Multiple Intelligence among Low Vision Children – An Analysis

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ABSTRACT

Educational system today aims to design a creative and effective interdisciplinary approach to teaching, learning, and assessment taking into account the intellectual gifts of each student (Diaz-Lefebvre and Finnegan, 1997). Learning takes place best when Educators try to know what helps students learn and then adjust teaching strategies to enhance the method of instruction. Students can learn from a combination of modalities, hands-on activities, oral and visual instruction and a combination of these methods. In 1983, Howard Gardner, a noted Harvard psychologist and educator theorized that there are multiple intelligences that dictate how children process and understand information. According to Gardner, all individuals possess, exhibit and perceive the world in eight different and equally important ways as verbal – linguistic, logical – mathematical, visual - spatial, musical - rhythmical, bodily – kinesthetic, interpersonal, intrapersonal, naturalist but in a varying amount and combine and use them in different ways. Therefore every educator should assess their low vision child's multiple intelligences to address their strengths and build upon their weakness. According to Gardner, "the broad spectrum of student and perhaps the society as a whole—would be better served if disciplines could be presented in a number of ways and learning could be accessed through a variety of means". Thus the present study has been chosen by the investigator in order to know the Multiple Intelligence of children with Low vision.

Keywords: Psychologist, mathematics, strength, intelligence.

Educational system today aims to design a creative and effective interdisciplinary approach to teaching, learning, and assessment taking into account the intellectual gifts of each student (Diaz-Lefebvre and Finnegan, 1997). Learning takes place best when it can be individualized, meeting the particular needs and interests of each student. Research on differentiated classrooms, learning styles, show that when instruction can be made personal, students become more engaged in learning, retain what they have learned, and do well on measures of assessment. It is important to know what helps students learn and then adjust teaching strategies to enhance the method of instruction. Students can learn from a combination of modalities, hands-on activities, oral and visual instruction and a combination of these methods.

In 1983, Howard Gardner, a noted Harvard psychologist and educator, in his book "Frames of Mind" claimed that human intelligence was more than a score obtained from administrating intelligence (IQ) test which covers only verbal, logical, and some spatial intelligence, but lack acknowledgment of other

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forms of intelligence. After much research, he theorized that there are multiple intelligences that dictate how children process and understand information. According to Gardner, all individuals possess, exhibit and perceive the world in eight different and equally important ways as verbal – linguistic, logical – mathematical, visual - spatial, musical - rhythmical, bodily – kinesthetic, interpersonal, intrapersonal, naturalist but in a varying amount and combine and use them in different ways.

Educators need to assess their students' learning needs in ways which will provide a clear picture of the strengths and weaknesses. Since all children do not learn in the same way, they cannot be assessed in the same way. Therefore, it is important that an educator creates an "intelligence profile" for each student. Knowing how each student learns will allow the teacher to properly assess the child's progress. This individualized evaluation practice will allow a teacher to make more informed decisions on what to teach and how to present the required information.

Gardner's theory also has several implications for teachers in terms of classroom instruction. This theory states that all eight intelligences are needed to productively function in society. Educators, therefore, should think of all intelligences as equally important. Thus, the Theory of Multiple Intelligence implies that educators should recognize and teach to a broader range of talents and skills present in young children

Though we all learn through our five senses of sight, hearing, touch, smell and taste but the bulk of learning is through sight and hearing. To learn well we must be able to harness these faculties, especially that of sight for maximum learning capacity and capability. For the children who lost their vision might not have difference pattern of development and it depends on the residual senses they possess. This theory would be of immense help to children with low vision in learning.

Low vision children have their own style of learning especially, that doesn't involve sense of vision. There are many low vision and blind people worldwide, and there is a considerable amount of data available on the prevalence of low vision and blindness in many parts of the world. The data, however, vary significantly from one continent to another.

