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**P Neeraja**  
PhD Research Scholar,  
Department of Home Science,  
S.V. University, Tirupati,  
Andhra Pradesh, India

**K Anuradha**  
Prof, Department of Home  
Science, S.V. University,  
Tirupati, Andhra Pradesh, India

### Impact of special education among children with learning disabilities

**P Neeraja and K Anuradha**

#### Abstract

Learning disability, an unexplained difficulty experienced by children of at least average intelligence in acquiring basic academic skills usually identified during elementary school age. Specific Learning Disability affects 5-15 per cent of school going children (Sunil, Rukshana, Madhuri 2011) [6]. The study sample were elementary school children selected from Hyderabad, Nellore and Chittoor Districts of united state of Andhra Pradesh representing three regions of the state i.e. Rayalaseema, Coastal region and Telangana. Total sample were 120 children with LD attending Special Education (60) and not attending Special Education (60). In this study found that the prevalence of learning disability was more among boys than girls and among first born children and had average intelligence. The prevalence was more in Reading, writing and Mathematics among children with Learning disability. More than half of children attending SE were spending SE classes 3 hours per day. LD children had moderate coping up capacity of problems in different areas like home, school, emotional and social. Early identification of LD problems and early intervention help in bringing out better coping up capacity among children with LD.

**Keywords:** Special education, coping up of problems and children with LD

#### Introduction

During elementary school age, children learn about the wider world and master improved athletic abilities, participation in games with rules, more logical thought processes, mastery of basic literacy skills, and advances in self-understanding, morality and friendship (Berk, 2003) [2]. Learning disability, an unexplained difficulty experienced by children of at least average intelligence in acquiring basic academic skills usually identified during elementary school age. Learning disabilities generally used as 'LD' is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. Specific Learning Disability affects 5-15 per cent of school going children (Sunil, Rukshana, Madhuri 2011) [6]. Special education or special needs education is the education of students with special needs in a way that addresses the students' individual differences and needs. Ideally, this process involves the individually planned and systematically monitored arrangement of teaching procedures, adapted equipment and materials, accessible settings, and other interventions designed to help learners with special needs achieve a higher level of personal self-sufficiency and success in school and community than would be available if the student were only given access to a typical classroom education.

In India around 13-14 per cent of all school children suffer from learning disorders. Unfortunately most teachers fail to lend a sympathetic ear to the problems of children. As a result these children are branded as failures. Despite the fact that, the learning disabilities which includes a group of disorders like listening, speaking, reading, writing and mathematics etc is a known class room disorders, it has not reached its optimum awareness levels in the schools in our country.

#### Types of Learning Disabilities

Learning Disabilities can be classified as follows Dyslexia: It is a condition where child has difficulty in reading, writing, spelling, speaking etc. Dyscalculia: The child has problem in doing maths problems, understanding time, using money

**Correspondence**  
**P Neeraja**  
PhD Research Scholar,  
Department of Home Science,  
S.V. University, Tirupati,  
Andhra Pradesh, India

**Dysgraphia:** In this Dysgraphia child will have problems with handwriting, spelling, organizing ideas etc.

**Dyspraxia (Sensory Integration Disorder):** The child has Problem with eye-hand coordination, balance, manual dexterity etc.

**Dysphasia/Aphasia:** In this condition the child has Problem with understanding spoken language, poor reading comprehension.

**Auditory Processing Disorder:** The child has difficulty with hearing differences between sounds and also problem with reading, comprehension, language.

**Visual Processing Disorder:** In this condition the child has difficulty in interpreting visual information, like maps, charts, symbols, pictures with these back ground the present study was designed with the following objectives.

### Objectives

1. To identify the sample children with learning disability using Identification of Learning Disability Inventory (LDDI) (Hammill and Bryant, 1998).
2. To assess the relationship between Demographic variables and coping up of problems by children
3. To assess the relationship between LD variables and coping up of problems by children
4. To assess the relationship between SE variables and coping up of problems by children

### Methodology

#### Sample

The study sample were elementary school children selected from Hyderabad, Nellore and Chittoor Districts of united state of Andhra Pradesh representing three regions of the state i.e. Rayalaseema, Coastal region and Telangana. Five revenue divisions were selected randomly from each District and total 15 revenue divisions among three districts were selected. Within each revenue division 4 Government schools were selected randomly.

