

***ALI YAVAR JUNG NATIONAL
INSTITUTE OF SPEECH AND HEARING
DISABILITIES (DIVYAGJAN)***

***(An Autonomous body under the Department of Empowerment of
Persons with Disabilities(Divyagjan), Ministry of Social Justice and
Empowerment, Government of India, New Delhi)***

K.C. Marg, Bandra Reclamation, Bandra (W), Mumbai - 400050

RESEARCH AND PUBLICATIONS DURING 2015-16

Research projects have been designed to increase and improve the quality of rehabilitation services. The projects are aimed at evolving service modules and diagnostic tests that can be used or replicated by other organisations. Modules for early identification and intervention of children with hearing impairment have been prepared and are on field trial.

System : The Academic Committee is constituted as required under the bye-laws of the Institute. The members are approved by the Executive Council of the Institute. All the projects and academic activities of the Institute are placed before the Academic Committee, including request for extension of projects. The report of the completed projects are also examined by the Committee.

ONGOING PROJECTS :

i) Low cost high fidelity TV audio signal enhancement device using FM technology - Project funded fully by SEED division under TIE Programme of DST - Ministry of Science and Technology

Investigator	- Dr. S.G.R. Prakash
Duration of the Project	- 3 Years
Date of Sanction	- November, 2012
Budgetary Provision	- Rs. 31,41,858/-
Expenditure	- Rs. 9,53,690/-

Objectives of the Project :

- To design a basic model FM device, that will be incorporated in the analog pocket model hearing aid.
- To check the performance of these prototype devices using electro-acoustic measurements.
- To develop 50 prototypes for facilitating field studies.
- Evaluation of outcome measures and documentation of the findings.
- Patenting

Progress of the Project : The FM prototype is designed. The receiver and transmitter chips of the prototype are have been programmed and hearing aid circuit has been integrated along with the receiver circuit. An outcome measure developed in English and Telugu languages for assessing the benefits of the developed FM prototype was tested on clients and was found satisfactory by the clients. The report has been prepared and some more prototypes are in the process of development. The project will be completed by June,2016.

ii) Design and development of Indian Sign Language captioning framework - in collaboration with CDAC, Pune and funded by Dept. of Information Technology, New Delhi.

Chief Investigator	- Dr. Mahesh Kulkarni, CDAC, Pune
Co-Chief Investigator	- Dr. A.K. Sinha
Co-Investigators	- Dr. P.J. Mathew Martin
	- Mr. Sudesh Mudaliar
	- Mr. Swapnil Belhe
Duration of the Project	- 3 Years
Date of Sanction	- January, 2013

Budgetary Provision	- Rs.7.05 lakhs
Expenditure	- Rs. 5,27,000/-

Objectives of the project -

- To design and develop the framework for Animated Indian Sign Language (ISL) Captioning.
- To design and develop an engine for conversion of text
- To provide end-to-end captioning system which will allow caption preparation for multimedia (audio visual) contents for the Deaf and hard of hearing.
- To develop a customized character generator, which will overlay the high resolution graphics onto the video. This will also have facility to generate and embed pictograms, which represent visual cues for the Deaf. The pictogram based captioning will be one of its kind systems in India.
- To develop teleprompter based solutions, that will help the ISL signer simultaneously to read and sign in ISL

Progress : Completed the recording, captioning work towards gathering/capturing of Indian Sign Language corpora from various regions of the country, for creation of avatar, annotation, captioning 'Disaster Messages' for Digital Television and Public Places. Sample recording of the disaster messages in India Sign language in 2D done and experiments with application of avatar on Indian Sign Language have been successful to a limited extent, by the research team at AYJNIHH-Mumbai and at CDAC-Pune. Website development for testing and development of hand gloves and motion capturing technology has been done. The validating the disaster messages in ISL in 3D video format and application of Avatar and building of algorithm is under process. This will enable the creation of software for translation of text to 'ISL' conversion of disaster related messages targeting persons who are Deaf & hard of hearing.

iii) Study on the problems faced by the hearing impaired at their work places

Principal Investigators	- Dr. A.K. Sinha
Co-Investigator	- Mr. R. Bhattacharya
	- Dr. S.B. Rathnakumar
Duration of the Project	- One year
Date of Sanction	- December, 2014
Budgetary Provision	- 6.00 lakhs
Expenditure	- Rs.4,52,553/-

Objectives of the Project –

- To identify the problems faced by the persons with hearing impairment at work place
- To find out the level of job satisfaction among the deaf employee
- To suggest the solution of the problems faced by the persons with hearing impairment at work place
- To assess the kind of support required viz. financial, medical, physical or socio-psychological

Progress of the Project – Data collection is completed and analysis of data is going on. The data will be analysed and complete report will be submitted by the end of August, 2016.

iv) Mobile Phone Assisted Remote Speech Therapy Platform

Principal Investigators	- Mrs. Anjali Kant
Co-Investigator	- Ms. Sadhana Relekar
Duration of the Project	- 3 Years
Date of Sanction	- 20 th October, 2014
Budgetary Provision	- Rs.48,66,133/- for two years
Expenditure	- Rs. 1,47,208/-

Objectives of the Project –

- To enable patients with speech disorder to avail speech therapy remotely at a time of their convenience, thereby making it possible for patients from all over India to be integrated into society.
- To enable a fresh graduate and/or experienced speech therapist to have a practice with nominal monetary investments to increase the reach of their services.

