environment has to be effective.

The lagging areas pointed out and to be worked upon from the perceptions of teachers for improvements of the physical environment in special school 1 are as follows:

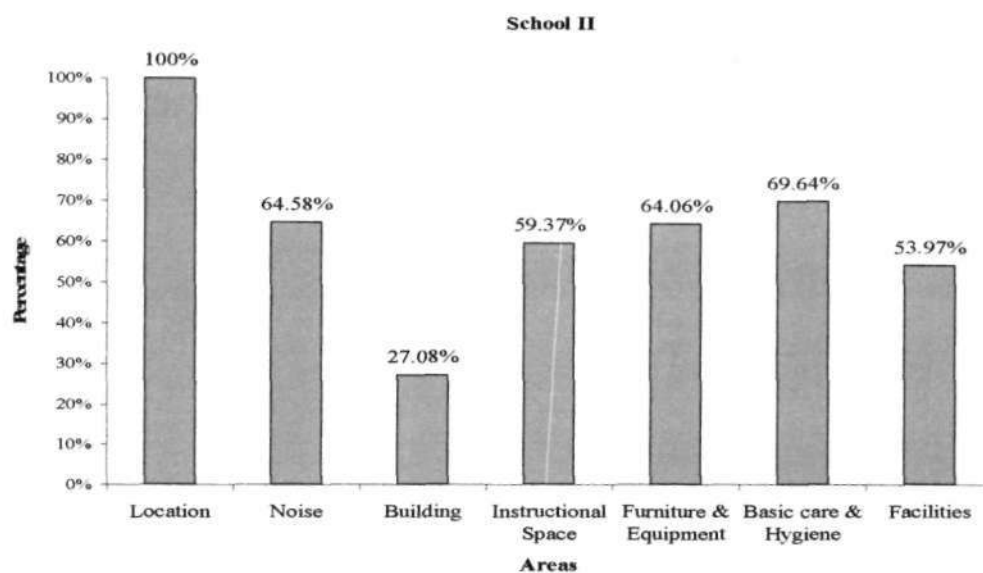
- First, area '*building*' has to be improved.
- Second, area '*facilities*' needs concentration.
- Third, area '*furniture & Equipments*' needs to be improved.
- Fourth, measures must be taken to reduce the '*noise*' levels inside and outside the school.
- Fifth, area '*location*' may be modified with some corrective measures.
- Sixth, area '*Instructional space*' needs to be given importance.
- Seventh, the last area '*basic care and hygiene*' may be given importance.

Analysis of special school 2

Table 4.2: Average and Average Percentage Scores of 8 Teachers of Special School 2

Areas and Total statements	Teachers								Average	Average Percentage (%)
	1	2	3	4	5	6	7	8		
Location (3)	3	3	3	3	3	3	3	3	30/30	100
Noise (6)	3	3	4	3	3	5	5	5	31/48	64.58
Building (6)	4	2	1	4	1	1	0	0	13/48	27.08
Instructional space (8)	5	4	4	5	5	5	5	5	38/64	59.37
Furniture & Equipments (8)	6	7	3	6	4	5	5	5	41/64	64.06
Basic care & Hygiene (7)	5	5	4	5	5	5	5	5	39/56	69.64
Facilities (22)	11	9	11	12	13	13	13	13	95/176	53.97

Figure 4.2: Average and Average Percentage scores of 8 Teachers of Special School 2



Discussion:

The above figure 4.2 clearly depicts that the area '*Building*' has been rated the lowest (27.08%) by the teachers of special school 2. It can be noted that the teachers of this special school are not satisfied with the building of their special school. The perception and consideration of the critical relationships between the buildings and its surroundings and the people who use it are affected by it must be emphasized (Birch and Johnstone, 1975).

However, they perceive the area of '*Location*' as highest. From the above rating, it can be clearly said that most of the areas mentioned herein needs improvement, if the school's 'physical environment' has to be effective.