The sample were identified using purposive and stratified random sampling techniques. In the first stage with the help of school teacher students in 3rd, 4th and 5th grades who were backward in academics were administered with LDDI inventory. The sample children's IQ was measured using Ravens Progressive Matrices Test by following the standard procedure for administration of the test, in school premises in a separate room with comfortable seating position for the child to perform the test. Children with Learning Disabilities were administered with the Check list for Assessment of Coping up of Problems of Learning Disability.

#### Tools and Materials for Research

1. Learning Disability Diagnostic Inventory – (Developed by Hammill and Bryant 1998)
2. Standard Raven's Progressive Matrices (SPM) Test (Developed by Raven, 1976)
3. Check List for Assessment of Coping up of Problems of Learning Disability

The Tool developed for the present investigation were developed by following standard procedures for development of tools. The reliability and validity were established by testing the tools on a pilot study sample.

### Results

The data collected from children with LD attending Special education and children with LD not attending Special education were scored. Coding was given to the data and analysis was conducted. The results were tabulated. The results were discussed against existing literature.

The sample children with Learning Disability (LD) were selected using Learning Disability Diagnosis Inventory (LDDI, Hammill and Bryant 1998). Thus, 40 children (33.3 per cent) from 3<sup>rd</sup> grade, 45 children (37.5 per cent) from 4<sup>th</sup> grade and 35 children (29.2 per cent) from 5<sup>th</sup> grade, constituted the sample. The sample children were selected from 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> grades because it is most suitable age for early identification and intervention through proper remedial strategy for children with LD. Among the samples who were identified as learning disabled, there were 64.22 per cent of boys and 35.8 per cent of girls. From the data it was evident that comparatively the prevalence of learning disability was more among boys than girls. With regard to sample children with LD majority (42.5 per cent) were first born followed by second (35 per cent) and later born (27 per cent). Children's IQ was measured using Raven's Progressive Matrices Test (Raven 1976). From the table 1, it is clear that majority of children with LD (61.6 per cent) had average intelligence and 23.3 per cent had below average intelligence. 15 per cent of children with LD were found to have above average intelligence.

Table 2, shows the type of LD problems according to attending and not attending special education. Majority (94 per cent) of children had Reading problems followed by Listening (93 per cent), Writing (81.7 per cent), Speaking (80.8 per cent), Mathematics (78.3 per cent) and Reasoning (48.3 per cent) Problems.

From table 3, it is evident that among the samples that were identified as attending special education classes three fourths of sample (73.3 per cent) were attending full time special education. Nearly one fourth (26.7 per cent) were attending special education classes in resource room attached to the general school setup. Ninety per cent of sample children who were attending special education classes. Majority of sample children (60 per cent) were attending the special education classes from 6months to one year period. 16.7 per cent were attending for a period of below 6 months and 23.3 per cent for more than one year. More than half of children attending SE were spending in SE classes 3 hours per day. Next to it 26.6 per cent were attending 1 hour per day in special education classes. Usually in resource room special classes will be provided for one hour only per day.

From table 4, it is evident that on the whole the sample children felt that they have moderate coping up capacity with regard to problems related to LD. The minimum total score as per the check list was 51 and maximum was 153. The mean score of the total sample was found to be 116.83 (SD = 19.18), which shows that the sample had moderate coping up capacity of problems in different areas like home, school, emotional and social. When coping up of problems between children attending SE and those not attending SE was observed, comparatively children attending SE class have more score in all areas viz., home, emotional, social than those who were not attending SE class which means as per the rationale of the scale children attending SE classes have more coping up capacities.

