

LANGUAGE FACILITATION FOR PRESCHOOL CHILDREN WITH HEARING IMPAIRMENT: A CURRICULUM BASED APPROACH

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Rehabilitation and education of children with special needs (CWSN) are challenging tasks for speech language pathologists and audiologists and special educators. In order to meet this challenge, there is a need for a structured curricular framework to design preschool education programme for CWSN. The Department of Special Education at the All India Institute of Speech and Hearing (AIISH), Mysore, India proposes a curricular framework for preschool education of CWSN. Ten children with hearing impairment selected from the AIISH Preschool Training Centre were evaluated for language skills during pre-term, mid-term and post-term training with the proposed curricular framework. A significant improvement in the language age of CWSN under study was observed as a consequence of structured pre-school training programme.

INTRODUCTION

The Education Commission (1964–66) (Kothari 1966) observed that education of children with disabilities should be an inseparable part of the national education system. The commission recommended integrated programmes in order to bring as many children as possible into these programmes (Alur 2002). Abosi (1996) states that education has mainly three roles with respect to Children with Special Needs (CWSN): developmental (to bring about unique qualities of a child); differentiation among the learners (appreciating individual differences); and integrative (to accommodate people of varying backgrounds). Hence, it is absolutely necessary that the components of a curriculum should

reflect these roles, if we are to attain the goal, 'Education for All' (UNESCO, 2000). The developmental goals focus on facilitating acquisition of various skills like language, cognition and academic, empowerment of caregivers of CWSN and total integration in the social world. This could be achieved through a well-planned inclusive education system with a systematic curriculum during the preschool years. Such a system being a part of general education treats every child as individual learner and identifies problems that are specific to individual learner. Further, it adopts relevant personnel, methods and materials to overcome problems of learners and ensures that every child has an equal opportunity to participate in classroom and play activities including CWSN.

REHABILITATION OF CWSN

Rehabilitation of children with special needs (CWSN) is always considered to be a very demanding task. Various disabilities like Hearing Impairment, Mental Retardation, Cerebral Palsy and Autism have always posed a challenge to the speech-language pathologists/audiologists as well as the special educators for rehabilitation or mainstreaming of these children. Rehabilitation of CWSN is carried out with primary, secondary and tertiary approaches depending on the needs of the individual child. Primary rehabilitation is directed towards reducing the occurrence of disabilities by employing measures for prevention. It may be universal (i.e. prevention desirable for everyone), or be restricted to a selected population (i.e. prevention recommended for high-risk groups) or to an indicated population (i.e. prevention in individuals with an identified risk). Secondary rehabilitation aims at reducing the duration or severity of disability. These activities provide early identification of the disabling condition followed by prompt treatment and intervention to minimize the development of disability. These strategies can be applied either at the prenatal or neonatal level.

Tertiary rehabilitation on the other hand, aims at limiting or reducing the effects of a disorder or disability that is already present. It involves long-term care and management of a chronic condition, e.g. rehabilitation or correction of the disability by surgical measures or by adopting strategies by which a person with disability can lead a normal or near normal life. The main aim of rehabilitation of persons with disability is to increase awareness of disabilities and their needs in order to encourage their full integration in society. These measures also include special education programmes. During the past three or four decades, considerable efforts have been made to develop special education programmes to educate children with hearing impairment and mental retardation. Special schools or preschools for CWSN with specially trained teachers have provided excellent education programmes which have helped in the overall development of children.

Development of these special educational programmes for CWSN for tertiary rehabilitation requires adequate planning and execution in order to be effective. Speech language pathologists and audiologists and special educators need to pursue systematic assessment of these children, evaluate the efficacy of the highly structured curriculum or programme developed or designed for CWSN, and also the efficacy of the programme per se. Taking into consideration the dearth of speech language pathologists and audiologists and special educators in India and also the non-availability of a structured curricular framework for CWSN at preschool level, a need was felt to propose a curricular framework to facilitate language skills for preschool children with communication disorders who fall in the realm of CWSN and also to assess its efficacy. Curriculum-based measurement was employed to evaluate the efficacy of the proposed curricular framework.

