

## Impact of intervention on knowledge of teachers regarding management of academic skill disorders

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■ **ABSTRACT** : The present research study investigated the impact of an intervention programme designed to enhance the knowledge levels of teachers regarding management of academic skill disorders among elementary school children. The study was carried out in 15 urban private schools of Ludhiana city. From each school, 3<sup>rd</sup> and 4<sup>th</sup> class children facing problems in reading, writing and mathematics were randomly selected. The total sample consisted of 300 students. 172 Mathematics and language teachers who were teaching these selected students constituted the sample of teachers. These teachers were given intervention on various aspects of academic skill disorders among children. Pre and post-intervention knowledge scores were assessed to study the impact of given intervention. The results indicated that intervention significantly improved the overall knowledge scores of the teachers from poor to good level. After getting intervention, teachers had better comprehension skills and were able to utilize the gained knowledge for solving day to day problems related to reading, writing and mathematics among students of their respective classes.

■ **KEY WORDS** : Intervention, Knowledge, Comprehension, Academic skill disorders

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Academic skill disorder is an umbrella term used to define various problems faced by children while reading, writing and mathematics. If these problems are not dealt with appropriate intervention at early age, these difficulties become a lifelong challenge as there is no medical treatment for such children. The only and most common treatment for this is individualized special education programmes based on early identification and professional evaluation by experts. To develop need based individualized special education programmes, it is important to enhance basic knowledge level of parents and teachers so that they are able to identify the problem at right stage. There is also growing need to identify these children at an early age and to plan appropriate intervention strategies for these children as they face numerous physical and psychosocial problems in later stage of life. The people with learning problems have poorer health as compared to people without learning difficulties. Apart from health problems children and adolescents with reading and writing difficulties run a higher risk for internalizing

problems including anxiety, depression and phobias in preadolescence age (Prior *et al.*, 1999). McBride and Siegel (1997) of University of Columbia in a study on adolescent suicide reported that 89 per cent of the adolescents who committed suicide had significant deficits in spelling and handwriting. Similarly, Levine *et al.* (1992) in the study on mathematics disability, pointed out that demands of the mathematics curriculum impose increasing strains on a developing and differentiating nervous system and children with mathematics disabilities often experience profound feelings of intellectual inadequacy and sadness. This in turn erode both self-esteem and academic motivation and make their behaviour anxious and withdrawn. The adolescent and teen with learning difficulties who has not received proper academic support and services runs a higher risk than average for becoming involved with tobacco, alcohol and drugs. Teen addictions, aggressive and other anti-social behaviours, and risky pregnancies are therefore linked to learning disabilities. Bale (1981) in cross-sectional study of backward readers

confirmed that there was excess of behavioural disturbances, predominantly of anti-social nature, when the children were rated independently by teachers and by parents. The more serious the associated perceptual motor difficulties, the higher was the rate of antisocial disorder. The literature reviewed has thrown light on significant association between learning difficulties and physical, social and psychological problems.

It is imperative to mention that teachers can play an important role in early identification of these problems because teachers lay foundations for early reading and writing skills in children. The teachers are capable of opening up the young minds to realise their potential ability and capacity.

Pre-school, kindergarten, and elementary school teachers play a vital role in the development of children. What children learn and experience during their early years can shape their views of themselves and the world and can affect their later success or failure in school, work, and their personal lives. Teachers introduce children to mathematics, language, science, and social studies. The impact of an elementary school teacher during the early and formative years of a child's life is significant from both an intellectual and social development perspective. From impacting their self-image to affecting their success or failure in school or work to their personal lives, teachers play a critical role. Therefore, sensitization of teachers was considered an important objective in the present research study.

Further, Gupta (2005) viewed that due to the enormity of volume of work in screening children for disability all over India, when every 10<sup>th</sup> person suffers from one or other kind of disability (Anand, 2005) like paucity of doctors, psychologists and other professionals in the area. The magnitude of time and interaction teachers have with children, teachers offers the best hope and scope for pre-screening process. By training, a few younger teachers intensively in each school depending on size of the school, may be able to reverse a process *i.e.* instead of teachers assisting the professionals; professionals can assist the teachers by spending minimum time in the areas where their expertise can't be substituted. A well trained teacher will have an eagle's eye to observe scientifically and objectively and will refer fewer cases to professionals. On the other hand, the condition of such children becomes pathetic when teachers develop negative attitude towards them. Mendro (1998) also reported that there is strong connection between teacher effectiveness and student achievement.

If teachers are sensitive towards reasons of poor reading, writing and mathematical skills and are able to give little more consideration to these children, they can perform better in their studies. Unfortunately, very few children with learning difficulties are identified at an early stage by the teachers. Instead of providing remedial help to these children, teachers punish such children for better academic performance. Early

identification and management of the problems faced by children in schools is of outmost importance. Thus, need was felt to develop intervention programme relating to early identification and management of children facing problems with reading, writing and mathematics.

