24 - 27 June 2025

International Clinical Phonetics & Linguistics Association

University of Patras, GREECE

Final Programme & Abstracts

UNIVERSITY OF PATRAS
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

Under the auspices of
The Department of Speech and Language Therapy
and the University of Patras

Keynote Addresses

Tuesday 24 June (17:00 - 18:00)

George Kazantzidis	"Speech impairment in Greek antiquity: Some methodological issues"

Wednesday 25 June (11:30 - 12:45)

Claire Timmins	"Maximizing student engagement in learning clinical phonetics and phonology using creative approaches"

Thursday 26 June (11:30 - 12:45)

Frank Guenther	"Using Neural Modeling to Better Understand Speech Disorders"

Friday 27 June (12:00 - 13:15)

Athanasios Karasimos	"AI and Board Gaming Approach to Language Teaching and Learning: Beyond Age, Technology, and Learning Difficulties"

Oral Presentations

Wednesday 25 June (9:00 - 11:00) - Session 1 - Auditorium

Tim Bressmann, Kyle Stevens	Variability of oral-nasal balance characteristics in children with cleft palate over time
Joanne Cleland, Maria Dokovova, Lisa Crampin, Linsay Campbell, Robyn McCluskey	Sonospeech Cleft Pilot: Results from a pilot randomised control trial of ultrasound visual biofeedback versus standard intervention for children with cleft palate +/- cleft lip (CP+/-L)
Laura L. Koenig, Areti Okalidou	Anticipatory and carry-over nasal coarticulation in Greek-learning children with typical hearing and with cochlear implants
Helen Stringer, Frances Stainthorpe, Sam Burr, Samantha Harding, Joanne Cleland, Yvonne Wren	Explaining high levels of consensus amongst UK speech and language therapists in development of a Core Outcome Set in the Maximising the Impact of Speech and Language Therapy for children with Speech Sound Disorder (MISLToe-SSD) Study
Amy Smith, Eleanor Lawson, Anja Kuschmann, Joanne Cleland	An Ultrasound Study of Tongue Shape Variability in English-Speaking Typically Developing Children
Yvonne Wren, Sharynne McLeod, Amy Davies	Understanding intelligibility in children born with Cleft Lip and/or Palate: Findings from the Cleft Collective Cohort Study

Oral Presentations

Wednesday 25 June (9:00 - 11:00) - Session 1 - Room I-10

Margaret Kehoe	Classification of Speech-Sound Disorder in French-speaking Children
Tanja Kocjančič, Tomáš Bořil	Voicing in Czech children's sibilants: children's production and adult's perception
Kristian Emil Kristoffersen	The importance of shared terminology in inter-professional collaborative practice – an example from Norway
Katherine Pritchard, Vesna Stojanovik, Jill Titterington, Emma Pagnamenta	How speech and language therapists and parents work together for children with speech sound disorder: A scoping review
Kerstin Schauss-Golecki, Annette Fox-Boyer	Phoneme discrimination of nonwords in German-speaking children with and without speech sound disorders aged 4-6
Mridhula Murali, Joanne Cleland, Lauren Taylor, David Young, Jane Stuart-Smith, **Anja Kuschmann**	Developmental variability in voice quality: acoustic reference data from 275 children aged 5–12 years

Oral Presentations

Wednesday 25 June (9:00 - 11:00) - Session 1 - Room I-11

Nicole Bazzocchi, Kereisha Biggs, Koubra Hassan Haggar, Karla Washington	Revisiting computerized language sample analyses for a Caribbean-English context
Adhirai Garibaldi, Lakshmi Venkatesh, Karla Washington	Computerised language sample analyses in an inflectionally rich South Asian language
Ceren Cemre Şahin, **N. Evra Günhan Şenol**	Investigation of Parents' Perspectives Towards Different Alternative and Augmentative Communication Systems
Kate Margetson, Sharynne McLeod	Developing a clinical protocol for assessing speech in languages that you do not speak: The Speech Assessment of Children's Home Language(s) (SACHL)
Theodora Papastefanou	Exploring Language and Literacy Development in Greek-English Bilingual Children: The Role of Vocabulary, Morpho-syntax, and Home Literacy Activities.
Giuditta Smith, Mohd Azmarul A Aziz, **Maria Garraffa**	Tackling the verbal domain in aphasia in a diglossic context: The case of Malay

Wednesday 25 June (13:30 - 15:15) - Panel Session - Auditorium

Convenor: Joanne Cleland	Measuring Outcomes in Children's Speech and Language Disorders

Oral Presentations

Wednesday 25 June (13:30 - 15:15) - Session 2 - Room I-10

Letícia Ferreira, Flaviane Fernandes-Svartman, Larissa Berti, Marcus Martins, Beatriz Medeiros, Marcelo Queiroz, Marcelo Finguer	Prosodic Phrasing as a Biomarker of Respiratory Insufficiency in COVID-19 Cases
Theresa Günther, Annette Fox-Boyer, Jürgen Tchorz	Phonetic and phonological competences in German-speaking children with hearing impairment
Evangelia Kyritsi, Katerina Nicolaidis	Speechreading ability for words and sentences in bilingually educated Greek-speaking students with hearing impairment
Veronika Harmati-Pap, Noémi Vadász, Bence Kas	The role of attention-grabbing items of infant-directed speech in early lexical development
Vasiliki Zarokanellou, Maria Kousi, Christina Tzanoudaki, Alexandros Gryparis	Perceptual Evaluation by Peers of the Speech of an Individual with Autism Spectrum Disorder: The Impact on Social Interaction

Oral Presentations

Wednesday 25 June (13:30 - 15:15) - Session 2 - Room I-11

Dafni Vaia Bagioka, Eleni Theodorou, Arhonto Terzi	Narrative skills of school-aged children with Developmental Language Disorder
Paola Calabrese, Vesna Stojanovik, Emma Pagnamenta	A combined working memory and lexical intervention for word learning in DLD
Heeju Hwang, Krisya Louie, Kit Sum To	Cumulative learning and syntactic delays in autistic children
Lakshmi Venkatesh, Roshini Leninkumar, Adhirai Garibaldi	Phonological profile of 2-year olds with and without language delay: Predicting language outcome at age 3
Mélanie van Barreveld, Iris Duinmeijer, Annette Scheper, Britt Hakvoort, Constance Vissers	Quality of Life in school-aged children with DLD: change and predictors

Wednesday 25 June (16:30 - 18:15) - Panel Session - Auditorium

Convenor: Nicole Müller	Communication Health as a challenge for Clinical Linguistics and Phonetics

Oral Presentations

Wednesday 25 June (16:30 - 18:15) - Session 3 - Room I-10

Polychronia Christodoulidou, Katerina Nicolaidis, Dimitrios Stamovlasis	Developmental aspects of Greek spectral vowel variability: The use of Euclidean distances
Mirjana Jeremic, Emma Pagnamenta, Vesna Stojanovik, Kelly Burgoyne, Sue Buckley	Shared book reading with young pre-school children with Down syndrome: exploring parent-child interactions and language boosting behaviours and comparing with typically developing peers
Katherine Pritchard, Vesna Stojanovik, Jill Titterington, Emma Pagnamenta	How Speech and Language Therapists Work with Parents of Young Children with Speech Sound Disorder: A focus group study
Tamra Staples, Tricia McCabe, Elizabeth Murray	Australian Speech Pathologists answer 8 quick questions about how they analyse speech sound disorders (SSD)
Sofia Strömbergsson, Ella Edlund, Magdalena Pettersson, Nhan Phan, Mikko Kurimo	Self-supervised digital intervention for children with speech sound disorder - a single-case experimental design study

Oral Presentations

Wednesday 25 June (16:30 - 18:15) - Session 3 - Room I-11

Iris Duinmeijer, Luisa de Heer, Sietske van Viersen, Margoke Nijssen, Elise de Bree	From speaking to reading: Literacy development in children with problems in language and speech
Angela Medina	Using Tools Grounded in Systemic Functional Linguistics to Explore the Narratives of Spanish-English-speaking Bilinguals who Stutter
Monique Mills, Grace Jones, Mariana Mancias, Cara Wilson, Shaima Scrivner	Story Sense: Exploring Narrative Production and Comprehension in 7-Year-Olds
Rochana Mroué, Caroline Masson, Christelle Maillart	Interaction quality in toddler classrooms: A cluster analysis across activity settings and structural associations
Ioanna Orfanidou, Elena Theodorou	Examining Receptive and Expressive Narrative Skills in Storytelling and Retelling Among Typically Developing Greek-Speaking Preschoolers: Preliminary findings using MAIN

Oral Presentations

Thursday 26 June (9:00 - 11:00) - Session 4 - Auditorium

Eleftheria Geronikou, **Elena Babatsouli**	Reduction and simplification norms of adjunct clusters in child Greek
Daniel Berube, Ann Sutton	Validation of the Intelligibility in Context Scale for French-speakers in Canada
Sam Burr, Sam Harding	Speech sound development in children born prematurely: a scoping review
Barbara Dodd, **Sharon Crosbie,** Alison Holm	Phonological delay and disorder in children's speech: how they differ and why it matters
Lucy Gibson, Eleanor Lawson, Jane Stuart-Smith, Anja Kuschmann, Amy Smith, Lauren Taylor, Mridhula Murali, David Young, Joanne Cleland	Does accent variation affect the identification of Speech Sound Disorders in Scottish-English speaking children?
Agata Trębacz-Ritter	Educational Performance of Polish-Speaking School-Aged Children With Speech Sound Disorders. A Multiple Case Study