Table 5 shows that among selected independent variables that are child variables, ordinal position has shown significant contribution towards coping up of problems by children. As the increase of the ordinal position of the child coping up of

problems also seemed to be good. Akhil and Tushar (2013) [1], in a study on prevalence and pattern of learning disabilities in school children, reported that with the increases in number of siblings, there is decrease in number of positive cases of learning disabilities. As the birth order increases, not only the prevalence of LD in decreased but also the problems coping up capacity of children seemed to be increasing.

Regression analysis was conducted to assess the contribution of LD variables towards coping up of problems of sample children. Table 8 and 9 show the linear regression analysis. The f value was significant ( $p < .000$ ) which indicates the adequacy of model.

Table 10 shows that among the selected variables reading ( $t=3.110, p < 0.002$ ) Reasoning ( $t=3.44, p < 0.001$ ) and duration of LD ( $t=1.922, p < 0.057$ ) have shown significant contribution towards children’s coping up of problems.

Table 11 and table 12 show the linear regression model and ANOVA of the regression analysis. The f value was significant ( $p < .001$ ) which indicates the adequacy of the

model.

Table 13 shows that among the selected independent variables duration of SE and time spent per day in SE classes have shown significant contribution towards coping up of problems by children ( $t=1.79, p < 0.079$  and  $t=3.295, p < 0.002$  respectively). Duration of time spent in SE classes also showed contribution ( $t=1.792, p < 0.079$ ).

When the duration of SE classes is for longer time and if children spend more time per day in SE classes, the children’s coping up capacity increased may be because of special and individual care taken by the special educator. Similar views were reported by Vaughn and Klinger (1998) [7], who found that majority of students with LD preferred to receive specialized instructions outside the general education classroom for part of the school day and students also liked resource rooms because they get help to do their work. This helps to improve coping up capacity for children to deal with problems related to LD.

**Table 1:** Distribution of Sample Children with and Without LD According to Child Variables

| S. No | Variables       | Children with LD |                  |                        |
|-------|-----------------|------------------|------------------|------------------------|
|       |                 | Attending SE     | Not attending SE | Total Children with LD |
| 1.    | Grade           |                  |                  |                        |
|       | 3 <sup>rd</sup> | 19 (31.7)        | 21 (35.0)        | 40 (33.3)              |
|       | 4 <sup>th</sup> | 23 (38.3)        | 22 (36.7)        | 45 (37.5)              |
|       | 5 <sup>th</sup> | 18 (30.0)        | 17 (28.3)        | 35 (29.2)              |
| 2.    | Gender          |                  |                  |                        |
|       | Boys            | 41 (68.3)        | 36 (60.0)        | 77 (64.2)              |
|       | Girls           | 19 (31.7)        | 24 (40.0)        | 43 (35.8)              |
|       | Total           | 60               | 60               | 120                    |
| 3.    | Age             |                  |                  |                        |
|       | 8 Years         | 15 (25.0)        | 20 (33.3)        | 35 (29.2)              |
|       | 9 Years         | 15 (25.0)        | 20 (33.3)        | 35 (29.2)              |
|       | 10 Years        | 15 (25.0)        | 13 (21.7)        | 28 (23.3)              |
|       | 11 Years        | 15 (25.0)        | 7 (11.7)         | 22 (18.3)              |
| 4.    | Birth Order     |                  |                  |                        |
|       | First           | 8 (13.3)         | 43 (71.1)        | 51 (42.5)              |
|       | Second          | 26 (43.3)        | 16 (26.7)        | 42 (35)                |
|       | Third/ Fourth   | 26 (43.3)        | 1 (1.7)          | 27 (22.5)              |
| 5.    | IQ              |                  |                  |                        |
|       | Below Average   | 22 (36.6)        | 6 (10.0)         | 28 (23.3)              |
|       | Average         | 31 (51.6)        | 43 (71.7)        | 74 (61.6)              |
|       | Above Average   | 7 (11.6)         | 11 (18.3)        | 18 (15.0)              |

