ASHA KIRAN

The Annual Newsletter of the Asian Indian Caucus (AIC)
November 2018

In this Issue

About The Asian Indian Caucus (AIC)

The Asian Indian Caucus is one of the six mulicultural constituency groups of the American Speech-Language-Hearing Association (ASHA). The Asian Indian Caucus was established in 1994 to address the professional, clinical, and educational needs of persons with communication disorders of Asian Indian origin residing in the United States. Asian Indians, otherwise known as South Asians, refer to persons who trace their origin to the Indian subcontinent, including, but not limited to the following countries (in alphabetical order): Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

Asian Indian Caucus Objectives

- To motivate and provide opportunities for greater participation of Asian Indians in professional service to speech pathology and audiology
- To serve as a resource to meet the needs of clients of Asian Indian origin and/or professionals working with clients of Asian Indian origin
- To promote exchange of information and networking among members to enhance professional development and/or quality of service delivery to Asian Indian clients with communication disorders
- To compile information about evidence-based practices relating to service delivery for Asian Indian clients globally

We were featured in the **ASHA Leader** in March 2018. Here is a link to the article.

To **connect with us** and hear about our regular updates, contact us at asianindiancaucus@gmail.com and follow us on social media.

President's Message

Dear AIC Colleagues,

வணக்கம்! नमस्ते ! سلام و عليكم! হাই! హాయ్ to you all!

It gives me great pleasure to write to you yet again at this exciting time of the year. Asian Indians/South Asians are one of the fast-growing ethnic groups in the US. The group represents the second largest immigrant community with significant diversity in language, religion, culture. Given this diversity and with the projected increase in population growth of aging seniors, the Asian Indian population is prone to speech, language, hearing, swallowing and cognitive impairments. Therefore, this only calls for more and more qualified professionals in the field of audiology and speech-language pathology to provide culturally and linguistically appropriate services to this population.

I feel honored and privileged to have served as the President of our esteemed caucus, two terms in a row. It was indeed a historic moment for me to have led this caucus the last four years. The achievements wouldn't have been possible without the dynamic support of our AIC executive team: Arun Biran, Prabhu Eswaran, Ranjini Mohan, Priya Sudarsanam, Sharmila Biran, Sarada Ananthakrishnan, and Siva priya Santhanam. I am grateful for their spirits and enthusiasm that has kept this caucus moving in great stride during my presidential terms. We have learned many lessons and grown in many ways in these four years and have made significant progress in addressing professional, clinical, and educational needs of our Asian Indian clients and our members.

We have continued our strong collaborations with ASHA's multicultural issues board (MIB) and other multicultural constituency groups (MCCGs; Native American, Asian Pacific Islander Caucus, Hispanic Caucus, L'GASP-GLBTQ Caucus, and National Black Association for Speech-Language and Hearing). We have been working on establishing collective goals and planning the future directions of our caucuses. We were also successful in contributing to the article series on MCCGs for ASHA Leader Live. Here is a link to our article.

In an effort to address our growing clinician and research needs to serve Asian Indian clients in the US, we have established strong ties with international organizations such as the Indian Speech and Hearing Association (ISHA) as well as our own local universities in the US. Through these collaborative initiatives, we hope to expand, develop, and collect resources in different Asian Indian languages to add to our AIC resource database. In this regard, we are grateful to receive support from eminent members of ASHA such as Dr. Brooke Hallowell, Dr. Yasmeen Faroqi Shah, Dr. Swathi Kiran, Dr. Shubha Kashinath, and members of ISHA such as Dr. Prathiba Karanth, Dr. Kalyani Mandke, Prof. Roopa Nagarajan, Dr. Krishna Yerraguntla, Dr. Shivashankar, and Prof. Rashmi Bhat. We are hoping to have a long-term collaboration at many different levels with ISHA and other international organizations. AIC will also have a strong presence at the 2019 ISHA convention at Bengaluru, India. I feel honored to be an invited international speaker at the convention and serve as a panelist for the scientific session on professional certification in speech and hearing.

We are sincerely grateful to Mr. Prasanna, CEO, Zenith Rehabilitation Services, California, for his

continuous support in sponsoring our "2018 Asian Indian Caucus Student Clinician Scholarship" that provides support to one eligible student and one clinician presenting at the ASHA convention on Asian Indian population. We are also thankful to Dr. Pinky Khatri, Family Hearing Services, Virginia, for generously funding two of our international scholarship applicants. It is our hope to sustain these scholarship funding initiatives annually to support and encourage many students and clinicians for their work with the Asian Indian population.

We are proud to have continued our ongoing mission objectives to serve as a network and resource to address a variety of clinician and Asian Indian client needs, education on Indian cultural competency, provision of a variety of online resources, and mentoring graduate students and ASHA clinical fellows. We are actively working to increase the diversity of our membership at ASHA. Upon the request of Mike Skiados, Director, ASHA Membership, AIC has contributed to the development of brochures targeting high school children of Asian Indian origin to take up careers in Speech-language pathology and Audiology. We are also working on developing a mentorship program to pair high school students, undergraduate, and graduate students with experienced clinicians and researchers to expand on ASHA's initiatives.

Last but not the least, with such great pride we release our 2018 annual newsletter "ASHA KIRAN" featuring many phenomenal articles on the works being done on Asian Indian population both within the U.S. as well as abroad in countries like Fiji, Australia, Sri Lanka, and India. On the AIC spotlight section, it is our absolute honor to feature Prof. Roopa Nagarajan, eminent educator, clinician, and researcher from Chennai, India. We are happy to read her interview responses and learn from her life experience. Kudos to our Chief Editor Dr. Siva priya Santhanam on spearheading these initiatives and for all the enduring editorial work she put in this year.

As much as we have made good progress, we still continue to face challenges on the topic of AIC members and memberships. It is my sincere request to all of you to connect with our caucus on a consistent basis and pay your membership dues annually ($20.00 for professionals and $10.00 for students) to support all the existing and upcoming new initiatives as stated above.

As I end my two presidential terms and pass the baton to the incoming President, it is my vision that this caucus continues to grow in leaps and bounds and serves as a role model for providing speech, language, cognition, hearing, and swallowing services to the multicultural population not only in the U.S. but also globally. I think this vision is achievable with all your unconditional support!

I look forward to seeing you all at the ASHA Convention, Boston, MA.

நன்றி ! धन्यवाद! ধন্যবাদ! شكريا!

Best,
Akila Rajappa
President (2015-18)

AIC Executive Board

 Akila Rajappa, M.S., MPhil., CCC-SLP, BCS-S	**President,** Akila Rajappa, MPhil., MS, CCC-SLP, BCS-S is a Doctoral Candidate at Teachers College, Columbia University. She has also been a practicing clinician for many years and is a Board-Certified Specialist in Swallowing and Swallowing Disorders (BCS-S). Her primary research interests lie in understanding neural mechanisms of airway protective behaviors (cough/swallow) and exploring sensory perception of upper airway stimuli, specifically cough stimuli through the science of psychophysics. In terms of clinical practice, she is interested in evaluating evidence-based practice (EBP) initiatives in speech, swallowing and cough rehabilitation for stroke and neurodegenerative disease population. She is also interested in clinical service delivery in multicultural population and currently serves as the President of Asian Indian Caucus (AIC), a multicultural constituency group of American Speech-Language & Hearing Association (ASHA). Outside of school and work, Akila enjoys performing Bharatanatyam, a form of Indian classical dance, swimming and spending quality time with her family.
 Prabhu Eswaran, M.S., CCC-SLP	**Vice President (Public Relations),** Prabhu Eswaran is an ASHA certified school-based speech-language pathologist in Los Angeles, California. He has over fifteen years of clinical experience in working with the early childhood and school-aged population. His areas of interest include child language disorders, communication disorders in culturally and linguistically diverse populations and technology in special education. He is actively involved in various community activities and camps relating to communication disorders in the Southern California region. He has served in the AIC board under various capacities since 2013. Prabhu can be contacted at prabhuslp@gmail.com
 Ranjini Mohan, Ph.D., CCC-SLP	**Vice President (Professional Development),** Ranjini Mohan, is an Assistant Professor at Texas State University in the Dept. of Communication Disorders. Her research interests include understanding the neural bases of cognition and language in typically aging adults and those with neurogenic diseases. She has clinical experience working with adults in acute, sub-acute, and outpatient settings, both in the U.S. and in India.
 Siva priya Santhanam, Ph.D., CCC-SLP	**Chief Editor**, Siva priya Santhanam, is an Assistant Professor in Speech, Language, Hearing Sciences at Metropolitan State University of Denver in Colorado. Her current research focuses on developing innovative methods of intervention for children with autism spectrum disorders and their families, and supporting communication in college students on the autism spectrum. Her clinical experience include working with individuals on the autism spectrum and other developmental language disorders across the life span.
 Saradha Ananthakrishan, Ph.D., CCC-A	**Editorial Board Advisor,** Saradha Ananthakrishnan, is an Assistant Professor in the Department of Audiology, Speech Language Pathology and Deaf Studies at Towson University, Maryland. She teaches a mix of graduate and undergraduate courses in speech language pathology and audiology, and her research focuses on auditory electrophysiology.

Editor's Message

Namaste!

I am thrilled to be starting this journey in AIC as an editor for the ASHA KIRAN. Each year, the Asian Indian Caucus focuses on a topic to explore. We reach out to professionals – researchers, clinicians, entrepreneurs, and students to share their work and insights. This year, we asked contributors to discuss service delivery for children with speech, language, and hearing disorders. This issue of ASHA KIRAN is special because we have solicited articles from clinicians and researchers who work with clients of Asian-Indian origin in countries outside the United States. We are excited to share their work with you. Articles in this newsletter are edited but not peer-reviewed.

In the Spotlight section this year, Professor Roopa Nagarajan talks about her professional journey, her strengths and support systems, and answers several questions that I believe, many of us have always wanted to ask her. Prof. Roopa Nagarajan is the Professor and Chairperson at the department of Speech, Language, and Hearing Sciences and Academic Officer at Sri Ramachandra Institute of Higher Education and Research in Chennai, India. She can be reached at roopanagarajan@sriramachandra.edu.in. Among many other accolades, Prof. Roopa Nagarajan is both nationally (within India) and internationally renowned for her ground-breaking work with children and families with cleft-lip and cleft-palate in India. Personally, I have always admired her inner strength, her tenacity, and leadership abilities. I hope you enjoy reading about her professional journey just as much as I did. Be ready to get inspired!

This issue is organized in three sections. The first section showcases the work of our contributors from two islands in the Indian ocean – Sri Lanka and Fiji. We believe that it is important to highlight the stellar work and commitment that clinicians, students, and researchers around the world demonstrate. In that vein, Dr. Muttiah has written the first article describing contemporary issues in service delivery in Sri Lanka. Dr. Muttiah is an exceptional clinician and researcher who works with children with complex communication needs. She moved back to Sri Lanka after her doctoral studies in the United States, and is taking huge initiatives in providing the right resources and developing tools for her clients back home. Dr. Hopf, author of our second article, promptly responded to my email when I reached out to her, and was very excited to share her experience working as a clinician and a researcher in Fiji. About one-third of Fiji's population includes people of Indian descent who speak several Indian languages. In this article, Dr. Hopf highlights the persisting need for personnel and resource development in Fiji to create awareness, educate, and support thousands of families with children with communication disorders. Dr. Hopf will amaze you by sharing not just her knowledge, but the experience of other clinicians and volunteers who work in Fiji. These 2 articles truly build awareness on the current-day challenges in service delivery across the world. They also motivate us to begin thinking of ways to extend our support to families in faraway countries.