The lagging areas to be worked upon from the perceptions of teachers for improvements of the physical environment in special school 2 are as follows:

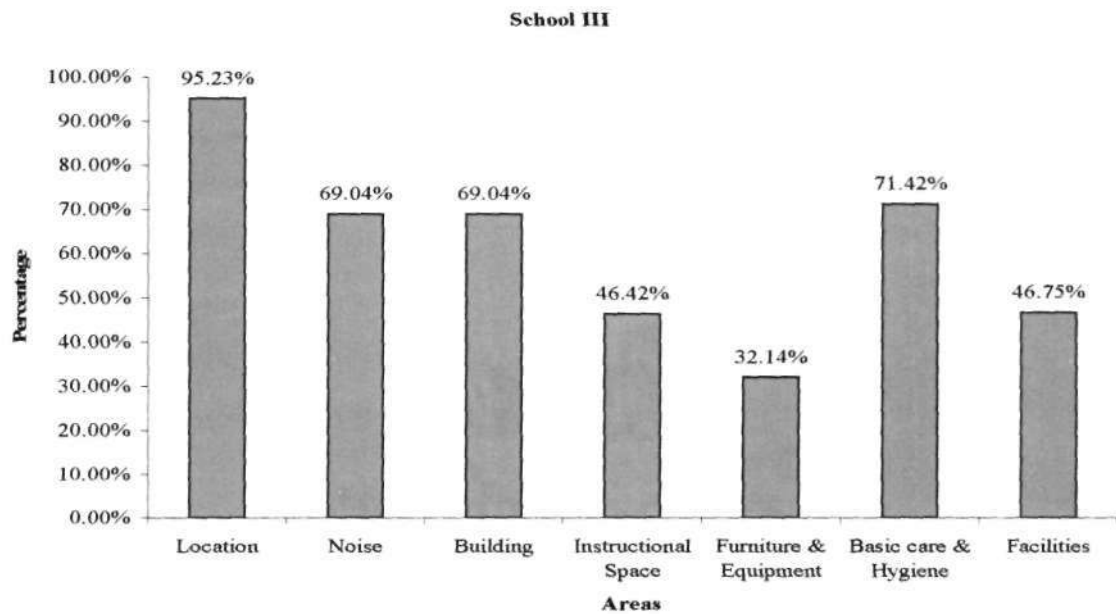
- First, area '*Building*' has to be improved.
- Second, area '*Facilities*' needs concentration.
- Third, area '*Instructional space*' needs to be improved.
- Fourth, area '*Furniture & Equipments*' to be given importance to improve.
- Fifth, area '*Noise*' needs to be given importance and measures must be taken to reduce the noise levels.
- Sixth last, area '*Basic care & hygiene*' may be given importance.
- The area '*location*' needs no improvement, as the teachers are very much satisfied.

Analysis of special school 3

Table 4.3: Average and Average Percentage scores of 7 Teachers of Special School 3

Areas and Total statements	Teachers							Average	Average Percentage (%)
	1	2	3	4	5	6	7		
Location (3)	3	2	3	3	3	3	3	20/21	95.23
Noise (6)	6	3	3	3	4	4	6	29/42	69.04
Building (6)	6	1	3	3	6	6	4	29/42	69.04
Instructional space(8)	8	2	3	1	5	4	3	26/56	46.42
Furniture & Equipment (8)	7	2	2	0	3	2	2	18/56	32.14
Basic care & Hygiene (7)	6	5	5	4	5	5	5	35/49	71.42
Facilities (22)	12	9	10	10	12	10	9	72/154	46.75

Figure 4.3: Average and Average Percentage Scores of 7 Teachers of Special School 3



Discussion:

The above figure 4.3 depicts that the area '*furniture and equipments*' has been rated the lowest percentage (32.14%) by the teachers of special school 3. It can be noted that both the areas '*building*' and '*noise*' secured almost similar rating which must be worked upon as these are the very fundamental and vital areas for schools for children with hearing impairment. Building noises, movement of chairs, group work that involves several people talking at one time, mechanical equipment such as fans and heaters, background music, buzzing lights, and classroom pet sounds will all interfere with speech discrimination (Hull & Dilka, 1984).

However they perceive the area of the '*location*' has very high. From the above rating, it can be clearly said that all the areas mentioned herein needs improvement if the school's '*physical environment*' has to be effective.