The prevalence of blindness in children ranges from approximately 0.3/1000 children in affluent regions to 1.5/1000 in the poorest communities. Globally there are

estimated to be 1.4 million blind children, almost three quarters of whom live in developing countries. The population of India in 2001 was estimated to be 1.03 billion, approximately 420 million of whom are children under 16 years of age (40.9%). Overall, there are probably 280 000–320 000 blind children in India.

The teachers and parents of those children must provide them learning experiences based on the style they prefer. Visually impaired students prefer practical, thinking, or organized styles (Oakland, Banner and Livingston, 2000). Blind and visually impaired people can learn to do almost anything, except maybe fly an airplane (Rao, 2003).

Every teacher and parent should assess their low vision child's multiple intelligences to address their strengths and build upon their weakness. Unless one is able to assess how the learning takes place in different domains, and by different cognitive processes, even superior curricular innovations are destined to remain unutilized. According to Gardner, "the broad spectrum of student and perhaps the society as a whole—would be better served if disciplines could be presented in a number of ways and learning could be assessed through a variety of means". Thus this study on "Multiple Intelligence among Low Vision Children – an Analysis" has been chosen based on the following objectives:

1. To identify Low vision Children studying in grades 4th to 8th

2. To develop an assessment scale to identify Multiple Intelligence among Low vision Children

3. To assess Multiple Intelligence among selected samples

4. To Plan and implement activities in all the eight intelligence

5. To find out significant differences if any, in preest and post test multiple intelligence scores obtained by Low Vision Children belonging to the age group 9-11 and 12-14 years

6. To find out significant differences if any, in pre test and post test multiple intelligence scores obtained by Host elates and day scholars

Hypothesis

1. There is no significant difference between pre test and post test multiple intelligence scores obtained

by Low Vision Children belonging to the age group 9-11 and 12-14 years

2. There is no significant difference between the pre test and post test multiple intelligence scores obtained by Host elates and day scholars

Need for the study

This study helps the teacher in identifying learner's strengths and weakness. It also helps them in providing multiple paths of instruction for learners, so that their strong intelligences can be engaged and their weaker ones made stronger. Especially for children with low vision, this study encourages to achieve variety of learning experiences which would compensate their loss of vision. It would enable teachers to pay close attention to low vision children, in observing how they engage in learning, and to find ways for the school environment to support their learning.

Methodology

The methodology for the present study on **"Multiple Intelligence among Low Vision Children – an Analysis"** involved the following major steps:

A. Identification of low vision children in grades 4th to 8th

B. Assessment of multiple intelligence among selected sample

C. Development and implementation of activities

(A) Identification of Low Vision Children in the Grades 4th - 8th STD

The steps involved in identification of low vision children includes

1. Selection of Area:

The investigator visited several integrated schools, special schools and identified low vision children in grades 4th to 8th from all regions within Coimbatore city. The availability of low vision children in these grades being very poor within Coimbatore, it necessitated the investigator to identify and include sample from a school located in Erode district.

2. Selection of sample:

Purposive sampling is where the researcher targets a group of people believed to be typical or average or a group of people specially picked for some unique purpose. Since the investigator focused on low vision children in grades 4th − 8th purposive sampling method was adopted to select 19 children from Coimbatore district and 11 from Erode district (22 boys and 8 girls).

3. Selection of variables

Variables are properties or characteristics of some event, object, or person that can take on different values or amounts. When conducting research, experimenters often manipulate variables (Lane, 2003). The Table below lists the variables selected for this study.

Table 1: Selection of variables

Variables	Levels
Age group	9 - 11 years
	12 – 14 years
Accommodation	Host elates
	Day scholar

Conduct of the study

The steps involved in conduct of the study were:

(a) Orientation on the Multiple intelligence concept to the teachers of Low Vision children

(b) Formulation and use of the tool among selected sample

Orientation on the Multiple intelligence concept to the teachers of Low vision children

The investigator personally visited the schools obtained prior permission from the authorities and finalized a time frame for all schools selected. The teachers were briefly oriented on the concept of multiple intelligence.