The second section includes articles written by researchers of Indian origin, working or studying in the U.S. This section starts with an article on vocal trauma in young children by Dr. Nandamudi. She recently

accepted a faculty position at the University of North Dakota. Congratulations Dr. Nandamudi! She wraps up the article with 10 tips to improve vocal health in young children. Shriya Basu, a doctoral candidate at the University of Minnesota, educates us about the relationship between sentence length, sentence complexity and disfluencies in young children. In her well-written review, Shriya leaves us thinking about the stuttering-language connection. Can complex language be a risk-factor for stuttering? Keep thinking! The third article in this section was authored Reethee Madona Anthony, a doctoral candidate in audiology at the Graduate Center of City University of New York (CUNY). Is there a difference between a native-speaker and a non-native speaker in perceiving speech, especially in the presence of noise? What do you think? Read up to learn about Reethee's work – an eloquent article!

Our third and final section takes you into the lives of two clinicians – their insights, their everyday challenges, and their career goals. Bhairavi Prasanna, shares her view of working as a clinician in urban India. She draws our attention to the stark differences in service delivery between clients in India and clients in Western nations. She also emphasizes the need for cultural competence, especially in a country as diverse as India, and reminds us to keep collaborating with our teachers and parents. I think Bhairavi deserves recognition for her initiative, her commitment to clients, and her willingness to learn! Neetu Koul, in her candid way, explains the various strategies that have helped her be successful in working with bilingual clients. She leaves us with her insights and suggestions for service delivery with families from diverse linguistic backgrounds.

Hearty congratulations to our award and scholarship winners, Ms. Barnali Mazumdar, Ms. Victoria L Nelson, Ms. Larissa Nonis, Mr. Kiran Suresh, and Dr. Vidya Ramkumar!!! We appreciate the stellar work you do!

I would like to thank each one of our contributors on behalf of AIC. Thank you, Roopa ma'm, for your time in sharing your experience and insights! We are immensely thankful for your contribution to this newsletter. I think this article will leave several of your current and past students and colleagues (across the world) with a smile, as they affectionately think of you. To all our contributors, thank you very much! We know that you all have several things to do in a day, and we truly appreciate your time and willingness to share your knowledge, insights, and expertise through your contributions.

We are thankful to all the sponsors and donors who have supported AIC this year. Thank you for your generosity and support toward student and clinician awards. Finally, I am grateful to the AIC executive board for their support and assistance in planning, preparing, and compiling the newsletter.

We like to hear comments from you! If one or more of our contributors got you thinking and inspired you, please reach out to them and take a minute to congratulate them for the purposeful work they are doing. You can also email me at ssanthan@msudenver.edu if you have any comments, questions, or happy thoughts after reading this newsletter.

Thank you,
Siva priya Santhanam & The AIC Executive Board

AIC Spotlight 2018-2019

Professor Roopa Nagarajan

At the outset, I want to express my thanks and gratitude to AIC for this honour. This makes this trip to Boston very special as I get to visit with so many friends and colleagues. Thank you, Sivapriya and Akila!

You are a renowned professor and a scholar in the field of speech, language, and hearing sciences both internationally and within India. Please share the story behind this wonderful professional journey.

This journey has been amazing and continues to be. I stumbled into the Speech-Language Pathology and Audiology almost accidentally in 1975. I wanted to study Physiotherapy but when offered a seat both in Physiotherapy and Occupational therapy at CMC, Vellore, I chose Occupational therapy. Within days I knew that occupational therapy was not my forte. So, when I got a call from Mysore for admission in B.Sc. (Speech and Hearing), I jumped at it not knowing what Speech-language pathology or Audiology was all about. From the day I walked into the AIISH (All India Institute of Speech and Hearing) campus, I knew this is what I wanted to do, and I haven't regretted that impulsive choice even a single day. I have enjoyed every minute of being a student, a teacher, a clinician, and a researcher, and continue to be all that even today. When I graduated, the profession was very young and like many others who graduated in the 70s with me, we were often the first ones to set up a clinic, a department, or a service in an institution. This was true for my positions in Hamdard hospitals, National Institute of Child Development and Public Cooperation in Delhi, and Philips India and Spastic Society of Tamil Nadu. I remember Dr. Rathna telling the leaders at spastic society of Tamil Nadu that I was expensive and would work three mornings a week for Rs. 750 a month.

I wanted exposure to different work and study different environments. So, in 1983, I accepted the East-West Center Fellowship and spent 4 semesters studying at the University of Hawaii and a summer at the University of Arizona with Dr. Dan Boone. In 1986, I joined AIISH Mysore first on a project on hearing aids and then worked as a lecturer till 1995. After troubling personal issues, I chose to leave Mysore in 1995. In 1998, after much persuasion, Mallika Jacob, (Mother of Dr. Monica Sampson), I joined “Sri Ramachandra University”. I have now completed 20 years here. Sri Ramachandra University gave me financial stability, supportive

environment, terrific colleagues, and opportunities for skill development, professional growth, and leadership. I now work with the PhD program across the university in my capacity as Academic Officer.

It has been 43 years since I came in into this specialty. I have learnt some lessons the hard way:
a) that one should be never be afraid to start all over again and seize every opportunity that comes your way
b) it's important to have and acknowledge mentors whoever they are (your teachers, your senior colleagues, any one)
c) it is imperative to pay it forward recognising that we are all here today because someone ahead of us cleared the path for us. They gave forward and so should we.

With Monica Sampson

Receiving the Rathna Oration Award, 2007

In the last 15-20 years, your team at Sri Ramachandra University, Chennai, has brought about significant developments in research and community-based service delivery for individuals with cleft-lip and palate. Please share your experience from this work.

Sri Ramachandra University is now known as Sri Ramachandra Institute of Higher Education and Research. For most of us who came into Sri Ramachandra, it was a steep learning curve, as we had no background or training in a university hospital setting. We set forth fearlessly, breaking new ground, made several mistakes but also corrected course. The important lesson we learnt was to accept every challenge, adapt to the medical model of service delivery and develop services to meet the need of the hospital. We identified certain specialties where we would have support and built those programs. Cleft, voice, speech-language development in infancy, newborn hearing screening, tele-services were all areas where we saw a need and potential for service and research. Our PhD program was built around these areas. Working with Dr. Jyotsna Murthy (Plastic Surgeon), Dr. Ravikumar (ENT), and Dr. Binu (neonatology), and Dr Prakash Boominathan, Dr. Lakshmi Venkatesh, Dr. Ganapathy among others, we fused academics and research.

At cleft-palate camps with beneficiaries

Today, in each of these areas we are exploring new horizons and building a strong research program through funded research and share our work through publications. Today, as a department, we average one publication a month. I envisage greater focus with our full-time PhD program in new frontiers that we are exploring especially in voice, infancy, early childhood speech, language and hearing development, cochlear implants, etc.

Our community-based work also came out of sheer necessity. How do we provide services where the needs are great, but resources are few? That was the question we asked ourselves. One phrase by Prof. Rangasayee to me in 2000, "Go visit Villages," echoed loudly for many days. Dr. Linda D. Antonio a cleft specialist from Loma Linda University, U.S.A., and I conducted a workshop with community-based specialists to understand strategies to reach the community. I also visited
Jamkhed (near Poona), a very famous rural community-based health project. That was the beginning of a journey that has continued now for over 14 years.

My colleague Mr. Subramaniyan (developing and sustaining community networks) and Dr. Vidya Ramkumar (in applying tele-technology in rural communities) have become our pioneers in these areas, and I am very proud to have initiated, shared, and grown with this project. Terrific funding support from Transforming Faces Canada, Indian Council of Medical Research, and support from the management, has made this possible. It's amazing that today, at least in two rural districts in Tamil Nadu, over 500 individuals with cleft lip and palate receive services (speech assessment, therapy, dental care, surgical support, hearing care)

through a network of community workers, NGOs (Non-Governmental Organizations) and hospital-based specialists.

In addition to your leadership role, you are an active clinician, researcher, and an educator. What is your advice for women in leadership roles (such as yourself) to establish and keep up a good work-life balance?

I have 4 siblings, three sisters and one brother. Thanks to my late father's philosophy, our childhood passed without us being aware of gender, caste or religious differences. There was nothing that differentiated the 5 of us, be it household chores, joining NCC (National Cadet Corps), learning to drive, seeking education, sports, or any activity. I was blessed to have a family of strong, resilient, never-say-die women who have broken stereotypes. My grandmother in her 9-yard-saree, was a Scouts and Guides leader pre-independence (India's Independence from the British). My mother was a tennis champ and among the first women to drive a car in Chennai in the forties. My aunt, a brilliant Chartered accountant, and now in her 70s, an editor of a spiritual magazine. We learnt that gender does not and should not define what we do or cannot do.

I was blessed to have a family of strong, resilient, never-say-die women who have broken stereotypes.

Trying to balance home and work was just one thing we did just as we did many other things including taking care of the elderly, travelling to support family, relocating if required. So, I don't think I was conscious of being a Woman leader. I also recognised that at times work is important and at other times, home life has to take precedence. If I had words of advice for young women, I would certainly ask them to seek role models / mentors, preferably women, with whom you can connect to. Sometimes, this person does not have to be in your profession. My mentors have been Dr. Nikam, Dr. Kalyani Mandke, Dr. Asha Yathiraj, Dr C. S. Vanaja, Dr. Jyotsna Murthy, Mr. Rangasayee, Dr. Vijayalakshmi Thanasekaraan, and Dr. Linda D'Antonio among others. There are numerous others who have inspired me. Also, try not to be perfect in everything. Enjoy the joys of motherhood, work hard, travel, seek support and definitely develop a hobby beyond home and work.

Sometimes, I think it's much tougher for young women today because support systems are not available. I admire the women I work with. They have such strong persona and seem better prepared than I was in knowing what they want, when they want, how they work, coping with marriage, child care, and giving 100% at work. Work places have to make it happen! By the way, we have had some great male colleagues who are also great husbands, parents, and a very supportive set of extended spouses who understand. All this helps!

With students learning fingerspelling

In the next 10 years, where do you see big changes happening in the field of speech, language, and hearing sciences?

Every year, I tell my students that the one skill to be acquired is to "learn to learn".
Most knowledge acquired today will be outdated or obsolete in the next decade. One cannot learn everything in 2 or 4 years. Most skill sets I have today, have been learnt on the job. As technology advances into areas we can only imagine, and our understanding of the human body, brain function, cognition, etc. improves, we must be prepared to work and learn differently. It's imperative we should recognise the interdisciplinary nature of our profession and be committed to learning about what is happening in our associated disciplines. Artificial Intelligence (AI), neurosciences, genetics, biomedical sciences, are areas we are not just prepared enough, and we must integrate. The more we learn, the better we can contribute in teaching, research, professionally, and to society. We must also develop an entrepreneurial spirit as several of us will be self-employed in the years to come. We must develop patient-centered and patient-specific strategies of service delivery. I believe one can't learn everything while we are students, but we must be willing to invest in our own learning and be cognizant of all that is happening around us. I think it will benefit our clients.

I tell my students that the one skill to be acquired is to "learn to learn".

What is your advice for the members of ASHA and Asian Indian Caucus (AIC) to increase engagement and/or research collaborations between clinicians and researchers in India and those in the United States and other countries? How can we go about providing culturally appropriate speech, language and hearing services to Asian Indian clients globally?

I am so proud that so many Indian graduates are doing so well in academics and clinical practice in the U.S.A. and other places in the world. If they desire engagement and collaboration, I think we in India, are ready. We have a common heritage and culture that should work to our benefit. Today, travel too is not impossible. We can communicate instantly with colleagues and collaborators across the world. I think, in many ways in the past few years, networking between ASHA and ISHA has increased. We were honoured to be asked to share some of the lessons we learnt from our experiences in India and Asia at this convention. I think increased networking is the key. Some mentorship, joint projects, sharing and learning together will be good. I think we should have exchange of experts. Fellowships like Fulbright, Tata fellowships have encouraged Indo-US collaborations. We should seek more such avenues.