CURRICULUM-BASED MEASUREMENT (CBM)

Deno (1985) proposed Curriculum-Based Measurement (CBM) which uses repeated measures from the children's curriculum to evaluate the effectiveness of instruction and success in children's learning. When the generic procedures for measurement are employed with stimulus materials drawn directly from the instructional materials used by teachers in their classrooms, the approach is referred to as *curriculum-based*. CBM provides information on how the children's behaviour changes on a "generic" task of constant difficulty. CBM is an approach for assessing the growth of children in basic skills that originated uniquely in special education (Leno 2001). Increase in the behaviour being measured on equivalent forms of the task should represent academic or overall growth.

CBM data can be used not only to evaluate instruction but also to classify age and grade development status (Deno 1985; Shinn 2002), predict and improve on teacher judgements regarding child's proficiency (Marston, Mirkin and Deno 1984), and discriminate between children achieving typically and those in alternative programmes (Marston & Magnusson 1988). Consequent to the educational laws and regulations that require schools to ensure access to the general education curriculum, increased emphasis has been placed on inclusion of CWSN in general education classrooms. Therefore, there is a need to evaluate the effects of these changes on the overall development of CWSN. CBM has proved to be a very useful tool for those accountable for the progress of CWSN as they seek to provide education for these children in the mainstream curriculum. CBM is also employed to predict the growth of children in early childhood programmes. It is mainly used in screening to identify the CWSN, determine the eligibility for remedial and special educational programmes, and evaluate interventions, instructions and inclusion of children in mainstream programmes. Despite this know-how of the needs for systematising preschool and early child educational programmes for both typically developing as well as CWSN, the

existing scenario in the country is bleak with only a few reported studies on this issue.

EARLY CHILDHOOD EDUCATION (ECE) IN INDIA

Early childhood education is the formal teaching and care of [young children](#). Research on brain development attests to the importance of mental, physical and social capabilities of the children. If these fundamental capabilities are not well established from the start, a child's learning potential could be adversely affected. Research has also indicated that if these early years are not supported by, or embedded in, a stimulating and enriching physical and psychosocial environment, the chances of the child's brain developing to its full potential are considerably, and often irreversibly, reduced (NCERT 2006). While the Department of Child Development in India focuses on the global development of a child including health, nutrition and partially preschool education, the Department of Social Welfare gives a large percentage of attention on children's social development, the academic component being very minimal (Prema 2006). There are nursery schools and Anganwadi centres all over the country, but majority of these programmes are not accredited to any higher body or departments and do not have uniformity in curricular activities. Until the turn of the twentieth century when the missionaries started the first pre-schools, there was no provision for early child education.

It is well known that the early childhood or preschool education in India for typically developing children is still not well designed. In the absence of any such model, Prema (1993-94) proposed a Language Development Programme (LDP) for children with hearing impairment enrolled in regular schools and implemented the same at AIISH. Results showed progress in various speech and language skills that was attributed to the intense structured training through LDP. There is no such structured programme documented for early childhood special education till date. Further,

there is a need for preschools offering services to CWSN to design appropriate and structured curricular framework, empower trained, motivated, and suitably rewarded teachers, plan for appropriate teacher-child ratio and group size, devise effective supervisory mechanisms, provide child-friendly infrastructure besides planning for multidisciplinary approach. Hence, the present study envisaged to propose such a framework for CWSN, which could be implemented in the preschools offering services to CWSN in the country. The department of special education at the All India Institute of Speech and Hearing strives to propose such a curricular framework to meet the special educational needs of CWSN during their preschool years so that tertiary rehabilitation of CWSN may be successfully achieved. One such curricular framework proposed by Anagha & Prema (2011) was implemented on children with hearing impairment at the preschool level and evaluated following the CBM criteria for a period of one year. As it is well known that adapting a curriculum for CWSN involves differentiating instruction to provide learners with a variety of ways to process information and demonstrate what they have learned, the proposed curriculum for preschoolers focused on specific skills like language, cognition and pre-academic areas to facilitate overall development of a child. The proposed curriculum also enables a teacher to identify effective intervention techniques for use in the preschool classroom and to plan individualized programme for CWSN.

