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Awareness on Learning Disability 'Dyscalculia' among Primary School Teachers – A Study

M. Mohideen Banu[1], K.T. Rafiq Ahamed[1], K.S. Premila[2], M. Manivannan[3]

[1]*Research Scholar, School of Education, Tamil Nadu Open University, Chennai*
[2]*Associate Professor, School of Education, Tamil Nadu Open University, Chennai*
[3]*Professor (Rtd.), School of Education, Tamil Nadu Open University, Chennai*

Learning Disability (LD) as a term that denotes a group of disorders manifest as difficulties in the acquisition and use of abilities such as listening, reading, writing, reasoning, spelling, arithmetic or of social skills (Gerber and Reiff 1994). These difficulties arise from inadequate development of minuscule brain areas, so called 'Specific Delay in Development'. Learning disabilities are of various types such as Perceptual disabilities, Dyslexia (difficulty to read), Dysgraphia (difficulty to write) Dyscalculia (difficulty to do mathematical calculations), Dyspraxia (difficulty in performing coordinated movements), and Developmental Aphasia (difficulty in communication) (RPWD Act, 2016). Children with mild level of LD cannot be identified easily. Boys are affected by learning disability three times more than girls, because of genetic reasons (Narayan, 1997). Specific Learning Disabilities (SLD) of the child should be assessed and adequate training to be given with teaching strategies in appropriate environment.

Children with LD are also children with special needs. Once LD is identified, three categories of assistance such as psychosocial, technological, and educational are to be provided (Sandra, 1998). In educational programmes, children must be provided optimum educational experience and remediation to overcome their lacuna. As each child is unique, difference and deviation of learning behaviour of the child are to be approached through special education programmes and other alternative educational planning should be well designed with the help of specialists in LD and adequate teaching-learning materials should be made available.

Another research finding indicates that, there is poor awareness in primary or elementary school teachers about mathematical disabilities of the students (Morrow, 2000; Mazzacco, 2005). This mathematical disability is also referred to as 'Dyscalculia'. There are many factors affecting success in Mathematics. One of these factors is dyscalculia or mathematical learning disabilities,

a SLD which affects around 6% of the population. Individuals with dyscalculia are not unintelligent but, struggle to learn mathematics, despite having an adequate learning environment at home and school. Dyscalculia is assumed to be due difference in brain function (Kosc, 1974).

Unless the teachers are aware of the different aspects of LD (Dyscalculia) and its processing, they cannot follow the suitable remedial instruction in dealing children with LD. Also, the researches in the field of LD in our country are very few compared to researches done in other countries. Therefore, there is an urgent need to know the status of awareness of primary school teachers with regard to LD so that they can be sensitized to participation in orientation programmes towards development of children with LD. Thus, the present study is an attempt to find out the awareness of primary school teachers with regard to LD so as to adapt suitable programme.

Statement of the Problem

"Awareness on Learning Disability 'Dyscalculia' among Primary School Teachers – A Study in Chennai District"

Objectives of the Study

- To find out the significant difference among primary school teachers' awareness on learning disability due to variation in gender.
- To find out the significant difference among primary school teachers' awareness on learning disability due to variation in experience.
- To find out the significant difference among primary school teachers' awareness on learning disability – dyscalculia, due to variation in specialization (Mathematics).

Hypotheses

- There is no significant difference among primary school teachers' awareness on learning disability due to variation in gender.
- There is no significant difference among primary school teachers' awareness on learning disability due to variation in experience.
- There is no significant difference among primary school teachers' awareness on learning disability – dyscalculia due to variation in specialization (Mathematics).

Methodology

The present study is a survey with description and explorative objective. Depending upon the purpose of the study, the investigator has selected awareness rating scale developed by the research supervisor and the scholar. Under each dimension, the awareness statements of primary school teachers on various aspects of learning disability have been listed. For each statement, three options were given namely 'Low', 'Medium' and 'High' and the scores were given as Low (L)-1, Medium (M)-2 and High(H)-3 for positive statements and Low(L)-3, Medium(M)-2 and High(H)-1 for negative statements. The reliability of awareness tool for primary school teachers is 0.72. The tool has content validity, face validity and intrinsic validity. The intrinsic value of the tool is 0.84.

The investigator had selected 100 teachers from 20 primary schools from Chennai district in the state of Tamilnadu, by using simple random sampling technique. After selecting the sample for the study, the investigator had personally visited the schools and administered the tool. To study the influence of gender, age, educational qualification, experience, management, locality of the school teachers on the awareness of learning disability, Mean and Standard Deviation had been calculated. Based on the Mean and Standard Deviation, t-test and F-test have been worked out to find out significant difference between and among the groups. The analyses of data and interpretation of the results are presented under results and discussion.

Results and Discussion

Hypothesis – 1

1. $H_0$1: There is no significant difference among primary school teachers' awareness on learning disability due to variation in their gender.