Please share a memorable event (although there may be several) from your time as a university professor/department chair – something that made you smile.

Over two decades and counting, I have many special memories. It's hard to choose. The most
memorable event was receiving my Happy Box. On my 50th birthday, my colleagues, students and several alumni, filled a box with photos and notes sharing memories and affection. I was overwhelmed. I still add notes and messages from my students to that box. Every now and then, I read them all over again remembering shared times and treasured memories. I don't think any teacher can receive anything more than this. I remain grateful for the opportunity to have touched so many lives and to receive so much love and affection. This box is my most valuable possession. This box makes me smile always.

And finally, on a lighter note, what are your most favorite smart phone apps?

I am so glad the question is limited to what I do on my phone. I use a 64GB Lenovo android phone. I use an iPad or my MacBook for all other work. I have over a 100 apps on my phone basically categorised into: social media/news, finances, travel, shopping, tools, utilities, Kindle, Google apps, entertainment, learning, and meditation. These apps supposedly help me organise my life though I am not sure they actually do. I use Any Do, Calendar, Chrome docs, WhatsApp, Gmail regularly. I use Split wise and Wallet to keep track of expenses. News shorts, TED talks, Pinterest, Kindle, and YouTube keep me auditorily and visually entertained. I do lots of online shopping, so have all those apps. I don't use Instagram (though my daughter thinks I should) or Facebook, or listen to music on my phone.

Training community workers

Section I: International Service Delivery

Ground Realities of Autism Spectrum Disorders in Sri Lanka

Nimisha Muttiah is a speech-language pathologist with experience providing services to and conducting research with individuals with complex communication needs across all ages including those with autism spectrum disorders. Dr. Muttiah completed her doctoral work at Pennsylvania State University and moved back to Sri Lanka in 2016. She works as a senior lecturer at the Department of Disability Studies, University of Kelaniya, Colombo, Sri Lanka. You can reach her at nimisha@kln.ac.lk

Autism spectrum disorders (ASD) is a developmental disability occurring in children. ASD generally occurs regardless of race or ethnicity. It is a condition that not just low-and middle-income (LAMI) countries struggle with, but also economically advantaged countries (Elsabbagh et al., 2012). The two main aspects impacted in ASD are social communication deficits and restricted and repetitive behaviours (American Psychiatric Association, 2013).

Global Prevalence of ASD

Global estimates of ASD vary among different countries. The most recent estimates from the United States report prevalence rates as high as 1 in 59 children (Centers for Disease Control and Prevention, 2018). In general, an estimated, 85% of children with disabilities live in LAMI countries (Helander, 1993). However, estimates of children with ASD living in LAMI countries are scarce. Epidemiological data with regards to prevalence is essential for policy decisions and to strengthen public health practices and services (Elsabbagh et al., 2012).

Prevalence of ASD in Sri Lanka

Sri Lanka has been classified as a LAMI country (The World Bank, 2017). Currently there are only a handful of published and unpublished studies that provide a limited glimpse into ASD and the special education system in Sri Lanka (e.g., Muttiah, Drager, & O'Connor, 2016; Perera, Wijewardena, & Aluthwelage, 2009). There is currently only one published study conducted in Sri Lanka looking at estimating the prevalence of children with ASD. The study reported a prevalence rate of 10.7 per 1000 children or 1 in 93 children as being identified as having ASD (Perera, Wijewardena, & Aluthwelage, 2009). However, this could have been a gross underestimation of the actual prevalence numbers as the tool that was used was only a screening tool. In addition, there is evidence that states a missed or a delayed diagnosis of ASD is more prevalent among ethnic and racially diverse groups (Mandell et al., 2009).

Screening for ASD

The American Association of Pediatrics (AAP) has issued a statement that routine ASD screenings should be conducted at 9, 18, 24, and 30-month visits. However, in many LAMI countries such as Sri Lanka conducting routine screenings for ASD as recommended by the AAP can be complicated for a multitude of reasons. Firstly, agreeing on what types of behavioral characteristics to include in a screening tool is a challenge as the recognition of a certain behavior being a deficit can vary among cultures (Wallis & Pinto-Martin, 2008). For example, in a study conducted in Sri Lanka, parents' primary concern was poor development of speech (Perera, Jeewandara, Guruge, & Seneviratne, 2013). Only a small percentage of Sri Lankan parents were concerned about their children's social impairments. In addition, only a small number recognized repetitive, stereotyped behaviours. Secondly, it may not always be appropriate to adapt a screening tool that has been developed in one culture to be used by another (Wallis & Pinto-Martin, 2008). This was evidenced by the translation and use of the M-CHAT in Sinhala (the main local language spoken in Sri Lanka) a screening tool for young children between the ages of 18 and 24 months. Perera and colleagues found that the M-CHAT when used with a group of children in Sri Lanka was only 25% sensitive to detect ASD (Perera, Wijewardena, & Aluthwelage, 2009). As a result of this a follow up study was conducted looking at designing a pictorial screening tool (Perera, Jeewandara, Seneviratne, & Guruge, 2013). The pictorial autism assessment schedule (PAAS) used photographs to better illustrate the questions that were asked in the checklist. The checklist of items was adapted from the DSM V, M-CHAT, and "First Signs" from the American Academy of Neurology and the Child Neurology Society. Cultural adaptations were also taken into consideration when developing the tool. For example, the photographs were of local children and the items in the checklist were worded in the local language in the first instance rather than translating from English. The sensitivity of this tool in discriminating between ASD and non-ASD was 88%. However, this tool has not be validated; therefore, making it difficult to use nationally as a screening tool to detect ASD.

Avaz, Sri Lanka, the first local high-tech AAC option for children in Sinhala and Tamil was launched by Dr. Muttiah in 2017.

Diagnostic Assessments for ASD

Currently, there are no standardized, norm-referenced ASD diagnostic tools that are used to identify children with ASD in Sri Lanka. The gold standard for diagnosing ASD globally is the autism diagnostic observation schedule (ADOS-2). Clinicians who conduct the ADOS-2 have to be certified and need access to the kit with standardized materials prior to being able to implement it. In Sri Lanka, there are less than a handful of professionals certified to conduct the ADOS. In addition, some of the items and materials in the ADOS are not culturally and linguistically appropriate for our culture. For example, in the Toddler module one of the tasks involves bathing a doll in a bathtub. Many toddlers in Sri Lanka do not have access to a bathtub and are not familiar with playing with a rubber ducky while having a bath!

Services

Screening and diagnostic tools to identify the number of children with ASD are useful only if there are corresponding services to support the children identified. Currently, children with ASD have access to speech-language therapy, occupational therapy, psychological, and educational services in Sri Lanka. In theory, although all children should have access to these services, the reality is that these services are only available at the main base hospitals in the country. Children living in more rural areas would have to travel to the bigger cities to access such services. Speech-language therapy has been identified as an essential

service for children diagnosed with ASD. Speech-language pathology is a relatively new profession in Sri Lanka, with the first class of undergraduate speech-language therapists being accepted in 2008.

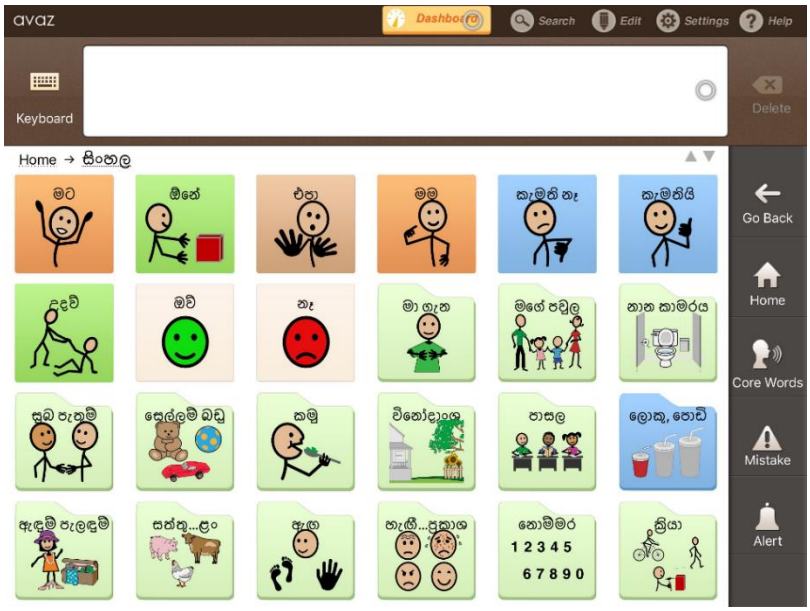
Speech-language Therapy services

Currently, approximately 151 speech-language pathologists (SLPs) have been licensed and registered in a country of 20.4 million people (Sri Lanka Medical Council). This means there is approximately one SLP for every 135,000 citizens. Highlighting the fact that there are a limited number of professionals and a great number of children accessing these services. Leaving professionals overwhelmed and unsure of how to provide adequate, quality services to all individuals who need them. This has led to the need for thinking of innovative ways in which to provide children and families access to services. For example, Perera and colleagues reported on a home-based intervention program they conducted to overcome this very problem (Perera, Jeewandara, Seneviratne, & Guruge, 2016). Parents were trained on structured play activities and activities to promote joint attention during everyday tasks (e.g., mealtimes). The results indicated positive gains in the children particularly in the first 3 months after intervention. The findings of this study provide some preliminary evidence for conducting these types of home-based interventions in resource-low settings similar to Sri Lanka.

AAC in Sri Lanka

SLPs are essential service providers for children diagnosed with ASD. Social communication deficits are one of the core deficits seen in children with ASD (DSM, 2013). In addition, it is estimated that one-third to one-half of children with ASD do not use speech functionally (National Research Council, 2001). Therefore, many of these individuals would benefit from augmentative and alternative communication (AAC) to augment their current speech or to act as their primary method of communication (Mirenda, 2003). Having culturally and linguistically appropriate AAC options are essential for children with communication difficulties. In November 2017, Avaz Sri Lanka, the first local high-tech AAC option for children in Sinhala and Tamil was launched (Muttiah, 2018). Avaz SL allows children with ASD to express their needs and wants, build social relationships, and participate in education and society.

AVAZ Sri Lanka



Conclusion

The path for children with ASD and their families in Sri Lanka has not been easy. However, in the past 10 years, there has been a significant increase in awareness of ASD, with more children accessing services, an increased number of healthcare workers intervening with these individuals, more schools accepting children with ASD, access to AAC solutions (e.g., AVAZ Sri Lanka) and more research done on ASD in Sri Lanka. It is still a long road ahead for these children and families. The achievements made in the past 10 years should give hope to children with ASD and their families and should inspire clinicians and researchers to do more. The journey is long but positive strides are being made.

References

American Psychiatric Association. (2013). Diagnostic and Statistical Manual of Mental Disorders (5th ed.). Washington, DC.

Centers for Disease Control and Prevention (2013). Data and Statistics. Retrieved from https://www.cdc.gov/ncbddd/autism/data.html

Elsabbagh, M., Divan, G., Koh, Y. J., Kim, Y. S., Kauchali, S., Marcín, C., Montiel-Nava, C., Patel, V., Paula, C.S., Wang, C., Yasamy, M. T., & Fombonne, E. (2012). Global prevalence of autism and other pervasive developmental disorders. Autism Research, 5(3), 160-179.

Helander, E. (1993). *Prejudice and Dignity: An introduction to Community Based Rehabilitation.* United Nations Development Programme.

Mandell, D. S., Wiggins, L. D., Carpenter, L. A., Daniels, J., DiGuiseppi, C., Durkin, M. S., Giarelli, E., et al. (2009). Racial/ethnic disparities in the identification of children with autism spectrum disorders. *American Journal of Public Health*, *99*(3), 493-8.

Mirenda, P. (2003). Toward functional augmentative and alternative communication for students with autism: Manual signs, graphic symbols, and voice output communication aids. Language, Speech, and Hearing Services in Schools, 34(3), 203-216.