METHOD

Twenty CWSN (10 children with MR and 10 children with HI), selected in the earlier study by Anagha & Prema (2011) who were trained with the proposed curricular framework for a duration of four months, were recruited for the present study. Out of these 20 children, 10 children with HI were trained for one year with the proposed curricular framework during their second year of preschool education at Preschool Training Centre in AIISH. Preschool training was carried out as per the scheduled time-

table. Among the five sessions of 45 minutes each, the special educators carried out three sessions (pre-academic skills such as pre-reading, pre-writing, cognitive skills along with conversational skills), trainee clinicians in speech language pathology and audiology for one session each on alternate days (for speech, language and listening skills), and one session is assigned for co-curricular activities (arts, crafts, dance, yoga, games, story and comic shows). In communication skills, speech language pathologists and audiologists, and special educators facilitated comprehension and expression of speech and language skills and listening skills of the children. In cognition skills, special educators worked on attention, memory, problem solving and reasoning skills of children. The pre-academic skills included pre-reading and pre-writing skills followed by conventional reading and writing skills. Progress of all the 10 children with HI was monitored on a periodic basis.

Table 1
Prototype of Preschool curricular framework

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Professionals involved in preschool education: Speech Language Pathologists and Audiologists, Special Educators, Clinical Psychologists, ENT's, Physiotherapists and Occupational therapists (wherever found essential).

Skills considered for training in preschool education: Self-help, Communication, Cognition, Pre-academics, and Co-curricular skills (gross and fine motor, art and craft and social skills)

Teacher - children **Ratio** in classroom: 1:5

Baseline Measures on:

1. Activity Checklist for Preschool Children with Developmental Disabilities (ACPC – DD) (Venkatesan, 2003)¹
2. Computerized Linguistic Protocol for Screening (CLiPs) (Anita & Prema, 2004)²
3. Screening Test for Acquisition of Syntax in Kannada (STASK) (Basavaraj, 1992)³

Curriculum components: Self-help skill, Language skill, Cognitive skill, Pre-academic skill, Co-curricular skills.

CBM Schedule and Progress monitoring:

- Baseline assessment done with ACPC-DD checklist by Special Educators
- Language evaluation on CLiPs, STASK by Speech Language Pathologist

- Listening evaluation (for children with hearing impairment) by Audiologist
- Periodic assessment and progress monitoring by Special Educators
- Re-evaluation on CLiPs and Listening levels by Speech Language Pathologist and Audiologist
- Re-evaluation on ACPC-DD checklist by Special Educators

¹It is a standardized behavior assessment device to elicit comprehensive information on the current level of skill behaviors in preschool aged kids with developmental disabilities. It is suitable for the age range of infants, toddlers and preschool children between

n0

– 72 months. This checklist also serves as a curriculum guide for preschool children with developmental disabilities.

²It is a computerized test mainly used

to trace the developmental pattern of various linguistic aspects for preschool children and to help

in identification of children with language disorders. It was standardized for children in the age range of 3-8 years.

³This test was mainly developed to assess the level of syntax acquisition in Kannada speaking children in the age range of one to five years. It helps in identifying children with language disorders and also in specifying the areas of deficit in syntax in these children.