**Table 2:** Distribution of Sample According to Type of Problem across Status of Attending SE

| Types of Problem According to LDDI | Children with Learning Disability   |   |            |
|------------------------------------|-------------------------------------|---|------------|
|                                    | Attending special education ( n=60) | Not attending special education ( n=60) | Total      |
| Listening                          | 58 (96.7)                           | 54 (90.0)                               | 112 (93.3) |
| Speaking                           | 57 (95.0)                           | 40 (66.7)                               | 97 (80.8)  |
| Reading                            | 55 (91.7)                           | 58 (96.7)                               | 113 (94.2) |
| Writing                            | 58 (96.7)                           | 40 (66.7)                               | 98 (81.66) |
| Mathematics                        | 57 (95.0)                           | 37 (61.7)                               | 94 (78.3)  |
| Reasoning                          | 54 (90.0)                           | 4 (6.7)                                 | 58 (48.33) |

**Table 3:** Distribution of Sample According to SE Variables

| S. No | Special Education Variables | Children with LD Attending SE(n=60) |
|-------|-----------------------------|-------------------------------------|
| 1     | Type of special education   |                                     |
|       | Resource Room               | 16 (26.7)                           |
|       | Full time SE                | 44 (73.3)                           |
| 2     | Duration of attending SE    |                                     |
|       | Below 6 months              | 10 (16.7)                           |
|       | 6 months – 1 year           | 36 (60.0)                           |
|       | 1 year – 2 years            | 14 (23.3)                           |
| 3     | Time spends in SE per day   |                                     |
|       | 1 hour                      | 16 (26.6)                           |
|       | 2 hours                     | 14 (23.3)                           |
|       | 3 hours                     | 30 (50.0)                           |

**Table 4:** Mean scores of coping up of problems related to LD in Different Areas

| S. No. | Areas of Coping    | Mean scores of coping up of problem |        |                                 |       | Total  |        |
|--------|--------------------|-------------------------------------|--------|---------------------------------|-------|--------|--------|
|        |                    | Children Attending SE(n=60)         |        | Children Not Attending SE(n=60) |       | Mean   | SD     |
|        |                    | Mean                                | SD     | Mean                            | SD    |        |        |
| 1.     | Home               | 32.62                               | 5.533  | 26.37                           | 3.464 | 29.49  | 5.565  |
| 2.     | School/Educational | 32.37                               | 5.511  | 26.92                           | 2.824 | 29.64  | 5.148  |
| 3.     | Emotional          | 30.52                               | 5.385  | 26.33                           | 3.592 | 28.43  | 5.019  |
| 4.     | Social             | 32.30                               | 5.366  | 26.27                           | 3.888 | 29.28  | 5.563  |
| Total  |                    | 127.80                              | 20.120 | 105.85                          | 9.613 | 116.83 | 19.183 |

**Table 5:** Model

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .598 <sup>a</sup> | .358     | .292              | 16.136                     |

**Table 6:** ANOVA

| Model | Sum of Squares | Df        | Mean Square | f        | Sig.  |      |
|-------|----------------|-----------|-------------|----------|-------|------|
| 1     | Regression     | 15667.789 | 11          | 1424.344 | 5.470 | .001 |
|       | Residual       | 28121.536 | 108         | 260.385  |       |      |
|       | Total          | 43789.325 | 119         |          |       |      |

- a. Dependent Variable: Coping up of problems given by the child
- b. Predictors: (Constant), Gender, Age, Ordinal position, Class, IQ.

**Table 7:** Coefficients

| Model |            | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
|       |            | B                           | Std. Error | Beta                      |       |      |
| 1     | (Constant) | 100.368                     | 19.618     |                           | 5.116 | .000 |
|       | Gender     | -.922                       | 3.317      | -.023                     | -.278 | .782 |
|       | Age        | 1.737                       | 2.340      | .098                      | .742  | .459 |
|       | Ordinal    | 4.144                       | 2.099      | .200                      | 1.974 | .051 |
|       | Class      | 2.780                       | 3.524      | .107                      | .789  | .432 |
|       | IQ         | -1.316                      | 2.425      | -.058                     | -.543 | .589 |