Muttiah, N. (2018, April). Avaz Sri Lanka: The first Sri Lankan AAC App.

Communication Support World Network Newsletter. Retrieved from https://www.isaac-online.org/english/news/cswn-newsletter/

Muttiah, Drager & O'Connor (2016). Special Education in Sri Lanka: A snapshot of three provinces. Disability Studies Quarterly, 36(2).

National Research Council. (2001). *Educating children with autism.* Washington, DC: National Academy Press.

Perera, H., Wijewardena, K., & Aluthwelage, R. (2009). Screening of 18–24-month-old children for autism in a semi-urban community in Sri Lanka. Journal of Tropical Pediatrics, 55(6), 402-405.

Perera, H., Jeewandara, K. C., Seneviratne, S., & Guruge, C. (2016). Outcome of Home-Based Early Intervention for Autism in Sri Lanka: Follow-Up of a Cohort and Comparison with a Nonintervention Group. BioMed Research International.

Perera, H., Jeewandara, K., Guruge, C., & Seneviratne, S. (2013). Presenting symptoms of autism in Sri Lanka: analysis of a clinical cohort. Sri Lanka Journal of Child Health, 42(3).

Wallis, K. E., & Pinto-Martin, J. (2008). The challenge of screening for autism spectrum disorder in a culturally diverse society. *Acta paediatrica (Oslo, Norway : 1992)*, *97*(5), 539-40.

The World Bank (2017). World Bank Country and Lending Groups. Retrieved from https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

Building communication capacity: Letters from Fiji

Dr. Susan Hopf is a lecturer at the Department of Speech Pathology at Charles Sturt University, New South Wales, Australia. Dr. Hopf is a speech-language pathologist born and trained in Australia. She moved to Fiji in 2009 with her young family and is now proud to be a dual Australian-Fijian citizen and to call Fiji home.

Dr. Hopf maintains the South Pacific Speech Pathology email (SLPinFiji@gmail.com) and Facebook pages (www.facebook.com/SLPinFiji). The Facebook site regularly receives inquiries and acts as a first point of contact for many Fijians with communication and/or swallowing difficulties, their families, and visiting SLPs who are looking for information about communication and swallowing disabilities in Fiji. You can also reach Dr. Hopf via phone at +679 9707247 or email at shopf@csu.edu.au.

My early years in Fiji were spent frustrated at the significant paper-work and financial road-blocks to freelance volunteering and private practice. Consequently, I decided to shift my skills and energies to researching the rich communication landscape and trying to understand how Fijians view and support FWCSD. It took approximately 12 months to get Fiji ethics and research visa approval to conduct my mixed-methods research. My doctoral thesis resulted in a greater understanding of the communication capacity of Fijian children and the communities in which they live. In addition, I developed the Communication Capacity Research guide for SLPs working in underserved communities (Hopf, 2018). Communication Capacity Research (CCR) is designed to build a holistic picture of the individual and community resources/capacity available to support effective and efficient communication access for all members of a community regardless of language use or proficiency. CCR acknowledges that the world is diverse and requires respectful consideration of this diversity in the planning and provision of communication specialist services. CCR incorporates concepts from the International Classification of Functioning, Disability, and Health (ICF; World Health Organization, 2001) and Bronfenbrenner's Ecological Systems Theory (EST; Darling, 2007). Specifically, CCR requires that the communication specialist consider the multiple personal and environmental determinants, and the myriad of patterns in which these determinants may interact, to facilitate or create barriers to communication access. Conducting CCR involves application of a four-stage process: (1) gathering knowledge from policy and literature; (2) gathering knowledge from the community; (3) understanding speech, language and literacy use and proficiency; and (4) developing culturally and linguistically appropriate resources and assessments (see Hopf, 2018 for a detailed explanation). My current role in Fiji remains as advocate as I plan my next research project. The lack of communication and swallowing knowledge in the South Pacific region makes it difficult for me to narrow down a topic: there's just so much that we do not know. I remain excited about future opportunities to collaborate with local and international researchers.

Introduction

Fiji is a Melanesian group of over 300 islands in the south-western Pacific Ocean. The Fiji 2007 Census revealed a population of 837,271 (Fiji Bureau of Statistics, 2016). Of these 57% consist of indigenous iTaukei Fijian, 37% Indian Fijian (with Indian subcontinent ancestry), and 6% of either Pacific island, European, or East Asian ancestry. A little over half of all Fijians live in major urban centres, where the bulk of paid employment is found. Fiji is the regional hub for economic and political activity in the south-west Pacific; however, over one in four Fijians live below the international poverty line (United Nations University, 2011). Attempts to reduce the number of Fijians living in poverty have been hampered by historical political unrest and environmental disasters. Fiji's strategic place in the regional economy and historical immigration patterns result in a small country with a population of remarkable cultural and linguistic diversity. There are three official languages in Fiji: iTaukei Language (also known as Fijian, Bauan Fijian, or Standard Fijian), Hindi (also known as Hindustani or Fiji Hindi), and English (Republic of Fiji, 2013; Simons, & Fennig, 2017). In addition, a further seven indigenous languages and 12 immigrant languages are spoken in significant numbers. Linguistic diversity has led Fijians to become adept polyglots (Tent & Mugler, 2008).

Presently, there are no locally trained speech-language pathologists or audiologists in Fiji.

Prior to and post school entry, services for Fijians with communication and/or swallowing difficulties (FWCSD) are the responsibility of the Fijian Government Ministry of Health and Medical Services (MoH). Throughout the school years, services for students are the responsibility of the Fijian Government Ministry of Education, Heritage and Arts (MoE). Presently, there are no locally trained speech-language pathologists or audiologists in Fiji; however, there has been relatively consistent input from visiting communication specialists for over 30 years (Hopf, 2014). These temporary audiology and speech-language pathology services have been financed by independent travelers, international governments (e.g., Australian Volunteers, Japan International Cooperation Agency, UKAid, etc.), and non-governmental organisations (e.g., Ears Inc., Project Heaven, Interplast). The work of these individuals and organisations has changed lives and has been valued by the Fijian community. Importantly, this work has led to a growing awareness of the benefits of the speech-language pathology profession in the South Pacific region. This interest, along with recent political and financial stability, has resulted in increased discussion about the best way to invest in the futures of PWCD in Fiji.

The Fiji Government and its associated Ministries of Health and Education have acknowledged the need for locally developed specialist services for FWCSD (Parliament of the Republic of Fiji, 2018). Development of local services in low- and middle-income countries of the world often requires a coordinated effort from all levels of the local and international community (Hartley & Wirz, 2002; Hopf & McLeod, 2015; Wylie, McAllister, Davidson & Marshall, 2013). The availability and accessibility of specialist services for FWCSD in Fiji was initially discussed by Pressman & Heah (1988) and more recently by the first author (Hopf, 2014; 2015). In this commentary we seek to update the reader about current activities in Fiji for audiology and speech-language pathology practice. To do so, we present the voices of just a few of the many who are advocating for FWCSD in Fiji. The "letters" from service providers, who act as change agents to improve the lives of FWCSD, illustrate the local and international efforts to actively address barriers to service development.

Communication and Swallowing Practice in Fiji

There has been a small but significant amount of research in Fiji exploring children's typical communication (e.g., Fox, 2003 –unique phonological, morphological, syntactical and semantic characteristics of basilectal Fiji English; Griffiths, 2000 – morphology of Fijian; Hopf, McLeod & McDonagh, 2017 – Fijian, Fiji Hindi, and Fiji English language use and proficiency; Shameem, 2002a, 2002b – Fiji Hindi, Standard Hindi, and Fiji English language use and proficiency; White, 2002). In addition, there have been recent studies of the prevalence of: (1) communication disability in school age children (e.g., Sprunt & Marella, 2018; Milner et al., 2018), and (2) hearing disorders (e.g., Fang et al., 2016; Sanders, Houghton, Dewes, McCool & Thorne, 2015). Unfortunately, there is nothing to date that investigates the presentation of communication disability in paediatric or adult populations, nor have there been any studies of swallowing disorders in Fiji.

Hopf's (2014) review of white and grey literature suggested that a gap in local communication and swallowing specialist services was being filled by a combination of: (1) sporadic volunteer international-SLPs, (2) mid-tier workers trained for specific functions (e.g., audiometrists, sign language interpreters), (3) traditional healers, and (4) other professionals and family members guided by the volunteer-SLP (e.g., teachers, community rehabilitation assistants). A 2015 survey of 144 adults revealed that to support FWCSD, Fijians are engaging in a variety of self-help endeavours (e.g., change to own communication style or mode; trying to change own and others' behaviour; teaching new skills; praying; changing the physical environment; seeking information independently; assessing or observing; and, using traditional medicine, western medicine, or traditional belief practices), and help-seeking behaviours (e.g., seeking advice from other community members, education professionals; a professional in another country, spiritual leaders, traditional belief practitioners, traditional medicine practitioners, western health care practitioners, orphanages, nursing homes). In the last 5 years there has been considerable growth in provision of speech-language pathology and audiology services in the private sector, thanks to the advocacy efforts of a small group of local and international volunteers. The sections below provide some insight into the activities of these champions of change.

Champions of change in Fiji

Dr. Donna Carkeet and Dr. Sureni Perera
Ms. Terri Walker
Ms. Trisha Khatri
Ms. Joanne Walters and Ms. Gwendalyn Webb

Dr. Donna Carkeet
Ears Inc., Australia

Ms. Sureni Perera
Frank Hilton Organisation, Fiji

Audiology in Fiji

Donna's email: earsdonna@gmail.com
Sureni's email: sureni@hilton.org.fj

There are now regular Fijian audiology services available in Ba, Suva and Nadi. Frank Hilton Organisation (FHO) in Suva leads the way for audiology in Fiji. A successful partnership with Ears Inc., who provide training and equipment, has facilitated progress in audiology service development. Audiologist, Dr. Donna Carkeet, from Ears Inc. visits from Australia around five times a year to continue to provide training to staff from not only FHO but for teachers, doctors, and hearing screeners from other organisations. She works to continue the development of the services offered as well as see complex paediatric cases. FHO employs an audiometrist, Mr Sevanaia Ratumaitavuki, two days per week as well as two Audiology Assistants (AAs). The AAs coordinate services for children up to 18 years of age who receive free audiological evaluations; including, visual reinforcement audiometry, auditory brainstem response (ABR) testing, and auditory steady state response testing. Hearing aid fitting, replacement ear moulds, hearing aid batteries, and repair and maintenance are also done at FHO.

In 2017-2018, the FHO audiology team completed screening of over a thousand children in special schools in Fiji and proceeded to test and fit hearing aids for over 100 children in Labasa, Savusavu, Rakiraki, Ba, Lautoka, Nadi, Sigatoka, Suva, and Nausori special schools. FHO AAs, in conjunction with the Colonial War Memorial Hospital in Suva, conducts neonatal screening, using Automated ABR, for premature or high-risk infants. An ear mould laboratory and basic repair services were also established at FHO with training by Ears Inc. volunteers. Ears Inc. has had a number of other volunteer audiologists that have visited to assist in the project in Fiji. FHO through its partnership with Ears Inc. will continue to support partnerships with government and non-government organisations (NGOs) that target capacity building (e.g., training AAs and nurses) and hearing loss identification (e.g., screening outreach programs to rural and remote regions of Fiji). FHO acknowledges that there is significant advocacy work to be done to reduce stigma associated with hearing loss and support members of the Deaf community in Fiji. Other audiological services are provided by a small handful of predominantly part-time service providers in Suva, Ba, and Nadi and at least three other international volunteer paediatric audiologists who visit Fiji regularly.