Oral Presentations

Thursday 26 June (9:00 - 11:00) - Session 4 - Room I-10

Thomas Kaltenbacher, Birgit Breninger, Bradley Mackay	Incubator Intervention in extremely premature infants – vowel space and f0 evidence that parental voice input is beneficial
Bruce Xiao Wang, Yu Sun, Zhen Song, Shuying Wang, Ho Yee Ng, Hang Ching Lam, Yong Ping Zheng, **Min Ney Wong**	An ultrasound and acoustic study estimating the vowel space of Cantonese-speaking healthy adults
Gloria Gagliardi, Riccardo Giabbani, Elena Martinelli, Yuka Naito, **Chiara Meluzzi**	Formant stability in the speech of Italian-speaking subjects with dementia: a pilot study
Jose Quirino, Marcelo Finger, Larissa Berti	Biomarkers for identifying respiratory failure: acoustic analysis of voice and speech
Anastasia Deri, Katerina Nikolaidis	The development of anticipatory coarticulation in Greek children
Wilbur Bennett III, Elena Babatsouli	Incorporating automated speech recognition programs to facilitate clinical speech analysis cross-linguistically

Oral Presentations

Thursday 26 June (9:00 - 11:00) - Session 4 - Room I-11

Matheus Alpes, Julia Cipolato, Ana Rita Valente, Jacqueline Nascimento, Patrícia Mandrá, Marisa Lousada	Psychometric properties of the Intelligibility in Context Scale for Brazilian Portuguese
Betül Sazoğlu, **N. Evra Günhan Şenol**	An Overview and Recommendations for the Current Status for Assessment Regarding Alternative and Augmentative Communication Systems in Turkey
Adhirai Garibaldi, **Lakshmi Venkatesh**, Jayashree Bhat, Prakash Boominathan	Verb morphology among Tamil-speaking preschoolers with and without language delay
Ingeborg Sophie Ribu, Monica Norvik, Peter Bekkhus-Wetterberg, Hedda Døli, Nina Helen Erikstad, Ingvild Elisabeth Winsnes	Adaptation of the Mini-linguistic State Examination (MLSE) to Norwegian and the development of a “Living with PPA” questionnaire trough co-research
Andromachi Tsoukala, Maria Vender, Marta Tagliani, Pauline Wolfer, Franziska Baumeister, Elisabet Vila Borrellas, Stephanie Durrleman	Pronoun Production in Autism: Effects of Bilingualism and Theory of Mind
Paulina Zydorowicz	Polish phonological assessment tools and their validation in a monolingual and bilingual context

Oral Presentations

Thursday 26 June (13:30 - 15:15) - Panel Session - Auditorium

Convenor: Sharynne McLeod	Children's speech development around the world: A transformative paradigm shift

Thursday 26 June (13:30 - 15:15) - Session 5 - Room I-10

Xiu Yan Huang, Chuen Yan Yip, Carol K.S. To	Visual complexity matters: Eye-movement patterns of children with reading difficulties when differentiating similar Chinese characters
Ruochen Ning, Nicole Bazzocchi, Karla Washington	Neuroimaging as a feasible tool for studying late talking in toddlers
Ingeborg Sophie Ribu, Christiane Lingås Haukedal, Iqra Batool Akhtar, Christopher Viken	Adaptation of a receptive vocabulary test for Norwegian
Maite Zaragoza-Cortés, Irene Mitjavila Casals, Isabel Gomez-Ruiz, Faustino Diéguez-Vide	Bilingualism and Parkinson's disease: insights into processing models from an oral description task
Michaela Nerantzini, Eirini Koukourava, Ioannis Papakyritsis, Spyridoula Varlokosta, **Arhonto Terzi**	The computerized Token Test as an assessment tool for sentence comprehension deficits in PWA.

Oral Presentations

Thursday 26 June (13:30 - 15:15) - Session 5 - Room I-11

Claire Boilley, Laure-Hélène Canette, Anne Vilain, Hélène Loevenbruck	Phonological awareness and motor rhythm skills in adolescents with intellectual developmental disorders
Monica Kaniamattam, **Judith Oxley,** Namrata Pai	Exploring Multimodal Parental Responsiveness within Family-Centered Early Intervention: Perspectives from India
Vesna Stojanovik	Are parental checklists useful for the assessment of language ability of young children with Down syndrome?
Theodora Papastefanou, Kakia Petinou	Preliminary Findings into Speech Inconsistency in Cypriot-Greek Bi-dialectal Children: A Comparison Between Typical Development and Inconsistent Speech Disorder
Bernadette Vermeij, Karin Wiefferink, Ron Scholte, Harry Knoors	Variation in language development of children with Developmental Language Disorder during early intervention

Thursday 26 June (16:30 - 18:15) - Panel Session - Auditorium

Convenor: Sharynne McLeod	Children's speech development around the world: A transformative paradigm shift

Oral Presentations

Thursday 26 June (16:30 - 18:15) - Session 6 - Room I-10

Kathryn Cabbage, Michelle Swartz, Thomas Carrell, Elaine Hitchcock	Reducing Task Demands in Speech Perception Assessment for Children: Addressing a Clinical Challenge
Elaine Hitchcock, Laura Koenig	Exploring Accuracy and Variability of VOT Perception in Children with Speech Sound Disorders using Natural Speech
Tori Keeping, Fangfang Li, Tyler Bonnell	Perception of gender in speech to boys vs girls
Alice Lee, Nicola Bessell, Maeve Sharkey, Jill Titterington, Fiona Cooke, Claire Mansfield, Emma Screene	Building a typical and disordered speech dataset for teaching and assessing phonetic transcription in Speech and Language Therapy students in Ireland
Min Ney Wong, Eddy C. H. Wong, Bruce X. Wang, Oscar T. K. Cheng, Janet H. Y. Ng, Cymie W. Y. Ng	Efficacy of an online self-pace Cantonese phonetic transcription training module for speech therapy students

Oral Presentations

Thursday 26 June (16:30 - 18:15) - Session 6 - Room I-11

S. Helene Deacon, Sofia Giazitzidou	Applying linguistic research to child development: identifying which aspects of children's morphological skills predict vocabulary development in early elementary school.
Spyridoula Varlokosta, **Evangelia - Antonia Efstratiadou**, Michaela Nerantzini, Ilias Papathanasiou	The Greek Lexical and Grammatical Aphasia Assessment Test (LexiGrAph): Validation of a comprehensive aphasia language battery in Greek.
Ilias Papathanasiou, **Athanasios Karasimos**, Eva Efstratiadou, Gerasimos Fergadiotis	Innovation and challenges of spoken and aphasic speech data: Introducing the CACLA corpora
Nomiki Karpathiou, Angeliki Tsapanou, Xanthi Arampatzi, Panagiota Zoi, Faidra Kalligerou, Paraskevi Sakka	The impact of mood disorders and mild cognitive impairment on language performance: insights from a community healthcare setting
Sofia Manika, Nikolaos Trimmis, Ioannis Papakyritsis	Amusia hearing screening test results among learning-disabled and normal children

Friday 27 June (10:00 - 10:45) - Panel Session - Auditorium

Convenor: Chelsea Sommer	Articulation and phonological considerations for working with bilingual English-Spanish and monolingual Spanish speakers

Oral Presentations

Friday 27 June (9:00 - 10:45) - Session 7 - Room I-10

Louiza Voniati, **Spyros Armostis**	Exploring associations among different measures of Mean Length of Utterance in Cypriot-Greek–speaking children: a comparative analysis MLU in morphemes, words, syllables, and segments
Helen L. Blake, Sharynne McLeod	Children's speech development around the world in 170+ recordings
Wiebke Freese, Annette Fox-Boyer, Silke Fricke	Stimulability of Phones as an Indicator of Speech Sound Disorders in German-Speaking Children?
Eleni Nikou, Emilia Michou, Ioannis Papakyritsis	Acoustic analysis of atypical suprasegmental characteristics across different connected speech activities: Data from Greek dysarthria
Virginia Shaw, Mackenzie Walburger, Claire Neufeld, Tyler Bonnell, Fangfang Li	Is Slowing 'Simple'? Variations in the Model Used to Train a Slowed Articulatory Rate of Speech to Naïve Adults

Oral Presentations

Friday 27 June (9:00 - 10:45) - Session 7 - Room I-11

Mersede Imani-Shakibayi, Talieh Zarifian	Multisyllabic productions in Persian-speaking children with typical versus protracted phonological development
Christina Nikitopoulou, Ioannis Papakyritsis, Maria Vlassopoulos, Carole Morel	Examining the association between CAS and Executive Functions in the Greek language: Preliminary results
Mirjam van Tellingen, Joost Hurkmans, Anne Marie van de Zande, Hayo Terband, Ben Maassen, Roel Jonkers	Speech-Music Therapy in the treatment of Childhood Apraxia of Speech
Talieh Zarifian, Mersede Imani shakibayi	Differential diagnosis of Childhood Apraxia of Speech from phonological disorder in Persian-speaking children of Iran
Patricia McCabe, Lim Jacqueline, Ilaria Scarcella, Donna Thomas, Alison Purcell, Maryane Gomez, Chantelle Highman, Jacqueline McKechnie	Speech variability in childhood apraxia of speech (CAS): A potential treatment outcome measure.