Progress of the Project –

- An application has been developed in order to carry out a digitized assessment of articulation of subjects. It can be used on a tablet. It is called Digitized Picture Articulation Test.
- With the help of the application digitized articulation assessment of 100 typically developing children in the age range of 5 to 13 years has been completed. Second phase will be completed in December, 2016.

v) Speech, Language, and Hearing Outcomes in Children using Cochlear Implant Fitted under ADIP Scheme – A Multi Centric Study

Principal Investigators	- Dr. Gauri Shanker Patil
Co-Investigator	- Dr. Vakil Prasad Sah Dr. Ganesh Joshi Mr. B. Srinivasa Rao Mr. Lanu Wanboy Mr. Sujoy Makar Mrs. Gauri Telang Mr. Shiv Shankar
Duration of the Project	- One Year
Date of Sanction	- 23.10.2016
Budgetary Provision	- Rs.7.50 lakhs

Objectives of the Project : To examine speech, language, and hearing outcomes in children using cochlear implant fitted under ADIP scheme. Specifically, the study involves progress of children in terms of development of phonology, semantics and auditory perception skills. To design a basic model FM device, that will be incorporated in the analog pocket model hearing aid.

Progress of the Project : Data Collection in Progress. Data is collected on monthly basis.

vi) Development of test of Reading Comprehension in Bengali

Principal Investigators	- Mr. B.N.Rao
Co-Investigator	- Mr. Indranil Chatterjee and Mr. Saikat Das
Duration of the Project	- One Year
Date of Sanction	- 23/10/2015
Budgetary Provision	- Rs.2.5 lakhs

Objectives of the Project –

- (i) To select story based text and General text
- (ii) To develop test questions
- (iii) To develop scoring and interpretation strategies

Progress of the project -

- (i) Sentence sequencing and paragraph reading have been chosen as an area for test of Reading Comprehension.
- (ii) Four story based and four General text based paragraphs has been chosen and for each paragraph objective and subjective test questions has been developed and sent to 7 judges for checking content validity.

vii) Development and standardization of detailed and short checklist for school screening in NRC.

Principal Investigators	- Dr. V.P. Sah
Co-Investigator	- Mr. Sudhanshu Kumar Vikas
Duration of the Project	- 1 Year
Date of Sanction	- 29/10/2015
Budgetary Provision	- Rs.6.00 lakhs

Objectives of the Project – To develop a check list for screening school student with hearing impairment

Progress of the Project - Draft, questionnaire (detailed & short) has been made, data collection is going on.

Publications

- 1) Patil, G.S., Hemlatha, P., & Manjula, R. (2016). Normative database in Adults for the Motor Speech Profile – Tremor Features. *AYJINHH- Journal of Communication Disorders, 1*, 58-70.
- 2) Gangadhar, U., Hemlatha., & Patil, G.S. (2015). Impact of environmental factors on vocational training of persons with intellectual impairment. *Disabilities and Impairments, 29(1)*, 5-13.
- 3) Gangadhar, U., Hemlatha., & Patil, G.S. (2016). "Impact of Impairment of body functions and body structures on vocational training of adults with intellectual impairment". Proceedings of the National Conference on 'Skill development : Dynamic Approach Towards Inclusive Society for Persons with

Disability" held from 20-21 November 2015 at Amity Institute of Rehabilitation Sciences, Noida (Delhi NCR).