In Suva, Project Heaven provides basic audiometric assessment for adults and some school age children. They also provide eye and ear screening in primary schools. Recently, their staff have undergone further training and hope to expand this service again in the near future. They are also training more staff to be able to assist in audiometry for the two local ENT specialists in the next few months. This training has been provided by one of the local ENT's who is volunteer from South Korea, as well as the Ears Inc. audiologist. Mr Sevanaia Ratumaitavuki, audiometrist, provides private services in Ba and two medical clinics in Suva.

He offers hearing assessment and hearing aid services for adults and children in these clinics. In Suva and Nadi, two clinicians work on-demand for private patients. Finally, there are around 16 trained hearing screening staff in the country.

The services outlined confirm that there have been significant improvements in Audiological services in Fiji over the last 5 years. However, there is still a lot of work to be done. In particular, there is an urgent need for training Ministry of health nurses and community-based rehabilitation assistants to assist in the testing and early intervention of clients in rural and remote regions of the country. There also needs to be earlier detection of hearing loss and more education of the community, and health and education workers in regard to supporting the full participation of people with hearing loss in society.

Ms. Terri Walker – Volunteer Speech-Language Pathologist

Frank Hilton Organisation, Fiji

Terri can be reached at speechtherapytime@gmail.com

In 2016, my husband accepted a position in Fiji. The move led me to volunteer at Frank Hilton Organisation (FHO), where I experienced a plethora of rich professional and personal experiences. FHO provides teaching, audiology, physiotherapy, occupational therapy and speech pathology services to a special schools and Early Intervention Centre (EIC). FHO also provides outpatient services and runs playgroups for children with disabilities and their parents. FHO employs two part-time Speech Pathology Assistants (SPAs). The SPAs are employed to run speech pathology programs that have been left by previous SLP volunteers. My role was therefore two-fold: (1) to upskill staff, and (2) to assess and develop programming for students at the school, EIC, playgroup and outpatient clincis.

I started training the SPAs on basic generic professional skills (e.g., how to set up client files). Over the last two years, we have moved beyond these simple beginnings and my primary aim now is to build capacity of the SPAs, other teaching staff, and families to use AAC (augmentative and alternative communication) effectively. The uptake of AAC at FHO has been so successful that I recently presented a paper at the ISAAC (International Society for Augmentative and Alternative Communication) conference in Brisbane (Webb & Walker, 2018). It is also promising to note that despite some staffing changes, long-term SPA staff are actively "passing forward" their knowledge to new SPAs and engaging in additional online training (e.g., Project Core). We have also been successful in networking with NGOs (E.g., Talk Link, Auckland, New Zealand) and community groups (e.g., Deloraine Rotary Club, Tasmania, Australia). Deloraine Rotary Club has fund-raised to provide an iPad with AAC apps that is being used to evaluate client appropriateness for AACs. Specialists from Talk Link will visit Fiji in February 2019 to consult on several clients who would benefit from AAC and alternative pencils. I have now returned to Australia but continue to support FHO via tele-practice and quarterly visits. I encourage other speech pathologists to become involved in supporting FHO for short- or long-term projects either face-to-face or via tele-practice. FHO currently is offering a full-time SLP position (Fijian pay rates) which would be an excellent position for someone wishing to work within the FHO vision. The position may be ideal for SLPs wishing to do research while they work.

Ms. Trisha Khatri – Private Speech-Language Pathologist
Speech Pathology Services, Fiji

Ms. Khatri can be reached at speech.fiji@outlook.com

I recently started my own speech pathology business in Suva, Fiji. The process of setting up a private practice as an expatriate took about six months. There were two main components, applying for a foreign investment certificate and then a work permit. I was born in Australia; however, I lived in Fiji when I was 4 to 7 years old, and have always had very close family ties here. Now, I live in Fiji with my husband. People in Fiji are excited to have me here. When I tell people about what I do, they often say, "I know someone who needs your help" and "we have been waiting for you!".

Word travels fast here in Fiji. I receive new referrals every day. The majority of the referrals come from parents of children between 2-6 years of age with speech and/or language difficulties. Referrals are from indigenous and Indian-Fijian parents, as well as from expatriates (Australia and New Zealand). The vast majority of referrals are highly appropriate. This reflects that people living in Fiji are aware of the speech pathology profession. I acknowledge that it in most cases this is merely a surface level awareness (e.g., parents using the term 'speech disorder' when really the issue is likely to be autism and/or other developmental language delays), but it is far better than nothing. Within the next few years, I hope to have a permanent clinic space where I can see my clients and grow my business. I also want to develop a working relationship with a local disability organisation and some of the larger schools in Suva.

Ms. Joanne Walters and Ms. Gwendalyn Webb – SLP Clinical Educators
The University of Newcastle, Australia

Joanne's email: joanne.walters@newcastle.edu.au;
Gwendalyn's email: gwendalyn.webb@newcastle.edu.au

The Speech Pathology Discipline, University of Newcastle (UON), Australia has engaged in a successful partnership with Frank Hilton Organisation (FHO) a non-government organisation in Suva Fiji, since 2015. This relationship evolved following a scoping of the needs of children with disabilities between UON and Fijian government officials. UON representatives including an Indo-Fijian cultural broker (UON alumnus) identified the need for an ongoing collaboration with special schools in Fiji. The focus of this has been developing and providing speech pathology services for children with disabilities at FHO through student clinical placements of four weeks for final year students. Students have

trained teaching staff, supported volunteer efforts of visiting speech pathologists and introduced and implemented a range of multimodal communication strategies to develop children's functional communication skills. To date, 14 students over three years have undertaken an assessable clinical placement at FHO to enhance the participation of children with disability in the school environment and their community. Research on the outcomes of these student placements has been presented at international conferences. UON is dedicated to continuing student placements in FHO as part of its ongoing commitment to speech pathology in a global context.

The future of audiology and speech-language pathology in Fiji?

Heah & Pressman (1998) and Hopf and McLeod (2014) wrote that development of communication and swallowing specialist services in Fiji requires a coordinated approach and the loud voices of champions of change who will hold government accountable to their legislative promises to support all people with disability in Fiji. The vignettes provided by the service providers above illustrate the development of these services and voices. To date, most of the service development has happened in the private sphere with Frank Hilton Organisation (FHO) leading the charge. Capacity building of an Audiology and SLP local workforce is happening within these private enterprises. In addition, training of other education and health professionals to do work undertaken by SLPs in other countries occurs. For example, Interplast provides annual training to pre- and in-service physiotherapists on basic swallowing and communication management of babies and children with cleft lip and/or palate (Interplast, n.d.). Those lucky citizens and residents with the finances are also accessing international speech-language pathology services via telepractice (see University of Maine, 2014).

There is definite need and scope, with government support, for formalizing training of communication and swallowing specialists within Fiji. To this end, Hopf, Carkeet and Walker (2016) presented a concept note, discussing development of sustainable, culturally and linguistically appropriate services for FWCSD, to both the Fiji Ministry of Education and Fiji Higher Education Commission. The concept note was well received but is dependent on government stability, availability of financial resources, and buy-in from a local university. In the meantime, the authors of this paper will continue to advocate for the human rights of FWCSD to have full participation in society.

Section II: Researchers' Reviews

Phonotrauma in Children

Srihimaja Nandamudi is a Clinical Assistant Professor at the University of North Dakota (UND), Grand Forks. She received her undergraduate (B.Sc.) and graduate (M.Sc.) degrees in Audiology and Speech-Language Pathology at Ali Yavar Jung National Institute of Speech & Hearing Disabilities, India. Her master's thesis was on voice characteristics in individuals with GERD (Gastro Esophageal Reflux Disease). Dr. Nandamudi completed her Ph.D. in Communication Sciences and Disorders at Bowling Green State University with Dr. Ronald C. Scherer with a specialization in Voice and Speech Science. Her doctoral dissertation was on aerodynamics and acoustics of singing voice, especially in Western classical singing. She completed her clinical fellowship at a skilled-nursing facility/long-term acute care hospital, rehab, and outpatient settings primarily working with adults and the elderly with dysphagia, dysphonia, respiratory retraining, cognitive deficits, motor speech disorders, and aphasia.

Dr. Nandamudi's clinical and research interests are in voice, swallowing, upper airway, and motor speech disorders. She started working at the University of North Dakota since Fall 2018 as a graduate faculty member and a clinical supervisor at UND's Northern Prairie Community Clinic. She is a SPEAK OUT! ® provider; she is actively working on developing a transgender voice community. Additionally, Dr. Nandamudi began working with performance voice training in collaboration with the department of theater and music at the University of North Dakota.

Even though dysphonia is commonly seen in adults, its prevalence in the pediatric population is underestimated. In a study done by Bhattacharya (2015), 2012 National Health Interview Survey (NHIS) conducted by the National Center For Healthcare Statistics of the Centers for Disease Control in the United States, analyzed pediatric voice and language module, and identified that among about 61 million children aged 3 to 17 years, 839 thousand children suffered from a voice problem lasting a week or greater in the past 12 months. Among those children, about 53.5% were given a diagnosis for the voice problem with higher number of children suffering from laryngitis, neurological problems, and allergies or airborne irritants, and lower number with tissue damage in throat and head/neck injury. This investigation indicated an annual prevalence of 14 children per 1000 having voice problems.

Similar etiologies and occurrences were also presented in the study done by Martins et al. (2012) on Brazilian children. Due to the pliability of laryngeal cartilages and increased protection of mandible, secondary to anterior-superior positioning of the larynx, laryngeal injury is not common among pediatric population (Monnier, 2011). However, literature strongly suggests phonotrauma as a potential risk for the occurrence of childhood dysphonia (Tuzuner et al., 2016; Kelchner & Brehm, 2013; Marcus et al., 2013; Martins et al., 2013; Martins et al., 2012; Simões-Zenari et al., 2012; Middendorf, 2007; Roy et al., 2007) associated with externalizing behaviors such as aggressiveness, especially in boys (Ribeiro et al., 2014; Gindri et al., 2008; Roy et al., 2007). Therefore, boys are seen with high occurrence of phonotrauma compared to girls. The former has increased probability of developing structural changes in vocal folds perceptually characterized with moderate-to-severe rough and/or breathy vocal quality (Simões-Zenari et al., 2012; Verduyckt et al., 2011).

Children with dysphonia typically have a habit of speaking loudly (Verduyckt et al., 2011). Children use a strong and loud voice to command the attention of others during conversation, agitation, extroversion, sleeplessness, and other behavioral problems (Fritsch et al., 2011; Connelly et al., 2009; Angelillo et al., 2008). A study done by Krohling et al., (2016) found that the externalizing problems, especially attention and impulsivity are the common indicators of vocal abuse in the school-aged children, whereas, internalizing problems such as anxiety and depression are the indicators in adolescents. Therefore, childhood dysphonia might also signify a potential risk of developing emotional and behavioral problems.

Phonotrauma results in increased effort and cervical muscle tension, and is characterized with hyperkinetic or musculoskeletal dysphonia which leads to formation of vocal nodules (Bingol, 2017; Mumovic et al., 2014). Children with dysphonia are also seen with other lesions such as vocal cysts, sulcus, mucosal bridges, paralysis, and papillomatosis (Martins et al., 2013; Ricci Maccarini et al., 2013; de Labio et al., 2012; Tavares et al., 2011). The manifestation of vocal symptoms may be seen in the beginning years of life and/or later, and then can be triggered due to vocal abuse. The evolution of dysphonia in these children is chronic and so have poor perception of parents which further causes delayed diagnosis and intervention. Therefore, education is important not only for the child but also for others involved in the child's life. Sometimes, a minor modification in the home environment might cause a significant change in child's vocal habits.