Posters

Wednesday 25 June (15:30 - 16:30) - Session 1

P1	**Giorgia Albertin**	The Impact of Primary Dysmenorrhea on Acoustic Features: A Case Study of Italian Vowel Production
P2	Saira Ambreen, **Carol To**	Phonetic Variants of Urdu Consonants and Vowels
P3	**Melina Sofia Armaganidou,** Maria Kampouri	Can we use digital (Kinetic) learning games to enhance language development in young autistic* children? *preferred term by the autistic community (Kenny et al., 2016)
P4	**Martin Ball**	Polyphthongs in Typical and Atypical Speech
P5	**Jazmine Beauchamp,** Eirini Sanoudaki, Sarah Cooper, Martin Ball	Speech and Language Therapy in Wales: The availability and adequacy of bilingual Welsh resources.
P6	**Ines Carović,** Martin J. Ball, Daniel Bérubé, Chiara Meluzzi, Nicole Müller, Ioannis Papakyritsis, Tomislav Ivanjko	The power of adaptation: translating extIPA for cross-linguistic clinical use
P7	**Tomislav Ivanjko,** Ines Carović	Enhancing phonetic transcription skills through training and gamification
P8	**Aline Mara Oliveira,** Joanne Cleland	Cross-cultural adaptation and validation of Ultrax2020 (Ultrasound Technology for Optimising the Treatment of Speech Disorders) into Brazilian Portuguese

Posters

P9	Bhavana Bhat, **Mirjam van Tellingen**, Hayo Terband	Intrinsic Pitch and Vowel Production in Childhood Apraxia of Speech
P10	**Evangelia - Antonia Efstratiadou,** Athanasios Karasimos, Ilias Papathanasiou	Computer Adaptive Anomia Test in Greek
P11	**Vanessa Giacchini**	Prevalence of Phonological Disorder Severity Levels in a University Clinic in Brazil
P12	Leslie Kokotek, **Karla Washington,** Nicole Bazzocchi	What did COVID-19 Do? My Child Sounds Different
P13	**Sigrun Lang,** Peter B. Marschik, Zuzanna Laudańska, Bernd Wilken, Christian P. Schaaf, Alisa Hahn, Tomas Kulvicius, Jeff Sigafoos, Sven Bölte, Luise Poustka, Jeffrey L. Neul, Dajie Zhang	Early speech-language development in a pair of dizygotic twins, one developing typically, one later diagnosed with Rett syndrome
P14	Maginot Shing-Lok Yip, Rachel Wai-Ching Lo, Cherie Cheuk-Lam Wong, **Dustin Kai-Yan Lau**	A Cantonese Database of Video Interviews for Conversation Analysis – A preliminary report

Posters

P15	**Alice Lee,** Nicola Bessell, Henk van den Heuvel, Satu Saalasti, Katarzyna Klessa	An update on DELAD – An initiative for facilitating sharing of corpora of disordered speech
P16	Marijana Lukić, **Marko Liker,** Aleksandar Savić	Temporal characteristics and vowel space in the speech of persons with psychosis: a case study
P17	**Anita Lorenc,** Agnieszka Borowiec, Łukasz Mik, Katarzyna Klessa	Normative and disordered tongue rest position: illustrations from EMA and CBCT studies
P18	**Katherine Hays,** Judith Oxley	Sturge Weber Syndrome: Profile of Speech Sound Development
P19	**Christos Papatzalas,** Ilias Papathanasiou	The role of right hemisphere in L2 processing: insights from a case study
P20	**Katherine Pritchard,** Vesna Stojanovik, Jill Titterington, Emma Pagnamenta	How do speech and language therapists support parents to work effectively at home with their child with a speech sound disorder?
P21	**Lucy Rodgers,** Ros Herman, Nikki Botting, Erica Breuer	Development of SWanS: a novel complex intervention for co-occurring features of phonological speech sound disorder and developmental language disorder
P22	**Lucy Rodgers,** Ros Herman, Nikki Botting, Helen Stringer	Establishing consensus on the core elements of a novel intervention for speech comprehensibility and expressive vocabulary: a two round modified e-Delphi with UK speech and language therapists

Posters

P23	**Alessandra Scodellari,** Hélène Delage, Emily Stanford	The acquisition of French syntax within the syntactic cartography framework: Is the Growing Trees Hypothesis applicable? Evidence from a sentence repetition task
P24	**Chelsea Sommer,** Alliete Alfano, Angela Medina, Gabriela Flores, Liana Ramirez, Jenna Reffaie, Lindsey Rothman, Lauren Cleto	Considerations for Spanish-Influenced English in Articulation Assessments for English-Spanish speaking Bilingual Children
P25	**Sofia Strömbergsson,** Ineke Samson, Maria Södersten, Anette Lohmander	PUMA-RöSt – Students' self-supervised practice in auditory-perceptual assessment of voice
P26	**Andromachi Tsoukala,** Vitor Zimmerer, Derya Cokal, Gabriel Sevilla, Maggie Douglas, William Jones, Nicol Ferrier, Douglas Turkington, Stuart Watson, Rosemary Varley, Wolfram Hinzen	The relationship between language disorder and thought disorder: comparing spoken narratives of people with aphasia and people with schizophrenia
P27	**Naotake Tsukidate,** Hiroshi Fujino, Tomoko Matsui, Yoko Kamio, Ryuko Mizutani, Manabu Oi	Age-related changes in structural and pragmatic language abilities: A cross-sectional study using Japanese CCC-2 normative data
P28	**Anwar Althagafi,** Irena Yanushevskaya	The Progression of Phonetic Transcription Skills in a Speech and Language Therapy Training Program

Posters

P29	Carolina Marques, **Ana Catarina Baptista,** Susana Rodrigues	Beyond Segments: A nonlinear Approach to Phonological Analysis in Speech Sound Disorders
P30	**Eleni Giannakou,** Christina Lytridou, Elena Theodorou	Grammaticality Judgment as a Clinical Indicator for Language Disorders in Cypriot Greek-Speaking Children
P31	**Suzanne Hopf**	Navigating international waters: An autoethnographic narrative of the journey to culturally responsive higher degree research supervision
P32	**Amanda Rivera,** Michael Cannito, Judith Oxley	Acoustic Analysis of Childhood Apraxia of Speech in a Child with Sturge-Weber Syndrome: Preliminary Findings.

Posters

Thursday 26 June (15:30 - 16:30) - Session 2

P1	**Matheus Alpes,** Nathália Cagnoni, Patrícia Mandrá	Motor skills and phonological processing in children with speech sound disorder
P2	Saira Ambreen, **Carol To**	Urdu Consonant Acquisition in Typically Developing Children
P3	Samra Alispahic, Elizabeth Pellicano, **Mark Antoniou**	Acoustic confusability and multi-talker processing in autistic adults
P4	**Melina Sofia Armaganidou,** Voula Georgopoulos	Use of Picture AAC app on iPad for Augmentative Alternative Communication System in an Autistic* Child *preferred term by the autistic community (Kenny et al., 2016)
P5	**Sarah Curtis,** Jamie Williams	An investigation into the lexical and semantic abilities in single word productions of young adults with Down's Syndrome.
P6	**Ana Catarina Baptista,** Maria João Freitas	Phonological Markers of Otitis Media: Insights into Lateral Coda Production and Prosodic Challenges in Early Childhood
P7	Xueao Cao, **Judith Oxley**	Impact of Sturge-Weber Syndrome characteristics on aided communication through the lens of proxemics analysis: implications for training preprofessional SLP/SLTs
P8	Tatiane Cristina de Almeida, Leisi Sossolote, **Larissa Berti**	Changes in Voice and Speech Parameters Based on the Severity of Acute Respiratory Failure of Pulmonary and Extrapulmonary Origin in Patients Admitted to the Intensive Care Unit

Posters

P9	Barbara Dodd, Beth McIntosh, Sharon Crosbie, **Alison Holm**	Inconsistent Phonological Disorder: Quantitative and Qualitative Measures
P10	**Aline Mara Oliveira,** Paola Baron, Joanne Cleland	The use of ultrasound visual biofeedback in intervention for speech sound disorders: an updated systematic review
P11	Hélène Delage, **Alessandra Scodellari,** Stanford Emily	An adaptative and explicit syntactic training for French-speaking children with DLD: A study in progress.
P12	**Vanessa Giacchini**	Main Phonological Processes in Children with Phonological Disorder: Analysis of Speech Production Errors
P13	**N. Evra Günhan Şenol,** Elif Nur Kaya, Gülkader Temiz, Medine Dudu	When Scores Do Not Match: An Investigation of Assessment Fidelity and Speech and Language Therapists' Views on Standardized Aphasia Language Assessment Tests
P14	**Eleftheria Ismirlidou**	Comparison of students with Non Verbal Learning Difficulties and students with Autism Spectrum Disorders in Executive Functions
P15	**Tanja Kocjančič,** Kateřina Bujoková, Tomáš Bořil, Kateřina Vitásková	Place of articulation in Czech children's sibilants
P16	**Dustin Kai-Yan Lau**	Psycholinguistic norms of action and object pictures in Hong Kong Cantonese – Preliminary findings

Posters

P17	**Karla Švaljek,** Marko Liker	Coarticulation patterns and speech intelligibility in cochlear implant users
P18	**Rochana Mroué,** Caroline Masson, Christelle Maillart	What do educators know about language development and language support practices in toddler classrooms ?
P19	**Anja Kuschmann,** Mridhula Murali, Lauren Taylor, Jane Stuart-Smith, David Young, Joanne Cleland	Accuracy of diadochokinetic performance in 5–10-year-old children
P20	**Judith Oxley,** Katherine Hays, Amanda Rivera, Xueao Cao	Sturge Weber Syndrome: Communication Development
P21	Stamatios Giatrou, Emilia Michou, **Ioannis Papakyritsis**	Acoustic analysis of temporal speech characteristics in Greek speakers: Effect of speaking task, normal aging and speech disorder
P22	**Carolin Schmid,** Hannah Leykum	An acoustic analysis of German vowel development in monolingual and bilingual kindergarten children
P23	**Chelsea Sommer,** Mabel Aday, Luz Amaya, Leilani Fleites-Fernandez, Natalie Gonzalez, Beatriz Reyes, Eileen Tidd, Kelly Cordero	A cross-linguistic exploration of nasometry values in English-Spanish speaking bilinguals
P24	Michelle Turner Swartz, **Katy Cabbage**, Elaine Hitchcock	Enhancing Speech Outcomes in Childhood Apraxia of Speech: A Pilot Study of Auditory Masking and Visual-Acoustic Biofeedback

Posters

P25	**Lujia Yang,** Karen Pollock	Phonetic Transcription and Clinical Evaluation of Mandarin-Speaking Children's Speech by English-Trained Speech-Language Pathologists and Students
P26	**Chara Zefkili,** Georgia Vasilogiannakopoulou	A survey of the clinical management of childhood apraxia of speech: a questionnaire for Speech-Language Therapists in Greece.
P27	**Eleni Kyritopoulou,** Anastastia Vaggeli, Aggeliki Orphanaki, Ioannis Papakyritsis, Emilia Michou	“Characteristics of apraxia of speech in children with developmental speech and language delay: a cohort study of Greek preschool and school- aged children”