Parent empowerment: Guidance and training in

- Preparation of teaching aids to be used by parents at home to teach the concepts which are taught in the preschool
- Computer Training for parents in the department to make them computer literate which helps in educating the children
- Periodic guidance and counseling to parents/caregivers to encourage intensive home training activities

Children were evaluated by the special educators every month and also at end of the semester for which a periodic report was maintained. A formalised curriculum (Swapna, Prema and Geetha, 2010) was followed by the special educators for one year. The activities in the lesson plan were taken up from the above preschool curriculum. Speech language pathologists and audiologists carried out language evaluation on Computerised Linguistic Protocol for Screening (CLiPs). At the end of one year (preschool term), Curriculum Based Measurement was carried out to evaluate the progress of children. All the ten children were also re-assessed on Computerized Linguistic Protocol for Screening (CLiPs) after

one year of training with the curriculum to evaluate the language level and also the efficacy of language facilitation by employing the curricular framework for the overall development of CWSN .

RESULTS

The results of the study were analysed using repeated measure ANOVA to compare the performance of children on language skills. The data of pre-term, mid-term, post-term period compiled after introduction of the preschool curricular framework for a period of one year was analysed. Table II gives the mean and standard deviation scores obtained on CLiPs for all the 10 children with hearing impairment. The results indicated that there was a significant difference in the language age of children [$F(2, 18) = 14.034, p = 0.00$] after training for a period of one year.

Table 2
Mean and SD scores on CLiPs

Scores		Pre-term	Mid-term	Post-term
Semantic scores	Mean	4.18	4.98	5.64
	SD	(0.289)	(0.780)	(0.878)
Syntax scores	Mean	2.76	3.5	4.38
	SD	(1.053)	(0.875)	(0.669)

The results obtained from the test, as shown in Figure 1 shows comparison of CLiPs scores (semantic and syntax) for pre-term, mid-term and post-term exposure to the structured curriculum. The figure shows that there was a significant difference in the language age of CWSN in the areas of semantic and syntax in the pre, mid and post term scores.

The results obtained on CLiPs, as shown in Figure 2, show scores in the semantic parameter for pre-term, mid-term and post-term

after the introduction of the structured curriculum. A repeated measure ANOVA was conducted to compare the difference in the semantic age of children pre-term, mid-term and post-term period after training with the curriculum. There was a significant difference found in the semantic age [$F(2, 18) = 14.034, p = 0.00$]. Figure 2 shows that there was a significant difference found with respect to the semantic age of CWSN in the pre, mid and post term scores.

The results obtained from the test, as shown in Figure 3, shows comparison of CLiPs scores in the syntactic parameter for pre-term, mid-term and post-term period after the training with the curriculum. A repeated measure ANOVA conducted to compare the difference in the syntactic age of children shows a significant difference in the syntactic age [$F(2, 18) = 30.264, p = 0.00$]. Figure 3 shows that there was a significant difference found with respect to the syntactic age of CWSN in the pre, mid and post term scores.

DISCUSSION

The present study was conducted with the objective of developing a structured curricular framework to be followed in preschools that offer services to CWSN. It was hypothesized that such a curricular framework for preschool training would help in facilitating language skills in children with CWSN. Although the curriculum is not directly focused on enhancing specific language skills, it was speculated that the proposed framework would enhance language skills in children that would be useful for later mainstream education. The results reveal that the curriculum was effective in developing language skills, as shown in Table III and Figure 1, cognitive skill and academic skills. Morse, Schuster and Sandknop (1996) propose that the curriculum must emphasise skills that are both functional and relevant so that children will develop skills that enable them to work and interact in integrated community services, when they are adults. The curricular framework proposed for AIISH Preschool Training Center is found to be

functional in nature to develop the necessary language skills in CWSN that are required for later integration into the community.