Management of voice disorders in children typically includes behavior management, vocal hygiene, and direct intervention (Hartnick et al., 2018; Childes et al., 2017; Marcus et al., 2013; Kelchner & Brehm, 2013; Theis, 2010; Tezcaner et al., 2009; Middendorf, 2007). Behavioral management and vocal hygiene involve education, identification, and elimination/substitution of vocal traumatic behaviors, vocal hygiene, reducing signal to noise ratio, positive/tangible reinforcement, etc. With respect to direct intervention, many

studies used the physiological approach of voice treatment which includes but is not limited to vocal function exercises, semi-occluded vocal tract exercises, resonant voice therapy, accent method, easy onset phonation, and lax vox, which improved overall vocal quality and pitch/loudness adjustment. However, Senkal and Ciyiltepe (2013) found that the symptomatic approach was the most successful method of therapy in school-aged children to work on single voice components such as pitch, loudness, breathiness, etc. This is accomplished by reducing the laryngeal muscle tension and effort, through optimal vocal fold approximation. The techniques used in the study were chewing, yawn-sigh, EMG biofeedback, and manual circumlaryngeal therapy.

Voice therapy in school-aged children is very challenging and the effectiveness of treatment depends on multiple factors such as child's participation, internal identification, involvement of family and others, motivation, clinician's experience, early awareness of the problem, self-perception, nature of environment, etc. More research is needed to understand the treatment efficacies of phonotrauma in children.

References

Angelillo, I. F., Di Costanzo, B., Costa, G., Barillari, M. R., & Barillari, U. (2008). Epidemiological study on vocal disorders in paediatric age. *Journal of preventive medicine and hygiene*, *49*(1).

Bhattacharyya, N. (2015). The prevalence of pediatric voice and swallowing problems in the United States. *The Laryngoscope*, *125*(3), 746-750.

Bingöl, R. H. (2017). Vocal Fold Nodules and Psychopathology in Children. *EC Psychology and Psychiatry*, *4*, 225-230.

Childes, J., Acker, A., & Collins, D. (2017). Multiple Perspectives on the Barriers to Identification and Management of Pediatric Voice Disorders. *Perspectives of the ASHA Special Interest Groups*, *2*(3).

Connelly, A., Clement, W. A., & Kubba, H. (2009). Management of dysphonia in children. *The Journal of Laryngology & Otology*, *123*(6), 642-647.

de Lábio, R. B., Tavares, E. L. M., Alvarado, R. C., & Martins, R. H. G. (2012). Consequences of chronic nasal obstruction on the laryngeal mucosa and voice quality of 4-to 12-year-old children. *Journal of Voice*, *26*(4), 488-492.

Gindri, G., Cielo, C. A., & Finger, L. (2008). Disfonia por nódulos vocais na infância. *Salusvita*, *27*(1), 91-110.

Hartnick, C., Ballif, C., De Guzman, V., Sataloff, R., Campisi, P., Kerschner, J., & Bunting, G. (2018). Indirect vs Direct Voice Therapy for Children With Vocal Nodules: A Randomized Clinical Trial. *JAMA Otolaryngology–Head & Neck Surgery*, *144*(2), 156-163.

Fritsch, A., Oliveira, G. & Behlau, M. (2011) Opinião dos pais sobre a voz, características de comportamento e de personalidade dos seus filhos. Revista CEFAC.

Kelchner, L., & Brehm, S. (2013). Strike the Right Cord: Sometimes, Do not yell and Drink more water are the appropriate instructions to children with voice disorders. But sometimes a child's condition requires more. *The ASHA Leader*, *18*(3), 48-53.

Krohling, L. L., de Paula, K. M. P., & Behlau, M. S. (2016). Behavior, social competence, and voice disorders in childhood and adolescence. *Journal of voice*, *30*(6), 677-683.

Marcus, L., Kiernan, B., & Barkmeier-Kraemer, J. M. (2013, May). The association of a preschool voice education program with changes in yelling frequency. In *Seminars in speech and language* (Vol. 34, No. 02, pp. 103-115). Thieme Medical Publishers.

Martins, R. H. G., Branco, A., Tavares, E. L. M., & Gramuglia, A. C. J. (2013). Clinical practice: vocal nodules in dysphonic children. *European journal of pediatrics*, *172*(9), 1161-1165.

Martins, R. H. G., Ribeiro, C. B. H., de Mello, B. M. Z. F., Branco, A., & Tavares, E. L. M. (2012). Dysphonia in children. *Journal of Voice*, *26*(5), 674-e17.

Middendorf, J. H. (2007). Phonotrauma in children: Management and treatment. *The ASHA leader*, *12*(15), 14-17.

Monnier, P. (Ed.). (2010). *Pediatric airway surgery: management of laryngotracheal stenosis in infants and children*. Springer Science & Business Media.

Mumović, G., Veselinović, M., Arbutina, T., & Škrbić, R. (2014). Vocal therapy of hyperkinetic dysphonia. *Srpski arhiv za celokupno lekarstvo*, *142*(11-12), 656-662.

Ribeiro, L. L., Paula, K. M. P. D., & Behlau, M. (2014, February). Voice-related quality of life in the pediatric population: validation of the Brazilian version of the Pediatric Voice-Related Quality-of Life survey. In *CoDAS* (Vol. 26, No. 1, pp. 87-95). Sociedade Brasileira de Fonoaudiologia.

Ricci-Maccarini, A., De Maio, V., Murry, T., & Schindler, A. (2013). Development and validation of the children's voice handicap index-10 (CVHI-10). *Journal of Voice*, *27*(2), 258-e23.

Roy, N., Holt, K. I., Redmond, S., & Muntz, H. (2007). Behavioral characteristics of children with vocal fold nodules. *Journal of Voice*, *21*(2), 157-168.

Simões-Zenari, M., Nemr, K., & Behlau, M. (2012). Voice disorders in children and its relationship with auditory, acoustic and vocal behavior parameters. *International journal of pediatric otorhinolaryngology*, *76*(6), 896-900.

Tavares, E. L. M., Brasolotto, A., Santana, M. F., Padovan, C. A., & Martins, R. H. G. (2011). Epidemiological study of dysphonia in 4-12 year-old children. *Brazilian journal of otorhinolaryngology*, *77*(6), 736-746.

Tezcaner, C. Z., Ozgursoy, S. K., Sati, I., & Dursun, G. (2009). Changes after voice therapy in objective and subjective voice measurements of pediatric patients with vocal nodules. *European Archives of Oto-Rhino-Laryngology*, *266*(12), 1923-1927.

Theis, S. M. (2010). Pediatric voice disorders: evaluation and treatment. *The ASHA Leader*, *15*(14), 12-15.

Tuzuner, A., Demirci, S., Oguz, H., & Ozcan, K. M. (2017). Pediatric vocal fold nodule etiology: what are its usual causes in children?. *Journal of Voice*, *31*(4), 506-e19.

Verduyckt, I., Remacle, M., Jamart, J., Benderitter, C., & Morsomme, D. (2011). Voice-related complaints in the pediatric population. *Journal of Voice*, *25*(3), 373-380.

10 Tips to improve your child's vocal health

- Remember that you are the voice model for your child. If you yell, s/he yells; you speak softly, s/he also speaks softly.
- Encourage your child to participate in a "quiet" activity such as drawing, watching TV; after the periods of loud and noisy activities.
- Maintain low environmental noise. For example, turn off the television or music during meal times and conversations.
- Encourage your child to drink water by taking small sips throughout the day instead of coughing and throat clearing.
- Reinforce your child by providing favorite snack or toy if s/he speaks to you standing right by your side instead of yelling or talking loudly from a different room.
- Encourage your child to speak softly instead of whispering.
- Maintain a healthy lifestyle. This involves making healthy eating choices, reduce caffeinated drinks, moderate exercise, and adequate sleep.
- Healthy breathing patterns should be taught to your child by encouraging diaphragmatic (abdominal) breathing and to always fill the lungs before starting to talk or sing.
- Vocal misuse by unnecessary screaming, cheering, mimicry, or imitating voices of animals and favorite cartoons should be avoided as much as possible.
- Educate yourself and your child on vocal hygiene by identifying vocal traumatic behaviors and finding ways to eliminate them or substitute with voice-friendly manners. For example, instead of a harsh throat clearing, taking a sip of water and swallow with effort should be a healthy replacement.

Does Load of Sentence Planning Affect Speech Fluency in Children?

Shriya Basu is a Doctoral Candidate and researcher in the Speech Fluency Lab, Department of Speech, Language, and Hearing Sciences, University of Minnesota. Her research interests include Fluency, Language, and Cognition. Her past and current research projects are aimed at understanding influence of linguistic variables in school-age children who stutter.

Speech is a complex motor task that requires a dynamic interaction between ideation, planning programming and motor execution. A fluent motor output necessitates systematic planning of the components of conceptual formulation and encoding them into motor commands before it is transformed into an effortless audible output. Among the different models of speech production, Levelt's model of lexical access to speech production has been vastly popular and well accepted. The model theorizes a staged process, which includes the conceptual, lemma and form strata. Within the lemma stratum, multiple sub stages of encoding take place which include lexical selection, morpho-phonological encoding and syllabification (Levelt, Roelofs, & Meyer, 1999). Incidentally, the lemma stratum also involves the syntactic planning of the utterances (Bock & Levelt, 1994).

Grammatical and syntactic formulation plays a major role in planning an utterance before production. Empirical evidences from the researches in psycholinguistics have shown that a speaker might often plan the utterances ahead of production. Some of these researches have also examined the evidences of syntactic processing and the scope of syntactic planning in speech production (Smith & Wheeldon, 2001; Allum & Wheeldon, 2007; Martin, Crowther, Knight, Tamborello & Yang, 2010).

Speech production, like any other cognitive task, involves some amount of incremental planning and online processing and manipulations of the utterance to be produced (Martin et al, 2010). Although this seems to be the nature of sentence planning in adults, such claims difficult to make in case of children. It is possible that children learn to plan their utterance more incrementally and "online modifications" as they grow older. With increase in age and cognitive resources, children can plan the utterances and perform incremental planning with greater efficacy (Rispoli and Hadley, 2001). It is also true that if there is a gap in the processes involved in planning a sentence that can manifest itself in the speech as a disfluency.

- Sentence planning important for fluent speech
- Longer, complex utterances more disfluent
- MLU important in prediction of disfluency in younger children
- Relationship between fluency and sentence planning shows developmental changes

Disfluency in typically fluent children: Role of sentence planning

Several studies have been done to determine the relationship between syntax and disfluency in children who do not stutter. Yaruss, Newman and Flora, (1999) recorded spontaneous speech sample for typically fluent children in the age range of 44-64 months, for a span of thirty minutes. The utterances were coded for sentence

length and complexity. Overall, the results revealed that for typically fluent children, the sentences that were disfluent were longer and of greater complexity. These sentences placed a greater demand on linguistic planning and cognitive resources, which was reflected in the increased number of disfluencies while producing them.

In another related study, McDaniel, McKee and Garrett (2010) examined disfluencies across utterances, and pauses, and hesitations at the sentence-initial position in children and adults. They found that, as children grow older, they become more fluent i.e., the overall disfluencies across utterances depreciate considerably. The utterances produced by children showed more restarts, and the location of these restarts for children was in multiple positions within the sentence, whereas adults only had disfluencies before a major sentence clause. Furthermore, children were more prone to have sentence initial pauses and hesitations. These results indicated that there are differences in the scope of planning units in adults and in children. This was supported by differences in the filled pause distribution in both the groups and differences in restart locations. The authors thus concluded that children have a different syntactic planning strategy than adults, owing to differences in syntactic planning and working memory capacity.

The findings from the studies in the typically fluent children indicates an interaction between the syntactic length and complexity and fluent speech output. Children showed increased disfluencies on sentences that were longer and more complex. Also, there are differences in the position of disfluencies at different age groups, which is representative of the developing cognitive resources that can accommodate effective linguistic planning.

Does Syntax Influence Disfluencies in Children who stutter?