Friday 27 June (10:45 - 11:45) - Session 3

P1	**Sabah Al Bilani,** Severine Casalis	How preschoolers learn words: Exploring the roles of phonology and semantics.
P2	**Elena Babatsouli,** Pegah Nikrah	Investigating Child Atypical Persian Phonologies during Intervention
P3	**Kathryn Cabbage,** Kelly Farquharson, Chris Schatschneider, Megan Brendal, Sarah Weber, Mary Allison Moody	Phonological Profiles of Children with Speech Sound Disorder: Preliminary Data
P4	**Spyridoula Choli**	"The Effectiveness of Using Grid with a Child with Communication Difficulties"

Posters

P5	Emily Stanford, **Margaret Kehoe**, Maren Eikerling, Olivia Hadjadj, Hélène Delage	Perspectives from speech and language therapists in Switzerland on supporting multilingual children
P6	Eleftheria Geronikou, Evgenia Katseri, **Maria Kyriakopoulou**, Sofia Tyrologou, Arhonto Terzi	Sentence Comprehension in Children with Learning Difficulties: The Case of Greek Non-Canonical Sentences
P7	**Aggeliki Makrodouli**, Eleftheria Geronikou	Language Development in Children with Maltreatment Histories: Insights from Speech and Language Therapy Case Studies
P8	Eleftheria Geronikou, **Grigoria Sidirokastriti,** Areti Okalidou	Acoustic Analysis of Voice Onset Time and Vowel Formants in the Productions of Greek-Speaking School-Aged Children with Hearing Loss
P9	**Vanessa Giacchini**	Sound Challenges: The Most Affected Phonemes in the Speech of Children with Phonological Disorder in Brazilian Portuguese
P10	**Dora Knežević,** Jelena Kuvač Kraljević, Tiffany Antić	Phonetic Inventory in Croatian Children (8–25 Months): Insights from Corpus Data
P11	Georgia Andreou, **Vasiliki Lymperopoulou**, Vasiliki Aslanoglou	The correlation between vocabulary and predictive language processing in children with Autism Spectrum Disorder and children with Developmental Language Disorder
P12	Varvara Manti, **Theodora Bontsiou, Pavlos Kapsalakis**	Educational Kitchen: A Pilot Program for Developing Communication and Social Skills through Training in Activities of Daily Living in a Special Primary School Context

Posters

P13	**Cymie Wing-Yee Ng,** Herman Si-Ioi Ng, Kathy Yuet-Sheung Lee, Tan Lee, Michael Chi-Fai Tong	Applying automatic speech recognition technology in screening preschool children with speech sound disorder: A pilot study
P14	**Katerina Nicolaidis**	An electropalatographic study of consonantal sequence production in Down Syndrome: a case study for Greek
P15	**Buse Özbaş,** Aylin Başaran, Bella Shabalina Gelleş	An Investigation of the Spoken Language Skills of Bilingual Children Speaking Turkish and Russian
P16	**Vasiliki-Konstantina Papadomarkaki,** Thomais Papadopoulou, Maria Doumta, Kyriaki Tasiou, Dimitrios Chasapladakis, Zoitsa Papavramopoulou, Ioannis Papakyritsi, Emilia Michou	Effectiveness of an individualized teletherapy program for a child with Developmental Language Delay in Greek: a case study.
P17	Filia Sarrou, Zoitsa Papavramopoulou, Areti Okalidou, Michaela Nerantzini, **Ioannis Papakyritsis**, Emilia Michou	Low Socioeconomic Status and Language use in School-aged children in a rural area in Greece: a cohort study
P18	**Vasiliki Iliopoulou,** Emilia Michou, Ioannis Papakyritsis	Acoustic analysis of temporal speech characteristics in Greek speakers with Schizophrenia: A pilot study
P19	**Susana Rodrigues,** Liliana Gomes, Susana Silva, Luis M. T. Jesus, Brígida Patrício	Stops and rhotics in complex onset: Acoustic cues to phonological acquisition in European Portuguese

Posters

P20	Zixuan Wu, Cheuk Ying Cheryl Cheung, **Carol K. S. To**	Statistical Learning of Multiple Structures in Autistic Individuals
P21	**Aggeliki Souka**, Emilia Michou, Ioannis Papakyritsis, Zoitsa Papavramopoulou	When, how and what's for Speech and Language Therapy in literacy difficulties in Greece: web-based questionnaire and a case study.
P22	**Panagiotis Ioannis Topalis,** Ioannis Papakyritsis, Zoitsa Papavramopoulou, Emilia Michou	Application of a Top-Down Morphosyntactic Intervention and the ReST Program in a Preschooler with Speech Dyspraxia: A Case Study
P23	**Sofia Balasi,** Eleftheria Geronikou, Voula Georgopoulos	Comparing ChatGPT-Generated and SLT-Created Intervention Plans: An Exploratory Study

George Kazantzidis

Speech impairment in Greek antiquity: Some methodological issues

Abstract

Ancient Greek sources yield an incredibly rich vocabulary on speech impairment and speech difficulties more generally. To name just a few examples: *ischnophonos* describes someone who 'stutters'; *traulos* is applied to instances of 'lisping' or, specifically, to the mispronouncement of letters; failure to pronounce correctly the letter *sigma* qualifies someone as *psellos*, whereas *mogilalos* is employed in contexts where speech difficulties (ranging from the use of odd syntax to a patient's inarticulate speech to silence and the total collapse of verbal communication) occur as a side-effect of a medical condition, physical or mental. The list could go on.

In this paper, I will present a selection of these terms; I will try to situate them briefly in their literary, cultural and historical contexts, and I will address some important methodological issues that are relevant to the material under discussion. Some of the questions I will be concerned with are: the (potential) fallacy of retrospective diagnosis and the dangers of anachronism involved in the process; the reasons why the Greeks felt the need to create all sorts and kinds of different distinctions when it came to speech difficulties; the function of speech impairment as a disabling and, ultimately, socially isolating agent; and, finally, its crucial and insistent appearance as a sign and symptom of mental pathology in the ancient Greek imagination.

Bio

George Kazantzidis (DPhil Oxon. 2011) is Associate Professor of Latin Literature at the University of Patras, Greece. He is primarily interested in the history of emotions and the history of mental illness in Greek and Roman antiquity. His publications include a monograph on Lucretius (*Lucretius on Disease: The Poetics of Morbidity in De rerum natura*, De Gruyter, 2021) and a number of edited volumes, among which the most recent ones are: *Horror in Classical Antiquity and Beyond: Body, Affect, Concepts* (Bloomsbury, 2024, with Chiara Thumiger); *Body and Machine in Classical Antiquity* (CUP, 2023, with Maria Gerolemou); and *Medical Understandings of Emotions in Classical Antiquity* (De Gruyter, 2022, with Dimos Spatharas). In the Spring Term of 2024 he was a Visiting Associate Professor of Classics at Johns Hopkins University. In 2025-2026 he will be joining the School of Historical Studies at the Institute for Advanced Study in Princeton where he will pursue a project on madness and economy in the Greek and Roman world.

Claire Timmins

Maximizing student engagement in learning clinical phonetics and phonology using creative approaches

Abstract

In this interactive keynote, I will display a variety of in-person and online techniques for teaching clinical phonetics and vocal tract anatomy in engaging and innovative ways. From Minecraft Education and online Escape Rooms to plasticine models and adapted word-based board games, you will discover creative approaches to enhance learning.

As with most of my teaching sessions, this session is intended to be informative but also fun. Get ready to take part in hands-on activities, design your own interactive teaching ideas, and exchange inspiration with fellow educators.

I will also share the latest work from the UK and Ireland Clinical Phonetics Teaching Network, offering insights into what and how phonetics and phonology are taught across many different Speech and Language Therapy pre-registration degree programmes within the UK and Ireland. Plus, you will learn more about accessing visual articulatory clinical speech samples with the Speech Therapy Animation and Imaging Resource (STAR) and its applications in clinical phonetics education.

To wrap up, you will be invited to contribute to a new collection of creative teaching ideas in phonetics and phonology. Together, we will create a resource to extend the impact of this session beyond the conference ensuring a continuous flow of creativity.

Bio

Dr Claire Timmins is a Senior Teaching Fellow in the Speech and Language Therapy Department at the University of Strathclyde, Glasgow, where she specializes in teaching clinical phonetics, phonology, and sociolinguistics. As a clinical sociophonetician, her work has spanned Accent Variation in Glasgow and EPG speech analysis in children with Down syndrome. Recognized as Best Overall Teacher at the University of Strathclyde, UK (student-led), she is known for bringing creativity into the classroom through a variety of interactive tools like Minecraft Education and adapted word-based board games.

With over 25 years of experience teaching phonetics, Claire has held roles at the University of Sheffield, the University of Glasgow, Queen Margaret University, and the University of Strathclyde, bringing her expertise and passion for innovative education to students across institutions.

Frank Guenther

Using Neural Modeling to Better Understand Speech Disorders

Abstract

This talk will provide an overview of the DIVA/GODIVA modeling framework, which provides a quantitative account of the neural computations underlying speech motor control (the DIVA model) and multisyllabic sequencing (the GODIVA model). The models are formulated as artificial neural networks, with model nodes associated with specific brain locations, and they learn to control movements of a simulated vocal tract through babbling and imitation phases. In addition to accounting for a wide range of neural and behavioral data concerning typical speech, the models provide a framework for studying speech disorders, including apraxia of speech, stuttering, hypokinetic dysarthria, and locked-in syndrome. Examples of such studies will be presented.