The lagging areas to be worked upon from the perceptions of teachers for improvements of the physical environment in special school 3 are as follows:

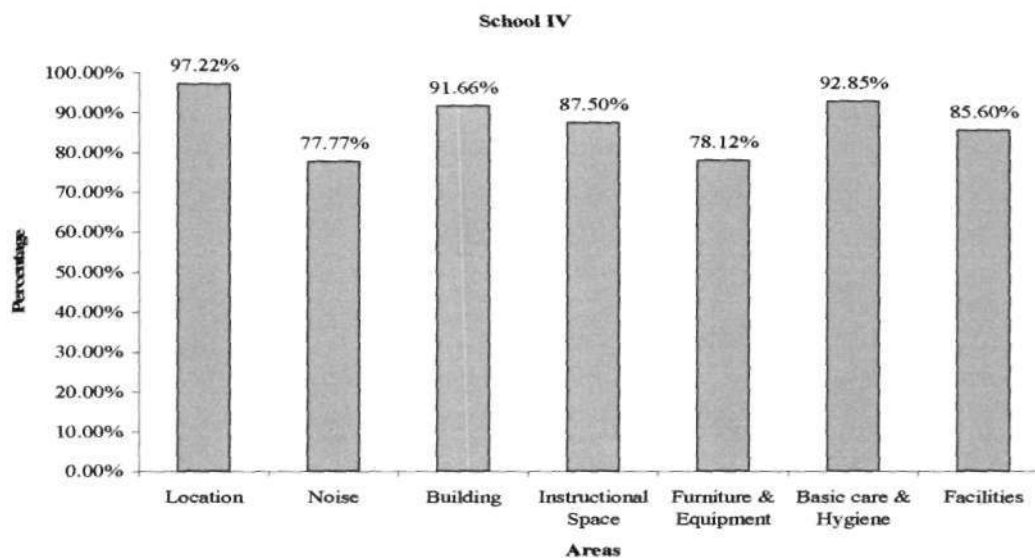
- First, area '*furniture*' has to be improved.
- Second, area '*Instructional space*' (*Classroom*)
- Third, area '*facilities*' needs to be improved.
- Fourth, area '*Building*' may be developed and also area '*Noise*' need to be given importance by reducing the noise levels.
- Fifth last, area '*basic care & Hygiene*' may be taken care of.
- Sixth, area '*location*' must be taken care.

Analysis of special school - 4

Table 4.4: Average and Average Percentage Scores of 12 Teachers of Special School 4

Areas and Total statements	Teachers												Average	Average Percentage (%)
	1	2	3	4	5	6	7	8	9	10	11	12		
Location(3)	3	3	3	3	3	3	3	3	3	3	2	3	35/36	97.22
Noise(6)	5	4	4	4	5	4	4	5	5	6	4	6	56/72	77.77
Building(6)	6	5	5	5	6	6	6	5	5	6	5	6	66/72	91.66
Instructional space(8)	7	7	7	7	7	7	8	7	7	7	7	6	84/96	87.5
Furniture & Equipments(8)	7	5	5	5	7	5	7	7	6	8	5	8	75/96	78.12
Basic care & Hygiene (7)	7	6	6	6	6	6	7	7	7	7	6	7	78/84	92.85
Facilities (22)	19	18	18	18	19	18	20	19	19	20	18	20	226/264	85.60

Figure 4.4: Average and Average Percentage Scores of 12 Teachers of Special School 4



Discussion:

The above figure 4.4 clearly depicts that the area '*Noise*' has been rated the lowest (77.77 %) by the teachers of special school 4. It can be noted that the teachers of this special school are disturbed with the noise levels of the special school. According to Maltby and knight, (2000) speech intelligibility is greatly affected by noise and reverberation and most school provide an acoustically hostile environment that affects hearing aid users in teaching - learning process.

However they perceive the area 'Location' as high. From the above ratings, it can be seen that this special school has a very satisfying 'physical environment' as the ratings in all the areas mentioned are above 70%. If this can improve a little further, it can be a 'model school' for all other schools in terms of providing very good physical environment.