Sensitization programme planned for the present study broadly aimed at making teachers aware of early warning signs relating to reading, writing and mathematical problems among children. The specific aim of this programme was to initiate early intervention of the problem. Child development research has established that the rate of human learning and development is most rapid in preschool years. Timing of intervention becomes particularly important when a child runs a risk of missing an opportunity to learn during a state of maximum readiness. If the most teachable moments or stages of greatest readiness are not taken advantage of, a child may have difficulty learning a particular skill at a later time. Empirical data in this context have proved that when a child's problem is recognized early, school failure can be prevented or reduced to a large extent.

Therefore, in the present research study, the sensitization programme was designed for the teachers with the aim that sensitization would :

- enhance the basic knowledge of the teachers regarding various aspects of academic skill disorders among children thereby making them more sensitive towards the needs of such children.
- inhibit or prevent secondary disabilities.
- reduce family stress, dependency and institutionalization of such children.
- reduce the need for special education services at school age.

## ■ RESEARCH METHODS

The present research study was carried out in 15 urban private schools of Ludhiana city. 15 schools were finalized on the bases of availability of facilities and infrastructure, staff, number of sections and willingness to participate in the research project.

### Selection of the sample :

From each school, a list of children facing problems in reading, writing and mathematics was procured from the class teacher. From this exhaustive list ten children each from 3<sup>rd</sup> and 4<sup>th</sup> class were randomly selected from each school. Thus, the total sample consisted of 300 students whose performance either in mathematics or language or both of these subjects was consistently reported to be very poor despite best possible inputs by the teachers. Each concerned teacher (mathematics and language teacher) of selected students constituted the sample of teachers.

**Research tool :**

Keeping in view the various aspects of academic skill disorders, a self-structured knowledge assessment checklist was prepared. It comprised of several test items on three areas of cognition *i.e.* knowledge, comprehension and application. The subjective and objective questions were finalized to assess three basic levels of knowledge gain as discussed below :

**Basic knowledge level :**

Knowledge is the remembering of previously learned material which may involve the recall of wide range of material, specific facts to complete theories and to bring back to the mind the appropriate information. The present study used the concept of basic knowledge as the ability to retain and recall the learned material.

**Comprehension level :**

Comprehension is the ability to grasp the meaning of material. The comprehension process involves ability to translate material from one form to another and interpretation of the material. These learning outcomes go one step beyond the simple remembering of material. The present study used the concept of comprehension as the degree of correct grasp of meaning of contents of different aspects by the teachers.

**Application level :**

It refers to the ability to use learned material in new and concrete situations. The application of knowledge and understanding were used as behavioural outcomes for teachers. In the present research study, application meant the emphasis of mental application of concepts to solve the practical problems given to the teachers in the form of test items.

The knowledge assessment checklist was translated into

Punjabi for better comprehension of the questions by the parents with low educational background.

**Implementation of the intervention programme :**

The intervention programme for the teachers was carried out in 3 consecutive days for 4-5 hours daily in each school through multimedia presentations, discussions and by giving demonstrations on how to prepare worksheets , educational games, charts and memory joggers for children. Along with this, booklets, folders and reference material in the form of worksheets were also given to each teacher. The teachers were given hands on experience for improving their skill to develop need based individualized functional assessment kit for identification of deficit areas in academically poor children of their respective classes.

**RESEARCH FINDINGS AND DISCUSSION**

Table 1 describes the overall per cent distribution of teachers across three levels of performance in the knowledge test. The data indicate a significant ( $p \leq 0.01$ ) shift of teachers from poor level of performance to good level of performance. It is clear from the table that during pre-intervention testing, 90.70 per cent of the teachers had poor level of performance that decreased to 2.91 per cent during post-intervention testing. Similarly, during pre-intervention testing 9.30 per cent of the teachers had shown moderate level of knowledge and none was found at good level of performance. However, 50 per cent and 47 per cent of teachers showed moderate and good level of performance respectively during post-intervention testing. Significant ( $p=0.01$ ) chi square value depicts positive and highly significant impact of intervention on knowledge scores of the teachers. The intervention improved the overall knowledge scores of the teachers from poor to good level.