Bio

Frank Guenther is a Professor of Speech Language, & Hearing Sciences and Biomedical Engineering at Boston University and a research scientist at the Picower Institute for Learning and Memory at MIT. Prof. Guenther's research combines theoretical modeling with behavioral and neuroimaging experiments to characterize the neural computations underlying speech. He is the originator of the DIVA model, which provides a quantitative and neuroanatomically precise account of the computations underlying speech and their breakdown in communication disorders, and the GODIVA model, which accounts for the neural mechanisms responsible for buffering and sequencing phonological content for an upcoming or ongoing utterance. He has also developed brain-machine interface technology aimed at restoring speech communication to severely paralyzed individuals. Prof. Guenther is an author of over 100 journal articles and book chapters on speech mechanisms, as well as a book published by MIT Press in 2016 entitled Neural Control of Speech. He is also a recipient of the Willard R. Zemlin Award, one of the top honors of the American Speech-Language-Hearing Association, and the Curt von Euler Award for Speech Research, awarded by Stockholm University and the Karolinska Institute.

Athanasios Karasimos

AI and Board Gaming Approach to Language Teaching and Learning: Beyond Age, Technology, and Learning Difficulties

Abstract

The integration of board games into the learning and teaching lessons stems from a need to enhance language engagement across all age groups and learning profiles, including those facing technological and cognitive challenges, and learning difficulties. This study explores a board gaming approach to language teaching and learning, grounded in the practical testing of multiple board games across different genres—such as abstract strategy, thematic and eurogames, worker placement, deckbuilding, dice-based games and family games. Our testing sessions reveals that this variety not only caters to diverse learner preferences and styles but also fosters an inclusive, adaptable, and engaging educational environment. We also examine the synergistic role of technological tools—such as AI co-players, companion apps, and digital storytelling platforms—in amplifying the learning potential of board games. These tools help overcome barriers related to age and learning difficulties, while aligning with contemporary educational practices.

This presentation will showcase a range of tested educational scenarios featuring both analog and tech-enhanced board games, implemented with learners from preschool to tertiary education. Our data highlight how educators can build expertise in using board games and narrative techniques to improve speaking skills, while also integrating vocabulary, grammar, and the four key language skills (reading, writing, speaking, and listening) within their instruction. Emphasis is placed on practical strategies for motivating and engaging students through collaborative gameplay, discussion, and storytelling. To illustrate the application of CLIL principles, we will present specific techniques using board games such as *Unlock*, *Codenames*, *Mysterium*, *The Kids Chronicles*, *Chronicles of Avel*, *Sleeping Gods*, and *Destinies*, along with their companion technologies and AI-tools.

Bio

Athanasios Karasimos is an Assistant Professor in Computational Linguistics, Aristotle University of Thessaloniki, School of English. He is a graduate of the Department of Philology, University of Patras. He holds two European Masters in Speech and Language Processing (one of them at the University of Edinburgh) and his doctoral dissertation is in Computational Morphology. He participated in several research projects on Modern Greek dialects, corpora, aphasic speech, Digital Humanities, and training of English language teachers. He was a postdoctoral research fellow funded by IKY. He worked as an Adjunct Lecturer at HOU, AUTh, and NKUA teaching Educational Technology, Research Methodology, Computational Linguistics and Corpus Linguistics. He is a researcher in the national infrastructure for Digital Humanities DARIAH-GR / DYAS (Academy of Athens). His research interests focus on Computational Linguistics and machine learning, the use of corpora, education technology, and integrating video and board games into language teaching and learning.

Wednesday 25 June (9:00-11:30) - Session 1 - Auditorium

Variability of oral-nasal balance characteristics in children with cleft palate over time

Tim Bressmann[1], Kyle Stevens[2]

[1]University of Toronto, Toronto, Canada. [2]The Hospital for Sick Children, Toronto, Canada

Abstract

The accurate assessment of oral-nasal balance disorders in children with cleft palate is a perennial problem in Speech-Language Pathology. Nasalance scores obtained with a Nasometer can help with the diagnosis of oral-nasal balance disorders. The present study investigated how consistent such classifications are over time. Twenty-seven children with cleft palate were recorded 6 times with a nasometer headset over the course of a lengthy orthodontic palatal expansion treatment. Nasalance scores for a non-nasal sentence were considered normal when they were lower than 30%, mildly hypernasal when they were between 30-35%, and hypernasal above 35%. Nasalance scores for a nasal sentence were considered normal when they were higher than 50%, mildly hyponasal when they were between 40-50%, and hyponasal below 40%. Based on the nasalance scores, normal nasalance was found in 42%, mild hyponasality in 17.9%, hyponasality in 16.7%, mild hypernasality in 6.2%, and hypernasality in 17.3% of 162 sound recordings. Only 5/ 27 (18.5%) of the children had the same nasalance-based classification over the six sessions. The others demonstrated variability that was classified as plausible in 51.9% of cases (for example, when a patient vacillated between mild hyponasality and normal oral-nasal balance) and as unexpected in 29.6% (for example, when a patient moved between hypo- and hypernasality between sessions). While clinicians may wish to assign a permanent oral-nasal balance classification to their patients, the study demonstrated that a sizeable subset may show unexpected variability over time. This potential for variability should be explored before making long-term decisions about a patient's management.

Sonospeech Cleft Pilot: Results from a pilot randomised control trial of ultrasound visual biofeedback versus standard intervention for children with cleft palate +/- cleft lip (CP+/-L)

Joanne Cleland[1], Maria Dokovova[1], Lisa Crampin[2], Linsay Campbell[2], Robyn McCluskey[1]

[1]University of Strathclyde, Glasgow, United Kingdom. [2]NHS Greater Glasgow and Clyde, Glasgow, United Kingdom

Abstract

Background

Ultrasound visual biofeedback has a growing evidence base for treating speech sound disorders of unknown origin. In contrast, only a few small have trialled the intervention with children with CP+/-L. This is surprising given that ultrasound is useful for establishing new articulations, a known area of difficulty for children with CP+/-L. This study aimed to assess the feasibility of conducting a randomised control trial with children with CP+/-L. We aimed to determine recruitment, attrition, outcome measure completion rates, and acceptability of the treatments.

Methods

Nineteen children with CP+/-L, aged 4;6-16, were randomised to either 6 sessions of ultrasound or articulatory intervention. We set a target of >75% outcome measure completion and study retention. Percentage target correct consonants (PCC) was measured before, during, and a week and a month after treatment. The Intelligibility in context scale (ICS) and the CLEFT-Q quality of life measure, were completed before and after treatment. All families completed a questionnaire on acceptability. Six families took part in semi-structured focus groups/interviews.

Results

Thirty-two families were approached and 19 took part. One child was lost to follow up. All outcome measures were above the 75% threshold (PCC= 92% completion; intelligibility in context scale = 95%; CLEFT Q: 93%). >75% of families rated randomisation and both interventions as acceptable. There were more positive than negative themes in the interviews/focus groups. High levels of enjoyment were expressed, although some participants found the articulation intervention “boring”. In both groups there was a considerable burden involved in travelling to the hospital location.

Conclusions

Recruitment to the trial was a challenge, but attrition was low, outcome measure completion was excellent, and the families who took part were positive about both types of intervention. A larger scale RCT is feasible if recruitment challenges can be addressed.

Anticipatory and carry-over nasal coarticulation in Greek-learning children with typical hearing and with cochlear implants

Laura L. Koenig[1], Areti Okalidou[2]

[1]Adelphi University, Garden City, USA. [2]University of Macedonia, Thessaloniki, Greece

Abstract

Persons with early severe–profound hearing impairment may show atypical coarticulation, but patterns can depend on direction (anticipatory vs. carryover) and phonetic context. Nasometer systems yield a measure of nasalance as the ratio of nasal energy to total (oral + nasal) energy, providing a more direct representation of velopharyngeal control and nasal coarticulation than what is available in standard oral microphone signals. Traditionally, nasalance measures were obtained for sentences or paragraphs. In recent work, we have developed methods to assess nasalance over individual segments to evaluate VP control in Greek-learning children with normal hearing (NH) and with cochlear implants (CIs). This presentation explores anticipatory and carry-over coarticulation in these groups.

Age-matched CI and NH children (N=20 in total) produced 5 repetitions of disyllabic, trochaic words containing nasal, voiceless, or voiced medial consonants (e.g., /'tonos/, /'topos/, /'tuba/). Most speakers were 4–9 years of age; we also had a pair of older adolescents. The two microphone signals from the nasometer were used to segment consonants and adjacent vowels (V1, initial, and V2, final), and nasalance was extracted over these regions.

Preliminary results indicate that average segmental nasalance and its variability (standard deviation, SD) was generally higher in those with CIs than NH. For medial /p/, significant CI>NH differences in averages and SDs appeared in both vowels, but not the consonant. For medial nasals, group differences were significant for V1 and C, but not V2. Extensive individual variation was seen in words with medial /b/, partly reflecting the optional use of prenasalization for these sounds in Greek. Here, group differences were significant for all averages, but not SDs. In both groups of children, nasalance and its variability was higher in the second, unstressed vowel than the first. Our presentation will include individual speaker data as well as group-level findings.

Explaining high levels of consensus amongst UK speech and language therapists in development of a Core Outcome Set in the Maximising the Impact of Speech and Language Therapy for children with Speech Sound Disorder (MISLToe-SSD) Study

Helen Stringer[1], Frances Stainthorpe[1], Sam Burr[2,3], Samantha Harding[2], Joanne Cleland[4], Yvonne Wren[2,5,3]

[1]Newcastle University, Newcastle upon Tyne, United Kingdom. [2]Bristol Speech and Language Therapy Research Unit, Bristol, United Kingdom. [3]Cardiff Metropolitan University, Cardiff, United Kingdom. [4]University of Strathclyde, Glasgow, United Kingdom. [5]University of Bristol, Bristol, United Kingdom

Abstract

Background: The aim of the MISLToe_SSD phase 1 study was to work with speech and language therapists (SLTs) to develop a Core Outcome Set for speech sound disorder (SSD) that can be used in future treatment effectiveness studies. A modified Delphi process was used to reach consensus on the Core Outcome Set of primary and secondary outcomes. Measures included percentage consonants correct and intelligibility in context.