The lagging areas to be worked upon from the perceptions of teachers for improvements of the physical environment in special school 4 are as follows:

- First, area '*Noise*' has to be taken care and measures must be taken to reduce the noise levels.
- Second, area '*Furniture & Equipments*' needs concentration.
- Third, area '*Building*' needs to be improved.
- Fourth, area '*Basic care & hygiene*'
- Fifth, area '*Instructional space*' has to be given importance.
- Sixth, area '*Facilities*' needs to be given importance.
- Seventh, area '*Location*' may be taken care of.

Analysis of All special schools (1, 2, 3 and 4)

Table 4.5: Consolidated Average Percentage of all 4 Special Schools

Areas	Special schools				Total
	School 1	School 2	School 3	School 4	
Location	93.33%	100%	95.23%	97.22%	385.78
Noise	85%	64.58%	69.04%	77.77%	296.39
Building	70%	27.08%	69.04%	91.66%	257.78
Instructional space	95%	59.37%	46.42%	87.5%	288.29
Furniture & Equipment	83.75%	64.06%	32.14%	78.12%	258.07
Basic care & Hygiene	95.71%	69.64%	71.42%	92.85%	329.62
Facilities	73.63%	53.97%	46.75%	85.60%	259.94
Total	596.42	438.7	430.03	610.72	

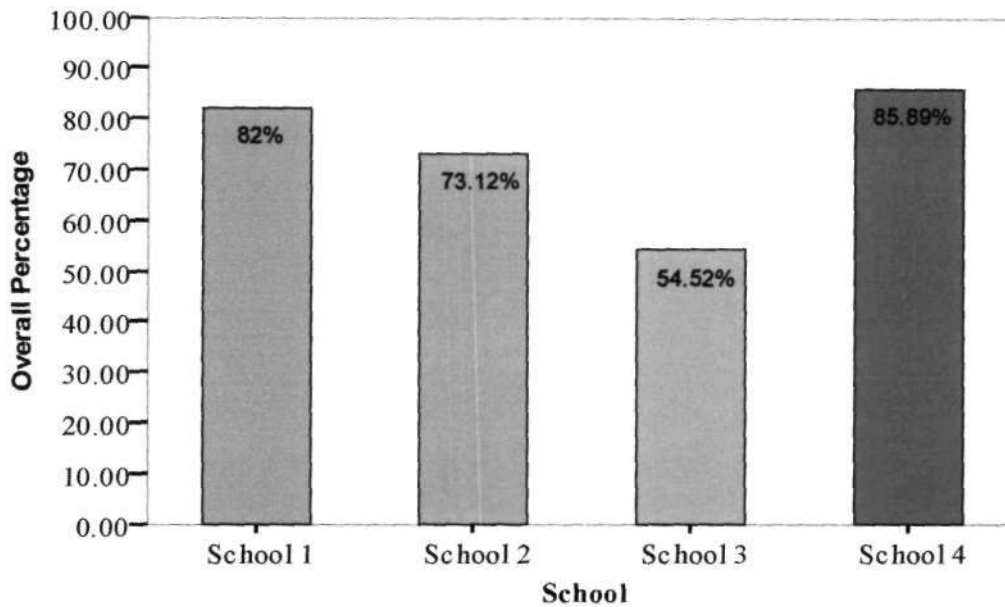
Table 4.6: Consolidated Raw Scores (Chi-square) of 4 Special Schools

Areas	Special schools			
	School 1	School 2	School 3	School 4
Location	110.8	81.5	79.9	113.4
Noise	85.1	62.6	61.3	87.2
Building	74.0	54.4	53.4	75.8
Instructional space	82.8	60.9	59.7	84.8
Furniture & Equipment	74.1	54.5	53.4	75.9
Basic care & Hygiene	94.7	69.6	68.2	96.9
Facilities	74.6	54.9	53.8	76.4

Df= 18 Chi-square = 54.82

P<0.01

Figure 4.5: Consolidated Percentage Scores of all 4 Special Schools for Children with Hearing Impairment in Mysore



Discussion:

When four Special schools were compared, four Special schools for children with hearing impairment in Mysore were not completely effective schools in terms of physical environment as was discussed earlier.