Table 1: Mean, SD and t-values of the awareness scores of Male and Female

Primary School Teachers with respect to gender

Dimensions of Learning Disability	Gender				t-values
	Male (N=45)		Female (N=55)		
	Mean	SD	Mean	SD	
Concept	27.156	3.927	28.6	3.79	1.67@
Characteristics	34.187	4.539	33.25	4.77	0.9@
Causes	19.343	3.356	18.6	2.53	1.1@
Instructional Strategies	19.718	2.898	21.87	3.15	4.68*
As Whole	100.406	11.924	102.541	9.98	0.87@

@ Not significant at 0.05 level, * Significant at 0.05 level.

From the table 1, it is clear that the obtained t-values with regard to concept (1.67), characteristics (0.9), causes (1.1), and as whole (0.87) are not significant at 0.05 level. Hence, formulate of null hypothesis is accepted. It means, there is no significant difference among primary school teachers' awareness on learning disability, due to variation in gender. On the contrary, the obtained t-value with respect to instructional strategies (4.68) is significant at 0.05 level. It indicates that there is significant difference in primary school teachers' awareness on instructional strategies for dealing with children with learning disability due to variation in gender. For the Mean values, it is evident that female primary school teachers have more awareness (Mean value = 100.406) on learning disability than the male primary school teachers (Mean value = 102.541).

Hypothesis – 2

2. $H_0$2: There is no significant difference among primary school teachers' awareness on learning disability due to variation in their experience.

Table 2: Mean, SD and F-values of the awareness scores of Primary School Teachers with respect to Experience

Dimensions of Learning Disability	Gender						t-values
	< 5 yrs. N = 51		5 – 10 yrs. N = 27		>10 yrs. N = 22		
	Mean	SD	Mean	SD	Mean	SD	
Concept	28.00	3.79	29.117	3.706	26.583	4.01	1.56@

Characteristics	33.33	4.69	35.00	5.361	32.91	3.369	0.09@
Causes	18.627	2.856	20.47	3.12	18.333	2.461	2.00@
Instructional Strategies	21.215	3.145	21.529	3.76	19.416	2.353	1.83@
As Whole	101.17	10.34	106.35	12.36	97.25	8.32	2.78@

@ Not significant at 0.05 level.

From the table 2, it is clear that the obtained t-values with regard to concept (1.56), characteristics (0.09), causes (2.00), instructional strategies (1.83), and as whole (2.78) are not significant at 0.05 level. Hence, formulate of null hypothesis is accepted. It means, there is no significant difference among primary school teachers' awareness on learning disability, due to variation in experience. For the Mean values, it is evident that female primary school teachers with experience between 5-10 years have more awareness (Mean value = 106.35) on learning disability than the corresponding experiences below 5 years (Mean value = 101.17) and more than 10 years (Mean value = 97.25).

Hypothesis – 3

3. $H_0$3: There is no significant difference among primary school teachers' awareness on learning disability (dyscalculia), due to variation in their specialization (Mathematics).

Table 3: Mean, SD and t-values of the awareness scores of Primary School Teachers about LD (Dyscalculia) with respect to Specialization

Dimensions of Learning Disability	Gender				t-values
	Male (N=45)		Female (N=55)		
	Mean	SD	Mean	SD	
Concept	28.34	17.74	28.21	13.63	0.14@
Characteristics	34.05	16.69	32.9	21.35	1.17@
Causes	18.97	8.13	18.83	8.82	0.21@
Instructional Strategies	20.81	9.66	21.19	11.18	0.01@
As Whole	102.5	9.54	101.52	11.38	0.01@

@ Not significant at 0.05 level.

From table 3, it is clear that the obtained t-values with regard to concept (0.14), characteristics (1.17), causes (0.21), instructional strategies (0.01), and as whole (0.01) are not significant at 0.05 level. Hence, formulate of null hypothesis is accepted. It means, there is no significant difference among primary school teachers' awareness on learning disability, due to variation in specialization. For the Mean values, it is evident that female primary school teachers of math background have more awareness (Mean value = 102.5) on learning disability than the primary school teachers of non-math background (Mean value = 101.5).

Findings of the Study

- Gender has not significantly influenced the awareness on LD among primary school teachers with regard to concepts, characteristics, causes of learning disability and awareness as a whole. But, gender has significantly influences the awareness on learning disability among primary school teachers with regard to instructional strategies.
- Experience has not significantly influenced the awareness on LD among primary school teachers with regard to dimensions namely, concept, characteristics, causes of learning disability and instructional strategies to deal children with learning disability and awareness as a whole.
- Specialization has not significantly influenced the awareness on LD among primary school teachers with regard to dimensions namely, concept, characteristics, causes of learning disability and instructional strategies to deal children with learning disability and awareness as a whole.

Educational Implications

This study has important implications not only for teachers but also for teacher educators, students and parents too. Some of the implications are listed below:

i) This study can serve as a guide for the teacher educators, teachers and parents to be aware of the different aspects of learning disability.

ii) This study provides an idea for teachers to adopt suitable teaching strategies to deal children with learning disability. This study indicated what the teachers were not aware of?

iii) To develop awareness among the teachers about learning disability, special awareness programmes can be organized.

iv) The curriculum as well as the mode of instruction should be devised so as to cater to the needs of the children with learning disability.

v) Unless the teachers are aware of learning disability, they cannot frame positive attitude in their teaching-learning process. They cannot design effective intervention strategies to deal such children.

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