Methods: Sixty-six UK SLTs formed the expert panel. The Delphi process comprised two online survey rounds and one online meeting. Anonymity between panel members was maintained during the online survey rounds. Round one required a consensus of ≥50%, rising to ≥75% in round two. There was opportunity in both online rounds for panel members to leave free text responses explaining reasoning behind their primary and secondary COS decisions. These were analysed using the Theoretical Domains Framework (TDF) and synthesised into a Capability-Opportunity-Motivation-Behaviour (COM-B) models from behavioural science, to explore reasons behind the high levels of consensus achieved.

Results: Of the 23 core outcomes agreed in Round 2 of the Delphi, 19 had 82%-100% agreement. Free text responses fell into 13 of the TDF domains. Responses were mapped onto the COM-B model with 9% falling within the capability domain, 8% within opportunity and 83% falling within motivation. 69% of responses fell within three TDF domains: SLTs' professional identity, capability and delivery of positive outcomes.

Conclusions: It is possible that high levels of consensus are achieved through shared knowledge and skills, a strong sense of professional identity and confidence in their capability to achieve positive outcomes. SLTs were willing to say if they had no knowledge in a particular area. The advantages of state regulation and required standards of proficiency are also a possible driver of professional confidence and consequent high levels of consensus.

An Ultrasound Study of Tongue Shape Variability in English-Speaking Typically Developing Children

Amy Smith, Eleanor Lawson, Anja Kuschmann, Joanne Cleland

University of Strathclyde, Glasgow, United Kingdom

Abstract

Background: Greater token-to-token tongue shape variability has been noted in children with Speech Sound Disorders (SSDs), potentially pointing to underlying speech motor control difficulties. However, the absence of data from typically developing children (TD) limits our ability to compare the two groups. We predicted that variability would decrease with age. Moreover, variability may differ across consonants with anterior consonants potentially being less variable due to frequency of use and increased tactile feedback in the tip of the tongue.

Method: Data from TD children (n=37, 5-10 years) was collected using ultrasound tongue imaging (UTI) with the ultrasound probe held in a stable position using a headset. Recordings were made at nine schools across Scotland. The children repeated the consonants /s/, /ʃ/, /k/, /t/, /ɹ/, in /aCa/ ten times. The tongue's surface was automatically traced at the maximum of the articulation, using Articulate Assistant Advanced software. The mean Nearest Neighbour distance (mNND) was calculated for each repetition of each consonant for all participants. A larger mNND indicates greater variability. A linear mixed effects model was fitted with mNND as the dependant variable, Age, Consonant and Gender as predictors and Participant as a random factor.

Results: The final model included Consonant, which was significant to the $p<0.001$ level, with velar consonants having significantly higher mNND values than alveolar and post-alveolar consonants, and an interaction between Age and Gender, $p<0.05$. There was a trend of mNND reducing with age, while male speakers tended to have higher levels of mNND at most ages.

Conclusions: The results support the hypothesis that velars are more variable than (post) alveolars, and that mNND decreases with age for typically developing children of primary school age.

*Note: We have a sub-group of children with SSD that has not been analysed yet but will be presented at the conference.

Understanding intelligibility in children born with Cleft Lip and/or Palate: Findings from the Cleft Collective Cohort Study

Yvonne Wren[1,2], Sharynne McLeod[3], Amy Davies[1]

[1]University of Bristol, Bristol, United Kingdom. [2]Cardiff Metropolitan University, Cardiff, United Kingdom. [3]Charles Sturt University, Bathurst, Australia

Abstract

Approximately one in every 1000 babies is born with a cleft palate and up to half of these have ongoing problems with their speech at age 5. Intelligibility is one of the outcomes included in the speech/communication domain of the standard set of outcomes for cleft. The standard set recommends use of the Intelligibility in Context (ICS), a parent-reported measure using a five-point scale to indicate how intelligible their child is with seven different communication partners, as the measure to use with 5-year-old children.

To date, there are no comparative data on the ICS for children born with cleft. Therefore, clinicians using the ICS with parents of children born with a cleft will not know whether the score achieved represents a good or bad outcome for a child at age 5. There is a need for reference data specific to the population of children with cleft.

Using data collected from parents as part of the Cleft Collective, a longitudinal prospective clinical cohort study, a reference dataset has been established which can be used by clinicians to guide clinical management and discussions with parents. Parents of 687 5-year-old children born with varying cleft subtypes completed the ICS and descriptive statistics have been used to provide a range of scores for comparison.

Median scores for children with cleft lip only were higher (5.00, 95%CI5.00–5.00) than those with any form of cleft palate (4.14, 95%CI4.14–4.29). The scores for children with cleft lip only were also within the range of data from other normative studies whereas those with any form of cleft palate were not. Children with cleft palate who had been diagnosed with a syndrome scored lower than those with cleft palate who had not been diagnosed with a syndrome.

Wednesday 25 June (9:00 - 11:00) - Session 1 - Room I-10

Classification of Speech-Sound Disorder in French-speaking Children

Margaret Kehoe

Université de Genève, Geneva, Switzerland

Abstract

No study has validated English-based classification systems of speech-sound disorders (SSD) with French-speaking children. This study aimed to determine whether SSDs in French-speaking children could be classified into three groups: phonological, motor speech, and articulation, and whether the phonological group could be further divided into phonological delay, consistent phonological disorder, and inconsistent phonological disorder, as proposed in the Differential Diagnosis system of Dodd (1995).

Over 40 children with SSD, aged 4 to 8 years, were recruited from speech-language therapy clinics and administered a battery of tests that included a single-word production task, inconsistency test, an oral motor examination, and a measure of diadochokinetic rate. We examined whether children displayed errors primarily on the production task (phonology group), displayed errors mainly on /s/ and /r/ (articulation group), or exhibited errors across the entire speech battery (motor speech group). In the case of children classified as having a phonological disorder, we examined whether their errors were typical/common (phonological delay) or atypical/uncommon (phonological disorder) and whether their errors were consistent or inconsistent.

Results indicated two main groups of SSD: phonological and motor speech. Few children were classified as having an articulation disorder even though some were diagnosed as having one by their speech-language therapist. These children were found to have mild phonological disorders instead. Some children in the phonological group displayed inconsistency in their errors suggestive of inconsistent phonological disorder; however, errors could not be easily separated into common/typical and uncommon/atypical, thus, providing little support for the distinction, delay versus disorder. Overall, results were consistent with a larger phonological and a smaller motor speech group, but were less consistent with the finer distinctions of phonological disorder as proposed in Dodd's (1995) classification system. Methodological factors (e.g., insufficient sampling) may explain the lack of support for the articulation disorder group.

Voicing in Czech children's sibilants: children's production and adult's perception

Tanja Kocjančič[1,2], Tomáš Bořil[1]

[1]Institute of Phonetics, Faculty of Arts, Charles University, Prague, Czech Republic. [2]Faculty of Education, University of Ljubljana, Ljubljana, Slovenia

Abstract

The current study aimed to explore Czech children's production of voicing in sibilants /s, z, ʃ, ʒ/ and how different voicing affects adult perception of these sounds. The main objectives are: (1) difficulties with sibilant production are a frequent reason for entering speech therapy, (2) erroneous voicing is a common type of error, (3) children's speech is typically assessed only perceptually.

We recorded 17 typically developing monolingual Czech children aged 3;5 - 6;5 producing four repetitions of six words per sibilant, resulting in 1492 productions. Voicing was evaluated in terms of percentage of f0 presence within the duration of a sibilant (PercVoice). Next, by selecting individual segments from children's productions with different PercVoice, we created a perceptual experiment including 104 items from 0 to 100 % PercVoice in /s-z/ and /ʃ-ʒ/ continuums. 31 adult listeners performed a four-alternative forced-choice perception test.

In production, 37% of voiced and voiceless sounds were produced with 100% or 0% PercVoice, respectively. In /s, ʃ/ PercVoice ranged from 0 – 86 %, however, only 4% of productions had voicing present in more than 50 % of the segment duration. In /z, ʒ/ PercVoice ranged from 0 - 100 %, with 42% of segments having voicing in less than half of their duration. Across age groups, only 6-year-olds showed the categorical application of voicing. The perception experiment revealed that items identified as voiced included the whole 0-100% PercVoice range. Interestingly, different items with the same PercVoice, were rated as voiced and as unvoiced, suggesting that the amount of voicing is not the only clue in segment perception. Taken together, the results show that voicing is more complex in voiced sibilants in perception and production, children's usage of voicing varies and matures with age, and that detecting sibilant voicing perceptually is not necessarily reliable.

The importance of shared terminology in inter-professional collaborative practice – an example from Norway

Kristian Emil Kristoffersen

Nord university, Bodø, Norway. Frambu fouccation, Siggerud, Norway

Abstract

In Norway, services to children with speech, language, and communication needs are provided both by speech-language therapists and professionals from other disciplines (Langner et al., 2024, s. 676). For such inter-professional collaborative practice to succeed, communication across disciplines is a key factor (Birch et al., 2023). Furthermore, successful communication depends on a common terminology, shared by the collaborating professionals. It is also important that official resources within health and education (e.g., websites or policy papers) adopt and use this terminology in a consistent way.

In recent years there has been a growing consensus to use the term *developmental language disorder (DLD)* for unexplained language impairments in children (Bishop et al., 2017; Kristoffersen et al., 2021). Kristoffersen et al. (2021) proposed the following terms for Norwegian (with the corresponding English terms in parentheses): *språkforstyrrelse* (= *language disorder*) and *utviklingsmessig språkforstyrrelse* (= *developmental language disorder*), where *forstyrrelse* (= *disorder*) was to replace the older Norwegian term *språkvansker* (= *language difficulties*).