Some models of stuttering do emphasize the importance of Syntactic processing in individuals who stutter. Models such as the Suprasegmental Sentence Plan Alignment Model (Karniol, 1995) draws direct connections between syntactic planning to the fluency breakdown in individuals who stutter. Considering the evidences from the studies in the typically fluent children, it is reasonable to expect that the by modifying the length and complexity, the CWS might show increased events of disfluency in their speech, due to the increase in cognitive linguistic demands.

In a study that examined the influence of utterance length and syntactic complexity on the speech disfluencies, Zackheim & Conture (2003) took into consideration the relative length of the utterance and tried to match the rapid and dynamic process of fluent speech production to that of a relatively stable and less dynamic process such as the MLU. They tested preschool aged children who stutter (CWS) in the age group of 3- 5; 11 (years; months) and matched typically fluent children on spontaneous speech samples taken from parent child interactions. The results from their study supported the claim that increase in length and complexity of an utterance influenced speech fluency. Another important point from the study mentions that the increase in disfluency in children who stutter are also related to how the utterance characteristics interact with the child's mean length of utterance (MLU). If the utterance was longer than the child's predicted MLU, it was likely to be disfluent. Furthermore, sentences that had embedded clause, showed greater stuttering like disfluencies (e.g. repetitions, blocks, prolongations etc); sentences that were simple, had more typical disfluencies such as revisions and interjections.

In another study in school age CWS, Yaruss, (1999) investigated effects of length and complexity of an utterance on fluency of CWS, at both group and individual levels. The study was conducted in a group of CWS, who were between 40 – 66 months, and spontaneous speech sample was collected from a free play situation and the disfluency types were coded for within word and between word disfluencies. Since the study intended to examine utterance length, it was measured using words, syllables and morphemes. Additionally, clausal constituents were also considered for length consideration. Syntactic complexity was computed based on standardized measures such as Developmental Sentence Score (DSS). Overall, the results indicated that the utterance length of the subjects were an accurate predictor for disfluency along with some of the aspects of syntactic complexity. Among the predictors, utterance length was found to be better predictor of disfluency,

since they place a greater demand on the resources. The effect of syntactic complexity on the other and is not that simple and the fact that some of the syntactic structures seem to pose a greater challenge to the speakers is related to either a greater load to the short-term memory or because they belong to a relatively unfamiliar syntactic domain (Yaruss, 1999).

Most of the studies in school age CWS found a linear relationship between sentence length and event of stutter. However, unlike length, sentence complexity does not have a simple relationship with disfluencies observed in children in this age group. In preschool aged children, MLU seems to be an important predictor of disfluency. These findings are important in drawing the clinical picture of stuttering. It is likely that a child will exhibit differences in their disfluency pattern throughout their language development period and even after language development period has plateaued. Based on the available evidence, sentence planning plays a significant role in predicting disfluencies in children. Future research needs to be done to understand the different factors that may influence syntactic planning in children who stutter. Some recent studies have also found a substantial link between persistence of stuttering and syntactic development (Leech et al, 2017); we need more information that connects language processing and stuttering in the future to improve our clinical model for assessment and intervention of individuals who stutter.

References

Allum, P. H., & Wheeldon, L. R. (2007). Planning scope in spoken sentence production: The role of grammatical units. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *33*(4), 791.

Bock, J., & Levelt, Language production: Grammatical encoding, gernsbacher MA, handbook of psycholinguistics, 1994, 945-984.

Chang, F., Dell, G. S., Bock, K., & Griffin, Z. M. (2000). Structural priming as implicit learning: A comparison of models of sentence production. *Journal of Psycholinguistic Research*, *29*(2), 217-230.

Karniol, R. (1995). Stuttering, language, and cognition: A review and a model of stuttering as suprasegmental sentence plan alignment (SPA). *Psychological Bulletin*, *117*(1), 104.

Leech, K. A., Ratner, N. B., Brown, B., & Weber, C. M. (2017). Preliminary evidence that growth in productive language differentiates childhood stuttering persistence and recovery. Journal of Speech, Language, and Hearing Research, 60(11), 3097-3109.

Levelt, W. J., Roelofs, A., & Meyer, A. S. (1999). A theory of lexical access in speech production. *Behavioral and Brain Sciences*, *22*(01), 1-38.

Martin, R. C., Crowther, J. E., Knight, M., Tamborello II, F. P., & Yang, C. (2010). Planning in sentence production: Evidence for the phrase as a default planning scope. *Cognition*, *116*(2), 177-192.

McDaniel, D., McKee, C., & Garrett, M. F. (2010). Children's sentence planning: Syntactic correlates of fluency variations*. *Journal of Child Language*, *37*(1), 59.

Rispoli, M., & Hadley, P. (2001). The leading-edge: The significance of sentence disruptions in the development of grammar. *Journal of Speech, Language and Hearing Research*, *44*(5), 1131.

Smith, M., & Wheeldon, L. (2000). Syntactic priming in spoken sentence production–an online study. *Cognition*, *78*(2), 123-164.

Wheeldon, L., & Smith, M. (2003). Phrase structure priming: A short-lived effect. *Language and Cognitive Processes*, *18*(4), 431-442.

Yaruss, J. S. (1999). Utterance length, syntactic complexity, and childhood stuttering. *Journal of Speech, Language, and Hearing Research*, *42*(2), 329.

Zackheim, C. T., & Conture, E. G. (2003). Childhood stuttering and speech disfluencies in relation to children's mean length of utterance: A preliminary study. *Journal of Fluency Disorders*, *28*(2), 115-142.

Neurophysiological Correlates of Speech-in-Noise Processing in Native and Non-Native Listeners

Reethee Madona Antony, CCC-SLP is a doctoral candidate at the Graduate Center of City University of New York (CUNY). She is the lab manager of Auditory Evoked Potentials Laboratory directed by Dr. Brett Martin. Her research interests include speech perception in noise, multilingualism, and neural encoding of speech sounds.

The perception of speech is often difficult for non-native listeners. These listeners have greater difficulty than native listeners in noise, even when their performance is similar in quiet listening conditions (e.g., Takata and Nabelek, 1990). One reason for the poorer performance of non-native listeners in noise is that the non-native listeners have reduced access to the full range of cues for any given phoneme compared to native listeners (e.g., Calandruccio, Dhar, and Bradlow, 2010). From an auditory perspective, native listeners use 'glimpsing' (Cooke, 2006) in background noise. Glimpsing occurs when listeners can glimpse portions of the target speech when there are dips in the background noise. For non-native listeners, glimpsing through the noise and listening in dips could be difficult.

Cortical auditory evoked potentials (CAEPs) can be used to reflect the encoding of language-relevant sounds at the level of auditory cortex and can provide an index of the timing measured using 'latency' in milliseconds (ms), synchrony measured using 'amplitude' in microvolts (μV), and distribution of language processing measured using 'scalp topography' and spatio-temporal modeling (Martin, Tremblay, and Korczak, 2008). P1 and P2 are vertex positive peaks and N1 is a vertex negative peak with latencies around 50 ms, 180 ms, and 100 ms post stimulus onset, respectively. Generators include sub-cortical and primary auditory cortex for P1; primary and secondary auditory cortex for N1; and primary auditory cortex, secondary auditory cortex, and mesencephalic reticular activating system for P2 (e.g., Wood and Wolpaw, 1982). Differences in speech processing between native and non-native listeners have been widely reported in behavioral studies (e.g., Polka, 1991; Best and Tyler, 2007), but there are few neurophysiological studies in which Hindi sounds have been studied. The processing and perception of Hindi voicing has been well studied, but Hindi aspiration has not. The only study examining the neurophysiologic processing of consonant aspiration utilized the Korean language (Han, Bahng, & Park, 2013). Findings included larger N1-P2 amplitudes to aspirated /t^ha/ compared to tense /ta/ or lax /ta/, supporting the possibility that there could be a neurophysiological signature of aspiration for Hindi consonants as well. A pilot study (n = 10) was conducted to determine whether there is a neurophysiologic signature of the encoding of Hindi aspirated stop consonants in native Hindi listeners in the obligatory P1-N1-P2 auditory evoked potential complex.

The evoked potentials evoked by Hindi aspirated CV syllables was compared to Hindi voiced CV syllables. Auditory evoked potentials elicited by the voiceless consonant-vowel stimuli were significantly longer in latency than those elicited by the voiced consonant-vowel stimuli. These findings are consistent with previous

research (e.g., Elangovan and Stuart, 2013; Sharma and Dorman, 2000). The effects of voicing on evoked potential latencies were more apparent for the P1 and N1 components than for P2. In contrast, the effects of aspiration were more apparent for the P1 and the P2 components relative to N1. The latency of P2 suggested that it predominantly reflects aspiration. This study demonstrated that there is a neurophysiologic signature of the encoding of Hindi aspiration. The current study lays the groundwork for the larger project that will examine the encoding of Hindi voicing and aspiration in native Hindi listeners as well as in non-native listeners.

The overall aim of this work is to determine the processing and encoding of acoustic-phonetic versus phonemic representations of speech in three different language groups when the relevant cues are degraded by background noise. The results will contribute towards better understanding of cross-linguistic processing of speech in degraded conditions and may provide electrophysiological evidence to support or extend theoretical models of non-native speech perception.

References:

Best, C. T., & Tyler, M. D. (2007). Nonnative and second-language speech perception: Commonalities and complementarities. *Language Experience in Second Language Speech Learning: In honor of James Emil Flege*, 13-34.

Calandruccio, L., Dhar, S., & Bradlow, A. R. (2010). Speech-on-speech masking with variable access to the linguistic content of the masker speech. *The Journal of the Acoustical Society of America, 128*(2), 860-869.

Cooke, M. (2006). A glimpsing model of speech perception in noise. *The Journal of the Acoustical Society of America, 119*(3), 1562-1573.

Elangovan, S., & Stuart, A. (2011). A cross-linguistic examination of cortical auditory evoked potentials for a categorical voicing contrast. *Neuroscience Letters*, *490*(2), 140-144.

Han, W., Bahng, J., & Park, J. (2013). The cortical evoked response elicited by nine plosives in normal hearing listeners. *Korean Journal of Audiology*, *17*(3), 124-132.

Martin, B. A., Tremblay, K. L., & Korczak, P. (2008). Speech Evoked Potentials: From the laboratory to the clinic. *Ear & Hearing, 29,* 285–313.

Polka, L. (1991). Cross-language speech perception in adults: Phonemic, phonetic, and acoustic contributions. *The Journal of the Acoustical Society of America*, *89*, 2961-2977.

Sharma, A., Marsh, C. M., & Dorman, M. F. (2000). Relationship between N1 evoked potential morphology and the perception of voicing. *The Journal of the Acoustical Society of America*, *108*(6), 3030-3035.

Takata, Y., & Nabelek, A. K. (1990). English consonant recognition in noise and in reverberation by Japanese and American listeners. *The Journal of the Acoustical Society of America, 88*(2), 663-666.

Wood, C. C., & Wolpaw, J. R. (1982). Scalp distribution of human auditory evoked potentials. II. Evidence for overlapping sources and involvement of auditory cortex. *Electroencephalography and Clinical Neurophysiology, 54*(1), 25-38.

Section III : Clinicians' Insights

45 Minutes to Win It!
Clinical Perspectives from a Private Practice in Chennai, India

Bhairavi Prasanna is a Speech Language Pathologist working in Chennai, India. She completed her master's degree in Audiology and Speech Language Pathology from Sri Ramachandra Medical College, Chennai. She is a Hanen certified SLP. She primarily works with the pediatric population while supporting parents and collaborating with school teachers to aid the child's language development process. She closely follows the developments within the area of evidence-based practices and has shown special interest in networking with and bringing leaders within the field to India both for discussions and seminars to educate students. She enjoys reading and learning about adult learning styles, neurological basis of learning, and the role of gratitude and happiness in enhancing the quality of life.