Table 2 discusses the mean scores of teachers across

**Table 1 : Overall per cent distribution of teachers across three levels of performance in knowledge test (n=172)**

Sr. No.	Level of performance	Pre test		Post test	
		Frequency	Percentage	Frequency	Percentage
1.	Poor	156	90.70	5	2.91
2.	Moderate	16	9.30	86	50.00
3.	Good	0	0.00	81	47.09
chi-square		262.70**	YC	df=1	

\*\*Significant ( $p \leq 0.01$ ), YC=Yates correction

**Table 2: Quantum of gain in mean scores of teachers across various levels of knowledge gain**

Sr. No.	Area	Pre-test		Post-test		t-value	Gain in mean scores
		Mean	S.D.	Mean	S.D.		
1.	Knowledge	6.97	4.40	19.02	2.79	31.64**	12.05
2.	Comprehension	0.96	2.18	16.22	3.71	48.46**	15.26
3.	Application	0.00	0.00	3.84	3.02	37.92**	3.84
Total		7.94	5.45	39.08	7.62	50.11**	31.15

\*\*Significant ( $p \leq 0.01$ )

three levels of knowledge gain. The difference between pre and post-mean scores of the teachers was found highly significant ( $p \leq 0.01$ ), indicating higher mean scores during post-intervention assessments. In case of knowledge component, the mean value of  $6.97 \pm 4.40$  during pre-intervention improved to  $19.02 \pm 2.79$  at post-intervention level. Similarly, significant gain in the mean scores was observed for comprehension component. However, the mean scores in the application component during pre-intervention testing were found to be nil as none of the teacher could reach up to the application level of given knowledge. The significant ( $p \leq 0.01$ ) t- value for the overall pre and post- intervention mean scores of the teachers indicated significant impact of intervention in improving the basic knowledge, comprehension and application skills of the teachers.

The analysis of gain in mean scores across three levels revealed that teachers gained maximum at comprehension level. Comprehension is the ability to understand the basic concepts and meaning of the given term. Enhanced comprehension of the learned material indicated that intervention was successful in increasing basic understanding of various aspects related to academic skill disorders among children. After participating in the intervention sessions, the teachers were able to comprehend the indirect questions asked to them in the knowledge assessment checklist and were able to define and describe problems of children in more scientific way. However, gains at application level were not found as high as at comprehension level. It is clear from the table that

whatever gain was evident it was only during post-intervention assessments as none of the teacher had attempted the questions related to application component during pre-intervention assessment. Therefore, it could be stated that intervention was affective in improving basic knowledge as well as comprehension and application skills of the teachers. The performance of teachers across three levels of knowledge gain is presented in Table 3. The significant ( $p \leq 0.01$ ) Chi square value across all three levels of the knowledge gain naming, knowledge, comprehension and application indicated that there was significant improvement in the knowledge levels of the teachers. At the basic knowledge level, the proportion (62.79%) of the teachers during pre-intervention testing was found significantly high in the poor category of performance. Whereas, during post-intervention testing majority (81.40%) of teachers showed good knowledge level. It was interesting to note that after getting intervention none of teachers' knowledge was found poor. Similar results were found in case of knowledge at comprehension level where high percentage (96.5%) of the teachers whose comprehension ability was found poor reduced to only 1.7 per cent after attending intervention sessions. However, in application component, the significant shift ( $p \leq 0.01$ ) was observed from poor level of applicability to moderate level of application skill. It was observed that during pre-intervention testing 100 per cent of the teachers showed inability to apply whatever knowledge they had to solve reading, writing and mathematical difficulties among children. However, during post-intervention testing,

**Table 3: Per cent distribution of teachers across three levels of knowledge gain and performance**

Sr. No.	Components	Pre -test		Post-test	
		Frequency	Percentage	Frequency	Percentage
<b>Knowledge</b>					
1.	Poor	108	62.79	0	0.00
2.	Moderate	60	34.88	32	18.60
3.	Good	4	2.33	140	81.40
	chi-square	245.51**	YC	df=1	
<b>Comprehension</b>					
1.	Poor	166	96.51	3	1.74
2.	Moderate	4	2.33	22	12.79
3.	Good	2	1.16	147	85.47
	chi-square		305.26**	YC	df=1
<b>Application</b>					
1.	Poor	172	100.00	110	63.95
2.	Moderate	0	0.00	59	34.30
3.	Good	0	0.00	3	1.74
	chi-square	73.21**	YC	df=1	

\*\*Significant ( $p \leq 0.01$ ), YC=Yates correction

34.30 per cent of the teachers showed moderate level of application skill.

**Conclusion :**

The overall results depicted that intervention improved the basic knowledge levels of the selected teachers and helped them to develop comprehension of the basic concepts relating to academic skill disorders. It was observed that majority of teachers were also able to apply the learned knowledge upto moderate level

**Recommendation :**

The poor knowledge level of teachers regarding management of reading, writing difficulties among their class students is a matter of serious concern. Due to lack of awareness regarding these aspects, teachers are not able to identify these children at right age and they force these children to perform better in studies without giving any remedial help. On the bases of the results of the present study, it is recommended that similar need based intervention programmes should be planned and implemented for teachers of elementary classes to make them sensitive towards identification and management of these problems at their own level.

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