- a. Dependent Variable: Coping up of problems score given by the child

**Table 8:** Model

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .585 <sup>a</sup> | .342     | .301              | 16.037                     |

**Table 9:** ANOVA

| Model      | Sum of Squares | Df  | Mean Square | f     | Sig. |
|------------|----------------|-----|-------------|-------|------|
| Regression | 14983.662      | 7   | 2140.523    | 8.323 | .000 |
| Residual   | 28805.663      | 112 | 257.193     |       |      |
| Total      | 43789.325      | 119 |             |       |      |

- a. Dependent Variable: Coping up of Problems Score
- b. Predictors: (Constant), Type of LD problem (listening, speaking, reading, writing, Mathematics, reasoning), duration of LD problem.

**Table 10:** Coefficients

| Model |                | Unstandardized Coefficients |            | Standardized Coefficients | t -value | Sig. |
|-------|----------------|-----------------------------|------------|---------------------------|----------|------|
|       |                | B                           | Std. Error | Beta                      |          |      |
| 1     | (Constant)     | 119.303                     | 8.334      |                           | 14.315   | .000 |
|       | Listening      | -3.156                      | 2.267      | -.124                     | -1.392   | .167 |
|       | Speaking       | 1.839                       | 1.507      | .114                      | 1.220    | .225 |
|       | Reading        | 6.655                       | 2.140      | -.245                     | -3.110   | .002 |
|       | Writing        | 2.445                       | 1.613      | .149                      | 1.516    | .132 |
|       | Mathematics    | .990                        | 1.472      | .064                      | .673     | .502 |
|       | Reasoning      | 3.975                       | 1.154      | .312                      | 3.444    | .001 |
|       | Duration of LD | .427                        | .222       | .157                      | 1.922    | .057 |

- a. Dependent Variable: coping up of problems Scores

**Table 11:** Model

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .547 <sup>a</sup> | .300     | .235              | 17.599                     |

**Table 12:** ANOVA

| Model | Sum of Squares | Df        | Mean Square | f        | Sig.  |      |
|-------|----------------|-----------|-------------|----------|-------|------|
| 1     | Regression     | 7158.769  | 5           | 1431.754 | 4.623 | .001 |
|       | Residual       | 16724.831 | 54          | 309.719  |       |      |
|       | Total          | 23883.600 | 59          |          |       |      |

a. Dependent Variable: coping up of problems score

b. Predictors: (Constant), Type of special education, Duration of SE, Time spent in SE class per day.

**Table 13:** Coefficients

| Model |                                 | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig. |
|-------|---------------------------------|-----------------------------|------------|---------------------------|--------|------|
|       |                                 | B                           | Std. Error | Beta                      |        |      |
| 1     | (Constant)                      | 101.899                     | 19.584     |                           | 5.203  | .000 |
|       | Type of special education       | -19.814                     | 7.023      | -.496                     | -2.821 | .007 |
|       | Duration of special education   | 7.884                       | 4.400      | .229                      | 1.792  | .079 |
|       | Time spent in special education | 12.676                      | 3.846      | .608                      | 3.295  | .002 |

a. b. Dependent Variable: coping up of problems score

### Conclusions

- Comparatively the prevalence of learning disability was more among boys than girls and among first born children.
- Majority of children with LD had average intelligence on par with normal achievers.
- Comparatively the prevalence was more in Reading, writing and Mathematics among children with Learning disability.
- More than half of children attending SE were spending SE classes 3 hours per day.
- Majority of had moderate coping up capacity of problems in different areas like home, school, emotional and social.
- Among selected independent variables that is child variables, ordinal position has shown significant contribution towards children's coping up of problems related to LD.
- Among the selected LD variables, reading, reasoning and duration of LD have shown significant and positive contribution towards children's coping up of problems.
- Among the selected independent SE variables, duration of SE and time spent per day in SE classes has shown significant contribution towards coping up of problems by children.
- Early identification of LD problems and early intervention help in bringing out better coping up capacity among children with LD.

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