In India, thousands of people are impacted with various forms of speech-language disorders—many of them unaware of the treatment options available to them. The general lack of awareness leads to significant delays in seeking help. Clients are usually not aware that an earlier detection or early intervention would make a world of difference to them. It is estimated by the Census of India that almost 2 million people in India suffer from speech-related disabilities (2011). The biggest take away from that number is that only severe and obvious forms of speech disorders are identified and several problems that are considered minor, but require intensive therapy, are not looked at.

As an SLP working mainly with children in urban areas, I see my work (working with children) as three-fold:

1. Diagnose the various speech and language disorders and individualize the language goals
2. Empower family members/caregivers to support the holistic development of the child
3. Promote inclusivity by collaborating with teachers and brainstorming ways to facilitate mediated learning in groups

While a committed SLP will be able to work wonders with a child through step-by-step procedures, such learning/research/iterative pedagogy does not work in India due to the high clinician-client ratio. On a concurrent timeline basis and based on my personal experience, a good therapist has a minimum of 12 clients to work with in a single work day. This means that during a regular work day of 9 hours, a client can be seen for only 45 minutes. Furthermore, the contracted timelines, pressure from parents/peers/self, and the

knowledge that the intervention duration for any client is a maximum of 2 years, most children tend to lose out on continuous learning and long-term progress. Even the efficacy of treatment approaches and techniques become questionable as these approaches are likely to become outdated due to new research propelling clinical practice.

Most children in urban settings are multilingual to varying degrees and do not fit the norms of tests that are standardized in mainstream Indian population. Subcultural and dialectal variations hugely impact a child's language environment. In addition, clinicians themselves are culturally different from clients. A large extent of research comes from institutions that deal with the problems of clients in low socio-economic conditions. This renders clinicians serving middle-class clients in urban settings confounded with newer challenges.

As a clinician, never knowing enough is a constant battle of uphill climbs!

Moreover, techniques that work well in Western countries need to be adapted to make them work effectively in the Indian context. For e.g., average preliminary assessments carried out in an Indian clinical setup are for typically 45 minutes to an hour, within which the therapist must get a complete history of the patient, carry out the necessary evaluation procedures, and come up with a list of goals for intervention. In the Western countries, clinicians have more time between their evaluations, goal-planning, and programming. Additionally, the evaluation is done in multiple settings (home/school/clinic) before determining the ideal approach to intervention. This 45-minute window means that therapists have to learn very early on in their careers to reap client information and insights in a smart, fast, and structured manner, so as to enhance their work style and gain better success—client after client.

As a clinician working in the above conditions, I felt that having a uniform time or structure across client categories is not the right way to structure my work. This insight led me on a journey to find the right tools that could complement what I knew already and maybe correct errors that I had inadvertently been making. I find my work as a clinician exciting and am privileged to have been faced with unique challenges. These challenges—from my perspective—have ranged from awareness, expertise, collaboration, and the inherent nature of child language disorders themselves. As a clinician, never knowing enough is a constant battle of uphill climbs.

While exploring several learning avenues, I had the great fortune of being introduced to Dr. Carol Westby, who mentored me in Theory of Mind (TOM) and its applications at her work place in Albuquerque, New Mexico, U.S.A. After observing several clinicians working with children at a private practice in a bilingual multicultural centre and in schools, I realized that not one client in my case load back home could be compared to the children receiving intervention for theory of mind. Did this mean that we had no mildly impaired children coming to us, or were we using the wrong lenses to filter the cases we were getting? These questions harrowed me through my observations in New Mexico and subsequently in every conference that I attended in the United States.

After coming back to Chennai, I was eager to serve a wider range of clients with new and improved methods of intervention and was amazed at how much of an impact speech and language intervention could make. I met a 5-year old child whose anxious mother worried that she was too "meek" and passive. As per standard assessments, the child had a language age of four years with scattered skills. However, on assessment, I found something significantly amiss. I used the Quality of Life measure (FOCUS) and attempted to measure the TOM and was shocked to see that the child had significant deficits in TOM. This was new to me—intervening with children who seemed to be doing fine overtly while struggling at many levels covertly.

The mother was relieved that someone finally understood what was contributing to her child being an underachiever; in many ways, the mother also felt vindicated from the label of an over-expectant parent. The intervention was focused on various comprehension tasks and narration scaffolding. I used the Blanks scale for comprehension scaffolding and used books to help the child narrate and understand various aspects of TOM. The use of picture books in intervention was critical to explaining the various mental states of characters/individuals. In time, the child learnt to express herself in social situations and was able to advocate for herself at school and during play, and even began facing the bullies around her.

There were numerous language changes that positively impacted her everyday life, further empowering the child and leaving the mother more confident. Moreover, the teacher at the 5-year old's school was open to receiving feedback and ended up collaborating with SLPs to identify and remediate kids in classes. I read to the children in the class every week for two months and was able to support the children and provide the teacher with a template for engagement in the classroom. The ripple effect caused by one student led to a social change in the school that organically promoted SLP services as friendly, useful, and stigma-fading. If I had been hesitant to assess the child or use intervention methods to scaffold comprehension and narration, simply because this child did not fall under a typical/severe language-deficit case, the child could have missed out on the real-world improvement that intervention had in reshaping her quality of life. This was the moment when I realized I could expand my scope of practice beyond severe language disorders.

To an Indian clinician, the biggest dissonance is to overcome the established idea that children with developed verbal communication skills and less severe diagnoses need to be addressed with less intensity and rigour than their more extreme counterparts. Given the 45 minutes to work with and retain the child in intervention, we need to be aware of and eloquent in ALL the evidence-based practices (EBPs) despite barriers in cultural adaptability. Then we can provide measurable goals and an individualized roadmap that charts our time together in therapy at each stage.

By catering to a wider spectrum of clients (in terms of severity) and embracing all EBPs as possible routes for intervention, I find clinicians are cushioned from the stressors that contribute to the burnout that we face. There is professional satisfaction garnered from the tangible growth seen in clients with subtle or milder challenges, energizing me enough to work smarter and harder for my more children who face severe challenges. I am convinced that if we continue to pursue a wider clientele and cultivate a longitudinal view of our practices, Indian clinicians can work more effectively and dynamically in those crucial first 45 minutes that determine the retention of patients and measurable success of subsequent 45-minute sessions.

References

Office of the Registrar General & Census Commissioner, India. (2011). *Census of India 2011* (updated 2016). New Delhi: Author.
Retrieved from http://censusindia.gov.in/Census_And_You/disabled_population.aspx

Experiences of a Bilingual Speech-Language Pathologist

Neetu Koul, M.S., CCC-SLP, TSSLD, BE, is a Bilingual Speech Language Pathologist at Sunshine Developmental School, Jamaica, NY. She is a member of ASHA SIG 14, Cultural and Linguistic Diversity.

My role as a bilingual SLP is to assess, evaluate and provide speech and language intervention services to the pre-school population. I decided to work at the pre-school to address speech and language concerns of preschool children to facilitate progress in their pragmatic, expressive, and receptive language skills and improve their literacy-based skills. Although I face many challenges doing bilingual assessments with standardized tests and scores unavailable, I aim at obtaining the best language sample and use a speech and language development chart, subtests from the Preschool Language Scale-5th edition (PLS-5), non-word repetition tests, dynamic assessment measures, parent and/or teacher interviews, and other assessment measures based on which I am able to make conclusions about the child's speech and language development and/ or delays. I always focus on assessing bilingual children in both their languages to lower the risk of under- or over-identification (Crowley, Guest & Sudler, 2015).

As research has indicated that bilinguals have certain advantages over monolinguals in terms of executive functioning skills and problem-solving skills, I always counsel parents to maintain their primary language. Usually, it is very difficult to maintain the primary language when a limited number of people in the child's environment speak that language. Also, the child's self-motivation influences the maintenance of the primary language. I often come across parents/caregivers who try to speak with their child in English when they themselves are struggling English language learners. I spend quality time in counseling the parents/caregivers and share research findings about how the primary language facilitates English language development. As a result, they become more involved, and there is usually a drastic improvement in the child's speech and language development.

During my coursework at Teachers College, Columbia University, I learned about the Volar approach and tried to incorporate some techniques of this approach in intervention. I narrate stories in the child's primary language for a few days and then narrate the same story in the child's secondary language for a few days. This has resulted in the children gaining vocabulary and narrative skills in both languages.

For those parents/caregivers of low socio-economic status/poor educational backgrounds, I share research findings about the importance of play in the development of speech and language skills in children. This way the parents/caregivers know how to get involved in the child's language development process. I also ask parents to share the strategies they utilize when teaching their child, so that I can incorporate them into my therapy sessions for better results.

In addition, in the future I plan on inviting parents to share their strategies with other parents. This way, parents will get more involved in their child's speech and language development as they have confidence in those who have first-hand experience using these strategies. In counseling parents/caregivers, I also recommend they focus more on the capabilities of their children through positive reinforcement. I stress that avoiding negative comments will benefit the child's development process.

Finally, I believe in the importance of self-reflection. If a particular strategy does not work with a child, I research other effective strategies and also take into consideration the child's likes and dislikes. I love being a bilingual speech language pathologist as every day is a different learning experience. If I teach one word to the child, I feel my day has been successful.

AIC Awards & Scholarships 2018

2018 Zenith Rehab-AIC **Student Scholarship** Awardee	**Ms. Barnali Mazumdar**, Doctoral Candidate, Louisiana State University, Baton Rouge, Louisiana
2018 Zenith Rehab-AIC **Clinician Scholarship** Awardee	**Ms. Victoria L Nelson**, M.S., CF-SLP, Cerebral Palsy of North Jersey Horizon School, New Jersey
2018 AIC **International Student Scholarship** Awardee	**Ms. Larissa Nonis**, B.Sc. (Speech, Language and Hearing Sciences), Faculty of Medicine, University of Kelaniya, Sri Lanka
2018 AIC **International Student Scholarship** Awardee	**Mr. Kiran Suresh**, Doctoral Candidate, Dept. of Speech and Hearing School of Allied Health Sciences, Manipal Academy of Higher Education, Manipal, Karnataka, India.
2018 AIC **International Clinician Recognition** Awardee	**Dr. Vidya Ramkumar**, Associate Professor, Dept. of Speech, Language, and Hearing Sciences, Sri Ramchandra Institute of Higher Education and Research, Chennai, Tamil Nadu, India

Our Sponsors

Family Hearing Services, Inc. is a private practice that offers comprehensive audiology and hearing aid services to people of all ages in Washington metro area.

We are committed to making a difference and improving our patient's quality of life.

Our diagnostic standard is thorough and extensive, and our treatment philosophy is to value the patient's quality of life above all else.
Best Wishes!

Pinky P Khatri, Au.D., CCC-A
14102 Sullyfield Circle, Suite #350c
Chantilly VA 20151
Ph: 703-988-6767
Fax: 703-988-6768

Family Hearing Services
Providing Highest Quality Hearing Care

Zenith Rehabilitation Services, Inc*. provides outcome focused and cost-effective rehabilitation services, including*

Physical, Occupational and Speech Therapy services in various rehabilitation centers*. Additionally, we provide* ***Speech Therapy services in various schools*** *throughout California*

We are actively recruiting ***Speech-Language Pathologists, Speech-Language Pathology Assistants, Physical and Occupational Therapists*** *for Skilled Nursing Facilities and Schools in California.*

CONTACT US TODAY!

http://zenithrehabilitation.com/

Zenith Rehabilitation Services, Inc 14726 Ramona Ave, Suite # S2 Chino, CA 91710

Contact: +1 909 297 0450 (Phone)

+1 888-933-8303 (Fax)

Email: contact@zenithrehabilitation.com

AIC invites you all
to the
Asian Indian Caucus Meet & Greet
at the ASHA Convention 2018

November 15th, Thursday
5:30 – 6:30 pm
Webster,
Boston Convention Center,
Boston, Massachusetts