A preliminary examination of a small selection of Norwegian official sources, digital as well as printed, indicates that the three terms are used to various degrees in Norway. For example, on the website of "Statped", the Norwegian Directorate for specially adapted education, the terms *språkforstyrrelse* and *DLD* appear to have replaced the term *språkvansker* after 2021, the year of publication of the Norwegian CATALISE study. As contrast, a recent systematic scoping review of language screening tools for children 0 – 5 years, published by the Norwegian Institute of Public Health (Jacobsen et al., 2024), almost exclusively uses the term *språkvansker* instead of *språkforstyrrelser*.

Against this background, the present study examines a wider selection of official resources across the Norwegian educational and health sectors to measure to what extent the three Norwegian terms *språkforstyrrelse, utviklingsmessig språkforstyrrelse*, and *DLD* have been used since 2021.

How Speech and Language Therapists Work with Parents of Young Children with Speech Sound Disorder: A focus group study

Katherine Pritchard[1], Vesna Stojanovik[1], Jill Titterington[2], Emma Pagnamenta[1]

[1]University of Reading, Reading, United Kingdom. [2]The Speech Doctor, Belfast, United Kingdom

Abstract

Background

Speech sound disorder (SSD) is broadly defined as difficulty producing clear speech in childhood and is common on speech and language therapy caseloads, with most of these children aged between 2-6 years. SSD that persists into the school years can negatively affect academic outcomes and well-being.

Speech and language therapists (SLTs) believe working with parents is essential for a child's progress with intervention. Positive relationships between SLTs and parents facilitate engagement with home practice. However, little is known about what SLTs do to support parents to deliver effective home practice or how they build positive relationships.

Aims

The study explores current practices and perspectives of SLTs working with children with SSD ≤ 5;11 and their parents through focus groups.

Methods

Fifteen SLTs participated, across four online focus groups. Groups were recorded, transcribed verbatim and analysed using Reflective Thematic Analysis.

Results

Four main themes were constructed:

1. Individualisation allows for equitable provision
2. SLTs' individual circumstances and attitudes influence how they support parents
3. SLTs work to ensure the fidelity of home practice
4. Nurturing relationships is fundamental

Conclusions

This study highlights that building relationships is a key motivation for SLTs. SLTs need to reflect on the impact of their own personal circumstances, such as their level of training, experience and their

attitudes towards working with parents. Support for parents needs to be individualised, while ensuring adherence to the evidence so that home practice is delivered with fidelity.

These findings align with the COM-B model of behaviour change: SLTs develop their own and parents' Capability'; they individualise provision to allow 'Opportunity' , and build relationships to support 'Motivation' for both the parents and themselves. This works towards the desired 'Behaviour' – engagement with and fidelity of home practice.

Phoneme discrimination of nonwords in German-speaking children with and without speech sound disorders aged 4-6

Kerstin Schauss-Golecki[1], Annette Fox-Boyer[2]

[1]RPTU Kaiserslautern, Kaiserslautern, Germany. [2]Universität zu Lübeck, Lübeck, Germany

Abstract

Children with speech sound disorders (SSD) often show deficits on the level of phoneme discrimination (PD). According to international standards, differential diagnosis should include tasks that can investigate underlying deficits of different subgroups of SSD, such as PD. To date, no standardized tools for the assessment of speech perception skills in German-speaking children is available. Therefore, an auditory discrimination task for nonwords ("same / not same" differentiation) was developed, which specifically focuses on phonological contrasts of importance for typical developing children (TD) and children with SSD growing up with German. The aim of the study was to investigate the applicability and potential for diagnostic differentiation of the new tool.

179 monolingual German-speaking children aged 4-6 years participated, 87 TD and 79 SSD children. Children with SSD were identified by means of a picture naming phonology task (PLAKSS-II Screening) and divided into the subgroups of phonological delay (n = 34) and consistent phonological disorder (n = 45). Effects on age, gender and group differentiation were examined.

Results showed a significant age, but not gender effect in TD children with children aged five scoring at ceiling level. For all children (TD and SSD) the discrimination of "same" items was found to be significantly easier than for those being "different". TD children performed significantly better than children with SSD as a group but only children with a consistent phonological disorder performed significantly worse than TD children.

The project indicates that the new tool is able to support the identification of underlying deficits in children with SSD. Future planned research will investigate whether the tool can also be used in younger children and children growing up multi-lingual.

Developmental variability in voice quality: acoustic reference data from 275 children aged 5–12 years

Mridhula Murali[1], Joanne Cleland[1], Lauren Taylor[1], David Young[1], Jane Stuart-Smith[2], Anja Kuschmann[1]

[1]University of Strathclyde, Glasgow, United Kingdom. [2]University of Glasgow, Glasgow, United Kingdom

Abstract

Background: Sound prolongation tasks are commonly employed to evaluate voice quality (Fang-Ling & Matteson, 2014). However, variability in children's performance and limited norms, especially across diverse populations, pose significant challenges for clinicians in accurately interpreting performances. This study examined voice quality and variability in sound prolongation tasks among 275 Scottish children aged 5;0–11;9 years, determining comprehensive acoustic reference data in primary school aged children.

Method: Participants produced sustained phonations of /a/, /s/, and /z/ to assess respiratory and phonatory performance. Duration measures and acoustic parameters including jitter, shimmer, Harmonics-to-Noise Ratio (HNR), Cepstral Peak Prominence (CPP), and the s/z ratio were analysed in terms of age and sex to explore developmental trends and variability in respiratory and phonatory control.

Results: There were significant age-related increases in sound prolongation durations, with older children (7-12 years) outperforming younger peers (5–6 years), reflecting more mature respiratory and vocal fold control. In terms of voice quality, CPP values were significantly higher in older children, indicating improved vocal stability and harmonic richness, while jitter, shimmer, and HNR remained consistent across age groups. Age-related changes in the s/z ratio were also observed, underscoring developmental changes in phonatory-respiratory coordination. Individual variability pertaining to all measures was prominent, particularly among older children. No significant sex differences were observed, except for the s/z ratio, where females demonstrated higher values.

Conclusion: The findings highlight the clear developmental trajectories for the respiratory and phonatory subsystems of speech. Additionally, the reference norms provide a critical resource for clinicians, offering age- and sex-specific acoustic reference data for children's voice quality measures. The study further highlights the importance of accounting for developmental variability and comprehensive approaches to assessing voice quality to support the diagnosis of voice disorders in children.

Wednesday 25 June (9:00 - 11:00) - Session 1 - Room I-11

Revisiting computerized language sample analyses for a Caribbean-English context

Nicole Bazzocchi, Kereisha Biggs, Koubra Hassan Haggar, Karla Washington

University of Toronto, Toronto, Canada

Abstract

Background: Language sample analyses (LSAs) are useful for evaluating children's natural language use, particularly amongst bilingual populations, as they can account for language transfer effects. While LSAs are valuable, manual calculation is time intensive. Computerized tools like the Systematic Analysis of Language Transcripts (SALT) address these challenges for English transcripts. Recently SALT has incorporated features to support bilingual Spanish-English analyses, including code-switching identification. However, research exploring SALT's application for other bilingual contexts remains limited, yet is needed to inform SALT's clinical utility, including accuracy across different contexts of bilingualism. This study examines SALT's potential for accurately analyzing samples of a topologically similar and understudied language pairing - Jamaican Creole (JamC)-Jamaican English (JamE), produced by bilingual Jamaican preschoolers.

Methods: Ten typically developing JamC-JamE-speaking preschoolers participated in narrative-based language sampling in JamC and JamE contexts. An adapted LSA protocol was developed to address language transfer between the two languages. A SALT code list was customized with additional coding features to align with this protocol. Language samples were analyzed using three approaches: (1) manual analysis, (2) SALT with standard conventions, and (3) SALT with JamC-JamE adapted conventions. Key LSA measures included Mean Length of Utterance words and morphemes (MLU-w/m) and Percentage of Grammatical Utterances (PGU).

Results: Preliminary results revealed all three methods showed consistency in MLU-w/m analysis. For PGU, however, standard SALT protocols overestimated ungrammaticality compared to manual analysis and the adapted protocol, with statistically significant differences observed. The additional SALT coding features effectively identified language transfer features, such as omitted non-obligatory morphemes.

Conclusions: This study demonstrates SALT's potential for analyzing JamC-JamE bilingual language samples. Intentional efforts were needed to ensure culturally responsive efforts when automating LSAs, particularly when adapted for capturing language transfer effects. These findings support the development of guidelines for applying similar protocols to other bilingual language pairings.

Computerised language sample analyses in an inflectionally rich South Asian language

Adhirai Garibaldi[1], Lakshmi Venkatesh[2], Karla Washington[1]

[1]University of Toronto, Toronto, Canada. [2]Sri Ramachandra Institute of Higher Education and Research (Deemed to be University), Chennai, India

Abstract

Background: Language sample analysis (LSA) provides a snapshot of language skills in a naturalistic context, especially for languages where standardized assessments are lacking. Tamil, spoken by approximately 81 million people, remains under-represented in child language research, with limited data on typical language acquisition and delays. However, in-depth LSA can be time-consuming, and normative references are often unavailable. This study explored these challenges by partially computerizing LSA and providing pilot data on language profiles of Tamil-speaking preschoolers with and without language delays.

Method: Language samples were obtained through structured play from 106 three-year-old Tamil-speaking preschoolers classified into three groups: typical language (TL, n=68), language delay (DL2, n=20), and an intermediate group with milder language delay and with parental concerns of language delay (DL1, n=18). Samples were transcribed as transliteration in English, coded using conventions developed for Tamil and analysed using Systematic Analysis of Language Transcripts (SALT, Miller & Iglesias, 2020). LSA measures included standard language measures (mean length of utterance in morphemes and words, total number of words, and number of different words) and specific measures of noun and verb inflections in Tamil, given the inflectionally rich nature of Tamil.

Results: Children in the DL2 group demonstrated lower performance across all LSA measures compared to the TL group. Contrastively, children in the DL1 and TL groups did not differ on most LSA measures with the exception of usage of compound verb forms. Further, measures of inflectional morphology revealed subtle differences between the TL and DL groups.