Formulation of tool

The investigator prepared an interview schedule to collect details regarding personal history, family background,

academic performance, talents, and medical history of the selected sample. The investigator elicited the background information of the selected sample through records maintained in the school. In case of new admission the investigator collected the required information from the parents visiting them personally in their own houses.

Assessment of Multiple Intelligence Among Selected Sample

The steps in assessment of multiple intelligence among selected sample involved:

Selection of tool

The investigator adapted the tool "multiple intelligence survey – grades 4-8" Haley (1998) - Professor at University of Maryland which was found to be good for assessing low vision children. The tool selected was translated into Tamil and certain modifications made to suit the sample selected and the purpose of the study.

Preparation of multiple intelligence assessment kit

To enable the sample in providing correct response the investigator prepared the multiple intelligence assessment. Materials used for the kit included objects and some printed materials. The print size preference of low vision children were taken into account in using the printed materials. The items included in the preparation of the assessment kit are listed in the Table below.

Table2: Materials included in the multiple intelligence assessment kit

Multiple intelligences	Materials
Verbal – linguistic intelligence	Book Paper and sketch Flash cards of English alphabets Print materials including some rhymes and tongue twisters
Logical – mathematical intelligence	Printed materials consisting of some basic calculations, logical puzzles, logical sums

Visual – spatial intelligence	Ball Puzzles Paper and sketch Stories flash cards
Bodily – kinesthetic intelligence	Building blocks Colour papers and scissors Waste cloth, Needle and thread
Musical – rhythmic intelligence	Lyrics of film songs in print form
Interpersonal intelligence	Oral questions regarding hiss friends, hobbies, social ability
Intrapersonal intelligence	Oral questions regarding his hobbies, social ability, ambition, thinking ability
Naturalistic intelligence	Differences between plants and animals in print form

Pre - testing the tool

Since the tool was prepared for normal children, and to find out the efficacy and statistical adequacy in implementing it for low vision children the investigator initially pretested it for five low vision children. The tool was found to be effective in assessing low vision children compared to other tools.

Assessment of multiple intelligence among low vision children

First the investigator selected a suitable environment with all-encompassing arrangements such as good ventilation, appropriate seating, proper lighting that suited the needs of selected sample. Then assessment was carried out. The Multiple intelligence consisted of eight intelligences. Each intelligence consisted of six with a total of 48 items. Time taken for assessment was approximately one hour for each child and the table below provides the maximum time taken for each areas of intelligence.

Table 3: Time taken for the assessment of each intelligence

Multiple intelligence	Time taken (minutes)
Verbal–linguistic intelligence	10
Logical–mathematical intelligence	15
Visual – spatial intelligence	10

Bodily – kinesthetic intelligence	5
Musical – rhythmic intelligence	5
Interpersonal intelligence	5
Intrapersonal – intelligence	5
Naturalist intelligence	5

Scoring

The scores for each item is one and each intelligence has a maximum score of six. The scoring depends upon the response of the child. For each 'yes' the child's score is 1 and for each 'No' 0 is given. The scores got from the assessment enabled the investigator to judge the intelligences that the child excels in.

Development and implementation of activities

The steps in development and implementation of activities involved

Development of activities to enhance Multiple intelligence

On assessment the investigator came to know the areas of multiple intelligence that the child excelled in and the areas that the child needed additional training. After assessment, multiple intelligence based activities (nos. 10) were prepared by the investigator. Few activities were familiar and some were relatively new. However all the activities prepared by the investigator were related to the tool and covered eight intelligence areas.

Intervention

After analyzing the multiple intelligence of the selected sample, intervention was provided by implementing the developed multiple intelligence based activities.

Evaluation of the intervention

Finally the investigator evaluated the effectiveness of intervention through assessment using the same multiple intelligence assessment tool and comparison was made before and after the developed activities.

Results and Discussions

The results of the study analyzed are discussed under the following headings:

Background information of selected sample

Age

Considering the age of selected sample it was observed that 50 percent of boys and girls were between the age group 9 – 11 years while the other 50 percent were between 12 – 14 years. It is evident that boys and girls in both the age groups were equal in number.