The Checklist pointed out lagging areas and strengths from Teachers' perceptions which may be worked upon to become role model schools. In two *special schools 1 and 2*, the lagging area is 'building'. *Special school 2, Special school 3 and Special school 4* are content with the area 'location' of the schools as the rating secured was high. *Special school 3* needs improvement in areas 'Furniture and Equipment', 'facilities' and 'instructional space' (Classrooms) because of which it scored very low compared to all other schools. It can be noted that ratings of *Special school 4* in all areas were satisfying,

satisfying, but still it needs to work on few areas. If little more attention is paid to areas like 'furniture and equipment', measures can be taken up to reduce 'noise' levels and it can turn out to be a model school in terms of physical environment.

When Chi-square was done, $Df = 18$ and the table value at 0.05 is 28.869 and at 0.01 it is 34.805, which showed that there exists significant difference between all four Special schools for children with hearing impairment.

Few suggestions which can be taken to reduce the noise levels in Special schools are : Plantation and growing of thick shrubs; door frames can be lined with rubber or felt boarding; tops of desks can be covered with resilient material; sheet rubber can be used for covering the floors; rubber caps for the legs of table and chairs.

From the results discussed above, it can be inherited that the 'checklist' has assessed the physical environment of 4 special schools in and around Mysore. It could clearly bring out the strength areas and weak areas of Special schools to be worked upon from the perceptions of teachers. Hence, it is an appropriate tool to screen out the lagging areas and also help in making special schools for children with hearing impairment good places for teaching - learning activities.

CHAPTER V

SUMMARY AND CONCLUSIONS

'Education is the progressive discovery of one's ignorance'

Anonymous

Education influences every part of human life. It is imbibed internally and externally. Externally it is through environment many things are incorporated and it has greater impact as it is rightly pointed out by Boning et al (1961) environment affects everything of an individual except his genes. Environment plays an important role in the overall development of the child. The Environment where teaching and learning activities formally takes place is termed as 'School' in the 21st century. It is a place where teachers and students meet for interaction and exchange of knowledge.

The schools which are especially tuned to suit the needs of children who are differently abled are called 'Special schools'. Each and every component in special schools must be given importance as they cater to unique needs of special children. One such important component is the 'Physical environment' of the schools which includes various types of furniture, equipments like audio-visual aids, teaching and learning materials, location of the school, building, facilities like water, toilets etc. The physical environment of the classroom is not the determining factor in child's learning, but it can enhance or limit learning (Lorton, 1979).

Even though there are 550 special schools in India as reported by the Directory of AYJNIHH, there are hardly any tools to assess the physical environment of these schools

to promote effective and functional educational activities. Hence an attempt is hereby made by the present researcher to prepare a tool to assess the physical environment.

The present study mainly aimed at preparing the checklist to assess the physical environment of special schools for children with hearing impairment in Mysore. To administer the checklist in special schools of children with hearing impairment in Mysore and to give the 'order of importance' for improvements to be made.

The study was conducted in two phases. First phase included four steps which consisted - Outlining the framework of the checklist, selecting the areas, breaking down the areas into various statements including testing of face validity by 8 judges and after it has been validated by 4 experts final checklist has been prepared. Second phase included selecting the sample, scoring procedure and administering the checklist. It also highlighted the 'order of importance' to be given for improving the physical environment of their special schools.

The results of the study are all the four Special schools for children with hearing impairment in Mysore were not completely effective schools in terms of physical environment. The Checklist pointed out lagging areas and strengths from Teachers' perceptions which may be worked upon to become role model schools. In two special schools 1 and 2, the lagging area is 'building'. Special schools 2, 3 and 4 are content with the location of the school as the rating secured was high. Special school 3 needs improvement in areas Furniture and Equipment, facilities and instructional space, because

of which it scored very low compared to all other special schools. It can be noted that ratings of special school 4 in all areas were satisfying, but still it needs to work on few areas. If little attention is paid to areas like furniture and equipment, and to reduce noise levels, it can turn out to be a model school in terms of physical environment. When Chi-square was done, $Df = 18$ and the table value at 0.05 is 28.869 and at 0.01 it is 34.805, which showed that there exists significant difference between all four Special schools for children with hearing impairment.