Figure 1
Comparison of pre, mid and post training language age

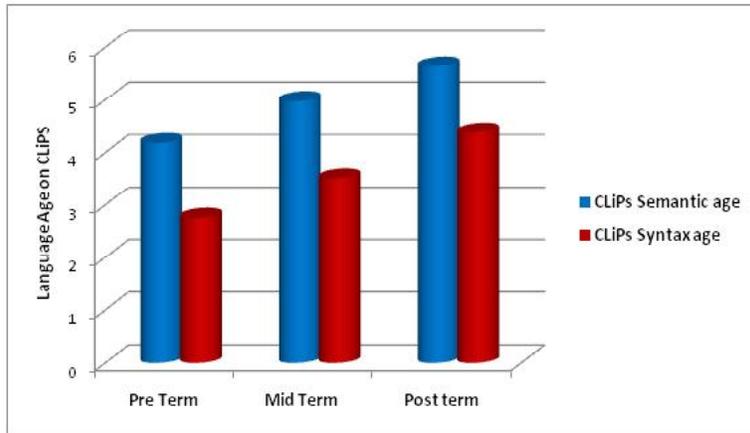


Figure 2
Comparison of pre, mid and post training semantic age

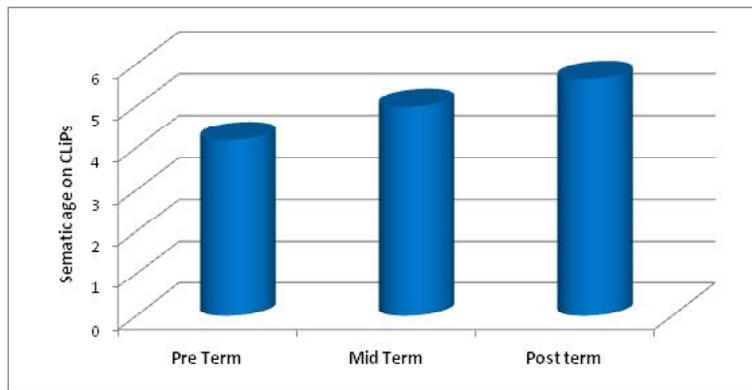
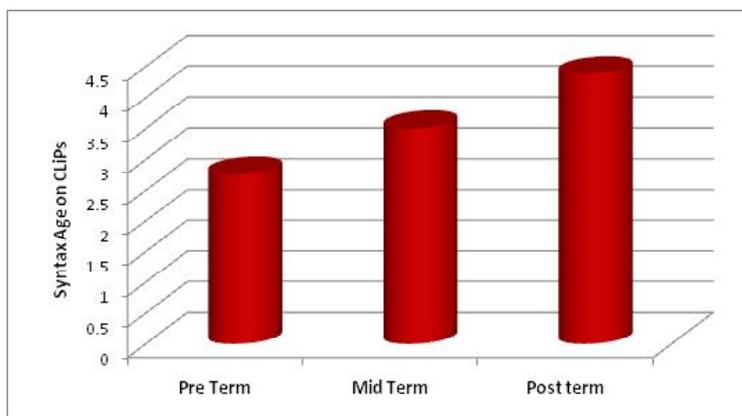


Figure 3
Comparison of pre, mid and post training syntax age



In addition to the curriculum, the framework within which the curriculum was implemented with the multidisciplinary professionals in the preschool has been another important factor contributing to the significant improvement in language age of children with hearing impairment. The multidisciplinary approach proposed in this framework for the rehabilitation of CWSN plays a major role in the improvement of various skills. Multidisciplinary approach with special educators, speech language pathologists & audiologists, ENT specialists and clinical psychologists facilitated team approach suggesting that such a practice may be implemented in the special preschools for CWSN. However, a precautionary note is that although research indicated the importance of appropriate, empirically tested curriculum, content and mechanism for implementation, there is a need to take a serious look at the teacher factor. The special teachers must be empowered in the right direction to develop the necessary instructional skills and the creativity to design classroom strategies to facilitate optimum teaching-learning environment for CWSN in order to prepare them for social integration. Children can become more proficient and

independent in a task with scaffold instructions for enhancement of language skills which serves as the essence for successful integration in the society. As rightly pointed out by Gargiulo (2003) successful mainstream education may be envisioned only when support for CWSN can be weaned off that is highly likely with a strong foundation of language for education and communication in the social world.

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