Accommodation

With regard to the accommodation, it was found that 50% of the samples were host elates and the remaining were day's scholar which reveals that both the host elates and days scholars were equal in number.

Class

Analysing the grades of selected sample it was evident that 27 percent of boys and 50 percent of the girls were from grades $4^{th} – 5^{th}$ and 73 percent of boys and 50 percent of girls were from the grades $6^{th} – 8^{th}$. Comparatively a higher percentage of boys are from grades $6^{th} – 8^{th}$.

Talents:

Irrespective of the sex almost 50 percent of children preferred to show their talents in sports activities over and above singing - a choice made by 50 percent of girls and only 32 percent of boys. Talents in linguistic skills were noticed more among girls (38%) than among boys (18%). This was followed by almost 25 percent of girls revealing a preference for dancing, drawing and other art related activities.

Prizes won

Contrary to the popular belief that boys outdo girls in sports the present investigation revealed that almost 88 percent of girls had won prizes in sports, while 32 percent of boys and 50 percent of girls had won prizes in linguistic activities. In singing 32 percent of boys and 25 percent of girls had won prizes. Only less than 25 percent of the sample had not won any prizes may be due to lack of motivation from parents and teachers.

Leisure time activities

Analysing the leisure time activities it was observed that about 75 percent of girl's and 73 percent boys leisure time activities involved playing with peers while 50 percent boys and 63 percent of girls watched TV and listened to music. Less than 30 percent of both boys and girls were engaged in activities such as reading books and drawing

Assessment scores obtained by the selected samples

Mean scores obtained in assessment of multiple intelligence among low vision children in age groups 9 – 11 and 12 - 14 years

Table 4 highlights the mean scores obtained in assessment of multiple intelligence among low vision children in age groups 9 – 11 and 12 - 14.

Table 4: mean scores of low vision children between age groups

Age group	Testing	Mean	SD	't' value
9 – 11 years	Pre test	30.8	4.07	6.01**
	Post test	35.13	5.12	
12 – 14 years	Pre test	33.67	5.12	3.14**
	Post test	36.27	6.09	

**significant at 0.01 level

From this Table 4 it is evident that the 't' value is 6.01 for children belonging to age group 9 – 11 years and 3.14 for 12 – 14 years age group which is significant at 0.01 level which means that there is a significant difference between pre test and post test multiple intelligence scores obtained by Low Vision Children belonging to both the age group. In the light of this, the null hypothesis stated as "there is no significant difference between pre test and post tests multiple intelligence scores obtained by Low Vision Children belonging to the age group 9-11 and 12-14 years" is not accepted.

Mean scores of host elates and day scholar in assessment of multiple intelligence among low vision children.

Table 5 highlights the pre and post test mean scores of host elates and day scholar in assessment of multiple intelligence among low vision children.

Table 5. pre and post test mean scores of hostelates and day scholars

Accommodation	Testing	Mean	SD	't' value
Host elates	Pre test	32.56	5.50	4.19**
	Post test	36	5.75	
Day scholars	Pre test	31.93	4.97	4.2**
	Post test	35.5	5.89	

**significant at 0.01 level

From this Table it is evident that the co-related't' value is 4.19 for host elates and 4.2 for day scholars which is significant at 0.01 level which means that is a significant difference between the pre test and post test multiple intelligence scores obtained by both the groups. In the light of this, the null hypothesis stated as "there is no significant difference between the pre test and post test multiple intelligence scores obtained by Host elates and day scholars" is not accepted.

Conclusion

Gardner's Theory of Multiple Intelligences provides a theoretical foundation for recognizing the different abilities and talents of students. This theory acknowledges that while all students may not be visually gifted, they may have an expertise in other areas, such as music, verbal, or interpersonal knowledge. Approaching and assessing learning in this manner allows a wider range of students to successfully participate in classroom learning.

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