Limitations of the study:

1. Perceptions of parents and administrators associated with the Special schools were not taken.
2. Checklist for students was not prepared considering the problems faced by children with hearing impairment in reading and marking the statements.
3. Even though the details of other variables like gender, age, teaching experience, qualification were collected, discussions were made based on 'areas' only.

Recommendations:

1. Checklist to assess physical environment could be adapted in local languages.
2. Checklists for parents and school administrators may also be prepared separately.
3. Checklists to assess different areas could be prepared.
4. The strength and weak areas in terms of physical environment brought out by the checklists may be introspected for improvement.

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Appendix I

From

S.RAJESH
M.S.Ed (H.I) Student
All India Institute of Speech & Hearing
Manasagangothri
Mysore-06
E-mail-srajesh1984@yahoo.co.in

To

Sub: Request to validate the physical environmental-check list for teacher reg.

Respected Sir / Madam,

I am Mr. S. Rajesh, a student of M.S.Ed (H.I) course at All India Institute of Speech & Hearing, Mysore. As a part of my course for the academic year 2007- 2008, I have undertaken a Research study titled '**Appraisal of Physical environment of special schools for children with hearing impairment in Mysore**' under the guidance of Ms. I. Vijetha, Lecturer, Department of Special Education, All India Institute of Speech & Hearing.

In order to asses the physical environment of special schools for children with hearing impairment, a 'questionnaire for teachers' is being prepared to collect the teacher's opinion about their own school's physical environment.

Hence, I kindly request you to give your valuable suggestions by analyzing the 'proposed areas' and also 'proposed statements under each area' in the questionnaire.

Thanking you in anticipation,

Your's sincerely,

(Mr. S. Rajesh)

Appendix II

From
S.RAJESH
M.S.Ed (H.I) Student
All India Institute of Speech & Hearing
Manasagangothri
Mysore-06
E-mail-srajesh1984@yahoo.co.in

To

Sub: Request to validate the '**Physical environment- check list**' for teachers-reg.

Respected Sir / Madam,

I am Mr. S. Rajesh, a student of M.S.Ed (H.I) course at All India Institute of Speech & Hearing, Mysore. As a part of my course for the academic year 2007- 2008, I have undertaken a research study titled '**Appraisal of Physical environment of special schools for children with hearing impairment in Mysore**' under the guidance of Ms. I. Vijetha, Lecturer, Department of Special Education, All India Institute of Speech & Hearing.

In order to assess the physical environment of special schools for children with hearing impairment, a 'Checklist for teachers' is being prepared to collect the teacher's opinion about their own school's physical environment.

Your expertise in the subject is well known. Hence I kindly request you to critically analyze the checklist and give your valuable suggestions for the following:

1. Do you agree that the statements mentioned are in accordance with the areas?
2. Do you feel the language, the vocabulary & sentence structure used are appropriate?
3. Do you suggest for any other relevant information to be collected about the teacher?

Please mark '**A**' for **Appropriate** statements
'**I A**' for **Inappropriate** statements

Thanking you in anticipation

Your's sincerely,

(Mr. S. Rajesh)

S.NO	STATEMENTS	YES	NO
16	This school has its own kitchen and dining hall.(F)		
17	The construction of the school building is old.(B)		
18	This school has a separate staff room for the teachers.(F)		
19	There is enough lighting and ventilation in the classrooms.(I)		
20	This school has a separate Principal's room.(F)		
21	The classrooms in the school are orderly, numbered and can be easily identified (ex. VII class, IX class)(I)		
22	Is the furniture for the staff sufficient. (F&E)		
23	Toileting area meets basic sanitary conditions. (ex. Toilets thoroughly cleaned with some disinfected liquids etc)(B&H)		
24	The school has variety of play equipments for riding, climbing, balancing and individual play.(F&E)		
25	The school is easily reachable, (ex.. Bus facility, Auto facility etc..) (L)		
26	This school has a separate office room.(F)		
27	There is no disturbance (unnecessary noise) caused from one classroom to another classroom.(N)		
28	The school has its own School Bus.(F)		
29	The present school building is sufficient enough to accommodate all the classrooms.(B)		
30	The classrooms are well decorated to promote aesthetic sense, (ex. for display of teaching learning materials like charts, models etc)(I)		