- 4) Ahuja, G. (2015). International Journal of Disabilities Studies Special Education and Rehabilitation and Journal Volume-1 ISSN-2455-8001.
- 5) Kant, A. R. & Pathak, S. (2015). Qualitative Assessment of Speech Perception Performance of Early and Late Cochlear Implantees. Indian Journal of Otolaryngology and Head and Neck Surgery.
- 6) Kant, A. R., Anindita, B., Arya, S. (2015). "Vocal Parameters in Children between 4 to 12 years of Prototype Database". International Journal of Scientific and Research Publication, Volume 5, issue 11.
- 7) Kant, A. R., Anindita, B., Arya, S. (2015). Mapping of Pediatric Voice Handicap Index into ICF format for the Assessment of Voice Disorders in Children. International Journal of Multidisciplinary research and development, vol. No. 2, Issue 11; pg. No. 261-265.
- 8) Mathur, R., & Anindita, B. (2015). "A comparative study of voice characteristics of adults with hearing impairment amplified at different ages and normal hearing". International Journal of Multidisciplinary research and development, vol. No. 2, Issue 11; pg. No. 507-511.
- 9) Mathur, R., (2015). "Prevalence of Learning Disability in Children with hearing impairment in Mumbai, India. International Journal of Science and Applied Research, Vol 2(12), 2015; 62-70.
- 10) Mathur, R., Pande, K. & Sahgal, L. (2016). "Impact of vocal loading test in primary school teachers with and without dysphonia." International Journal of health sciences and research (IJHSR), 6(2),328-334.
- 11) Poothullil J. Mathew Martin (2015) Visual Media & Disability the Challenges and Solutions in Using Multimedia, Media Research and Communication Studies Journal (MRCSJ), Department of Mass Media, K.C. College, Supreme Stationers and Xerox, Mumbai, India, Vol. 2, July. 2015. ISSN:2394-7594.
- 12) Poothullil J. Mathew Martin (2015) Rights of Persons with Disabilities in Access to Website Information: A Study of Indian University Websites, Dominant Publishers and Distributors (P) Ltd., New Delhi-02, India. ISBN-978-93
- 13) Poothullil J. Mathew Martin, Bhalerao S. & Moger A.(2015) 'Subtitling as an Information and Communication Tool for Increasing Literacy' in the HJC Journal on Futuristic Education, ISSN No:2349-8145
- 14) Poothullil J. Mathew Martin and Gupta K.P.(2015) 'Comprehension of Basic Mathematics Among Children with Hearing Impairment Using Multimedia in Accessible and Non-Accessible Format a Comparative Study' in the HJC Journal on Futuristic Education, ISSN No:2349-8145
- 15) Poothullil J. Mathew Martin, Sagar Bhalerao, Amrin Moger, Sunder Rajdeep (2016) 'A Short Content Analysis Study of Science and Sustainable Development Communication in a Newspaper Daily', International Journal of Commerce, Economics and Management Vol.2:No.2. Special

Issue:Part 2. Department of Commerce, University of Mumbai, Rishabh Publishing House, Mumbai. India.ISSN:2394-4560

- 16) Banik, A., Anindita B. & Aninda Duti B. (2015): Awareness of Barrier Free Environment for Children with Hearing Impairment in Inclusive Schools: A Survey. *International Journal of Scientific and Research Publications*, 5 (11): ISSN 2250-3153, page 43-49.
- 17) Kant, A., Banik, A., (2015): Analysis of characteristics of semantics of spoken language in normally developing Hindi speaking children. *International Journal of Research in Medical Sciences*, Dec; 3(12): page 3534-3542, pISSN 2320-6071 | eISSN 2320-6012.
- 18) Mathur, R., Banik, A. (2016). Phonological Development Profile in Typically Developing Hindi Speaking Children. *Journal of Language in India*, www.languageinindia.com, ISSN 1930-2940 Vol. 16:3 March 2016, Page 149-159.
- 19) Mathur, R., Banik, A. (2016). Development of phonological processes in typically developing 3 ½ to 6 ½ years Hindi speaking children. *International Journal of Multidisciplinary Research and Development Online* ISSN: 2349-4182, Print ISSN: 2349-5979, Volume 3; Issue 4; Page No. 101-105.
- 20) Kumar, H., Sinha, A., Chatterjee, I., Hota, B., and Shatakshi. (2016). Effect of Linguistic Experience on Nasalance Measure in Native and Non-Native Speakers of Bangla and Hindi Language. *Asia Pacific Journal of Research*. Vol.I, Issue XXXIX.
- 21) Kalyani, M., Sinha, A., Kumar, H., Hota, B., and Das, L. (2016). Influence of Mizo Language on Nasal and Oral Passage in English: A Nasometric Study. *Asia Pacific Journal of Research*. Vol.I, Issue XXXIX.
- 22) Mishra, A., Sinha, A., Kumar, H., Chatterjee, I., Hota, B., and Das, M. (2016). Comparison of Functional Benefit of Unilateral Versus Bilateral Hearing Aid Fitting in Elderly Population Using Hindi Transadaption of Speech, Spatial and Qualities of Hearing Scale. *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*.e-ISSAN:2279-0853, P-ISSN:2279-0861. Vol.15, Issue 5, Ver IX pp77-82.
- 23) Auddy, S., Dutta, P., Kumar, P., Sinha, A. and Kumar, H. (2016). Perception of Associates and Self Regarding Hearing Handicap Above Age 50. *Asia Pacific Journal of Research*. Vol.I, Issue XXXVIII.
- 24) Laishram, P., Kumar, H., Chatterjee, I. and Hota, B.(2016). Computation of Nasalance Variation in Manipuri as measured through Nasal View and Nasometer II. *IOSR Journal of Dental and*

Medical Sciences (IOSR-JDMS).e-ISSAN:2279-0853, P-ISSN:2279-0861. Vol.15, Issue 4, Ver XIII pp76-84.

- 25) Kumar, H., Kumari, A. and Hota, B. (2016). Clinical Application of Indigenous Communication Software for Improving Communication Ability of Patients with BROCA's Aphasia. Indian Streams Research Journal. ISSN2230-7850. Vol.6, Issue 4.
- 26) Chakraborty, K., Sinha, A., Kumar, H. and Hota, B. (2016). Development and Standardization of a Semantic Comprehension Assessment Tool for Dementia in Bengali. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS).e-ISSAN:2279-0853, P-ISSN:2279-0861. Vol.14, Issue 12, Ver VII pp115-121.