S.NO	STATEMENTS	YES	NO
31	The school has its own Assembly hall (prayer hall)(F)		
32	The seating arrangement of the children in the classrooms is quite comfortable. (Semicircular, L - shaped, allowing free movement etc)(I)		
33	First aid box are available in the school & ready for use.(F)		
34	The classrooms and corridors are orderly and well kept, (ex. floor, windows are cleaned and mopped frequently)(B&H)		
35	Age- appropriate materials and equipments are used in the school. (F&E)		
36	The play areas are kept clean and safe.(B&H)		
37	Toilets, basins & mirrors used by children are of children's height. (F)		
38	While teaching, Special educator's voice is louder than the background noise. (N)		
39	There are separate toilet facilities for teachers & other staff members of the school.(F)		
40	The class rooms in the school are free from reverberation (Echo). (N)		
41	The School's play ground includes variety of surfaces such as soil, sand, grass, hills, flat sections etc.(F)		
42	The walls of the school building are thick & strong providing for sound absorption.(B)		
43	The size and shape of the class rooms are appropriate to number of the children. (I)		
44	The school has a well-maintained garden. (F)		
45	Teaching learning materials are placed at proper position and at proper distance in the class rooms, (ex. Not too crowded with furniture and teaching learning materials)(I)		

S.NO	STATEMENTS	YES	NO
46	Principal's room, Staff room & Office room are cleaned & mopped frequently.(B&H)		
47	Modified chairs and tables are also available in the school to meet children's special needs, (ex. Inclined chairs , writing chairs etc (F&E)		
48	Storage of instructional materials in the school is done in a systematic way in a storage space. (B&H)		
49	The school has its own vocational training facility.(F)		
50	Is there any frequent disturbance (unnecessary noise) in the class room because of electrical devices, furniture, windows etc.(N)		
51	The school has its own speech therapy room.(F)		
52	The school building is neatly painted and well maintained. (B)		
53	The school has its own Audiological evaluation room. (F)		
54	The building structure is sound absorbing. (B)		
55	There is proper storage space for teaching learning materials in the classrooms. (I)		
56	The school also provides for computer software, speech trainer for improving speech and language skills.(F&E)		
57	The school has an audio -visual room.(F)		
58	The school also provides for multimedia projector.(F&E)		
59	The electrical appliances (A.C/ computers etc) are regularly checked and oiled for reducing the unnecessary sound produced by them.(B&H)		
60	The school has parking facility for two wheelers & four wheelers.(F)		

Appendix IV

From
S.RAJESH
M.S.Ed (H.I) Student
All India Institute of Speech & Hearing
Manasagangothri
Mysore-06
E-mail-srajesh1984@yahoo.co.in

To

Sub: Request to permit your school teachers to answer the '**Physical Environment - check list**' -reg.

Respected Sir/Madam,

All India Institute of Speech and Hearing is an autonomous institution working for the rehabilitation of persons with communication disorders under the Ministry of Health & Family Welfare, New Delhi. Manpower development is one of the objectives of our Institute. As a part of this, we are conducting M.S.Ed (H.I), M.Sc,& B.Sc (speech & hearing) at our Institute . One of our M.S.Ed (H.I) trainees, Mr. Rajesh has taken the topic for research under the guidance of Ms.Vijetha, Lecturer - Dept. of Special Education. Mr.Rajesh's validated 'Physical Environment - checklist' is ready and now he intends to administer.

For this purpose you are requested to permit him to give 'Physical Environment-checklist' to your school teachers. He would personally collect all the checklists from your teachers within a week's time.

Thanking you in anticipation.

Your' Sincerely

Ms. I. Vijetha
Lecturer - Special Education