Conclusions: This preliminary study demonstrated the potential utility of LSA in informing the language profiles of Tamil-speaking preschoolers with and without language delays. This work contributes to the available evidence base regarding the application of computerized resources in understudied linguistic contexts that serves to grow culturally responsive practices.

INVESTIGATION OF PARENTS' PERSPECTIVES TOWARDS DIFFERENT ALTERNATIVE AND AUGMENTATIVE COMMUNICATION SYSTEMS

Ceren Cemre Şahin[1], N. Evra Günhan Şenol[2]

[1]İstanbul Medipol University, Istanbul, Turkey. [2]İstanbul Medipol University, İstanbul, Turkey

Abstract

Alternative and augmentative communication (AAC) systems are intervention tools that enhance the individuals' independence and participation in life by improving communication skills, and supporting language development. The current use of the AAC system in Turkey mostly aims for basic and limited communicative functions. However, it is important to facilitate AAC use to support communication and language development. Parental involvement is also a crucial part of any endeavor aiming for better communication skills for children. This study investigates the parental perspectives of participants whose children require AAC but are not AAC users at the time of the study. This is done as a step to describe the perspectives of parents as a shareholder in the effective utilization of ACC systems. Thirteen parents are presented with video footage of four children who utilize a range of AAC systems as they engage in communication with their interlocutors. Before the presentation of each video, the researcher provided a concise overview of the AAC system utilized in the video. After the videos are shown, a semi-structured interview is conducted with each parent. The interviews were then transcribed and coded leading to a thematic analysis that yielded 3 themes and 10 sub-themes: AAC with Benefits (Supporting Developmental Areas, Noticing the Child's Potential), AAC with Difficulties (Society, Structure of the AAC System), AAC with Misconceptions (Purpose of AAC, Prioritizing "Speech", Prerequisites for AAC, "easy, lazy, sneaky", "at least", Disregarding of Child's Competence). Parents are observed to have misconceptions about AAC systems. Understanding the misconceptions and realities about AAC is crucial for the acceptance and implementation of AAC interventions and systems. Future research should consider parents' perspectives and demonstrate the effectiveness of AAC interventions by implementing parent involvement throughout the assessment, implementation, and follow-up stages of AAC systems, considering the misconceptions and realities about AAC systems.

Developing a clinical protocol for assessing speech in languages that you do not speak: The Speech Assessment of Children's Home Language(s) (SACHL)

Kate Margetson, Sharynne McLeod

Charles Sturt University, Bathurst, Australia

Abstract

Background: Assessment of multilingual children's speech can be challenging, especially when speech-language pathologists (SLPs) do not speak the same language(s) as the children they are working with. SLPs may only analyse children's speech in the society language (e.g., English). There are limited clinical resources to support SLPs in assessing speech in unfamiliar languages. The Speech Assessment of Children's Home Language(s) (SACHL) (Margetson & McLeod, 2025) is a new clinical protocol based on theories of speech perception (e.g., Best & Tyler, 2007), studies of SLP transcription (e.g., Masso et al., 2020) of unfamiliar languages and the VietSpeech Multilingual Transcription Protocol (Margetson et al., 2023). The SACHL comprises four parts: Multilingual Preparation, Multilingual Collaboration, Multilingual Assessment and Multilingual Analysis. These four parts include 20 steps which can be applied to working with multilingual children who speak different languages. Clinical resources to support each step the protocol have also been developed.

Aim: To describe (a) the components of the SACHL, and (b) SLPs' acceptability of the SACHL.

Method: The Consolidated Framework for Implementation Research (Damschroder et al., 2022) was applied to explore SLPs' acceptability of the SACHL and 260 participants (SLPs and students) responded to an online questionnaire to provide feedback.

Results: 89.54% participants agreed that the SACHL would help SLPs conduct speech assessments with multilingual children; 87.45% would like to use the SACHL in clinical practice; and 91.18% indicated that the SACHL was likely to result in more accurate diagnosis of speech sound disorders. Participants identified time, SLP confidence and access to family members or interpreters as the key barriers in incorporating the SACHL into clinical practice.

Conclusions: The SACHL provides support for SLPs to assess multilingual children's speech. Ongoing collaboration with SLPs through implementation science is required to further develop and test the SACHL for clinical application.

Exploring Language and Literacy Development in Greek-English Bilingual Children: The Role of Vocabulary, Morpho-syntax, and Home Literacy Activities.

Theodora Papastefanou

Cyprus University of Technology, Limassol, Cyprus

Abstract

Background: Reading comprehension relies on decoding and oral language skills, influenced by the home literacy environment. Bilingual children often lag behind monolingual peers in oral language but may excel in decoding (Bialystok et al., 2010). Although the home literacy environment influences monolingual reading comprehension (Sénéchal, 2006), its effect on bilingual children's literacy and well-being needs further research. Thus, it is crucial to explore both how linguistic aspects of bilingualism and children's social experience.Aims: This study examines the effects of vocabulary, morpho-syntax, and home literacy activities on reading comprehension in Greek-English bilingual and bi-literate children. Based on the Simple View of Reading and home literacy environment models, we hypothesized that decoding, morpho-syntax, and home literacy activities would predict reading comprehension in both languages. We further hypothesized that home literacy activities, particularly in the heritage language, would support literacy and socio-emotional well-being (De Houwer, 2009).Methodology: Forty children from Years 1 and 3 in UK primary schools were assessed in language and decoding skills in Greek and English. After one school year, the children were reassessed in oral language skills, decoding, and reading comprehension. The PABIQ questionnaire (Tuller, 2015) was used to collect data on language history, input, and home literacy activities. Results: The results demonstrated that children performed better in all tasks at Time 2 than at Time 1, with older children outperforming younger ones. Greek morpho-syntax and home literacy activities emerged as significant predictors of Greek reading comprehension, suggesting that heritage language development was supported by morpho-syntactic skills and enriched home literacy environments. Conclusions: This study highlighted the importance of integrating socio-cultural perspectives when studying bilingual children's language and literacy development. The findings also indicated that home literacy activities in the heritage language not only support reading comprehension but also are significant in benefiting and socio-emotional well-being (De Houwer, 2009).

Tackling the verbal domain in aphasia in a diglossic context: The case of Malay

Giuditta Smith[1,2], Mohd Azmarul A Aziz[3], Maria Garraffa[1]

[1]University of East Anglia, Norwich, United Kingdom. [2]University of Modena and Reggio Emilia, Modena, Italy. [3]Universiti Sains Malaysia, George Town, Malaysia

Abstract

Background. Despite linguistically informed clinical decision-making being crucial for assessment of aphasia, it remains largely unexplored in contexts of diglossia. In this study, we contribute to this investigation with data from Malay. Difficulties with affixation in the verbal domain have been reported for standard Malay (SM) in passive *and active* sentences in people with aphasia (PWA, Aziz et al. 2020, 2024). In the colloquial variety (Colloquial Malay, CM), affixation is reduced to a minimum, as more prominence is given to auxiliary words and word order (Karaj, 2022).

Method. Fourteen healthy speakers (age= 52.29, SD= 11.57) and 14 PWA (8 fluent, 6 nonfluent; age= 49.29, SD= 8.99) were administered an elicited sentence production task. Productions were scored for accuracy according to acceptability in the two varieties: SM (strict coding) and CM (lenient coding). Productions were further classified based on the omitted linguistic material.

Results. *Accuracy* was worse for both fluent (z= -2.38, p = 0.01) and nonfluent PWA (z= -7.92, p <.001) on strict coding, representing SM, and only for nonfluent PWA on lenient coding, representing CM (z= -5.02, p <.001). *Answers* differed across groups (p <.001): controls produced no omissions, consistently with SM, around 50% of the time, compared to 30% for fluent and 8% for nonfluent PWA. Controls and fluent PWA often produced omissions of auxiliary *sedang* and affix omissions, consistently with CM. Only nonfluent PWA omitted subjects -around 14% of the time-, inconsistently with SM or CM.

Conclusion. As omissions of *sedang* and of verbal affixes are common in healthy speakers, CM should be taken into account when assessing language in aphasia. Looking at both CM and SM, it is possible to profile types of omissions, potentially leading to more effective therapeutic interventions.

Wednesday 25 June (13:30 - 15:15) - Panel Session - Auditorium

Measuring Outcomes in Children's Speech and Language Disorders

Joanne Cleland[1], Carol-Anne Murphy[2], Helen Stringer[3], Sam Burr[4], Anniek van Doornik[5], Sarah Lambert[6]

[1]University of Strathclyde, Glasgow, United Kingdom. [2]University of Limerick, Limerick, Ireland. [3]Newcastle University, Newcastle, United Kingdom. [4]Cardiff Metropolitan University, Cardiff, United Kingdom. [5]University of Applied Sciences Utrecht, Utrecht, Netherlands. [6]Royal College of Speech and Language Therapists, London, United Kingdom

Abstract

This panel will discuss measuring outcomes in children's speech and language disorders. Through the lens of Speech Sound Disorder (SSD) and Developmental Language Disorder (DLD), we will explore the opportunities and tensions in collecting outcomes that balance measuring linguistic/phonetic domains with outcomes that matter to children and families, such as communicative participation.

Literature on interventions for DLD and SSD reflect many inconsistencies in both which outcomes are measured and how they are measured. This makes it difficult to compare studies and determine which treatment approaches are most effective for which children. Moreover, outcome measures in intervention studies are currently skewed toward impairment-focussed and linguistic measures; do not necessarily reflect the wishes of key stakeholders; and may be difficult or too expensive for practitioners to implement in the evaluation of their services. More recent work underlines the critical role of children's perspectives in shaping effective and meaningful speech and language therapy. Communicative participation should therefore also be prioritised as an outcome measure.

One way of standardising outcome measures for a clinical condition is to develop a Core Outcome Set (COS). COS provide a standardized framework to measure treatment efficacy, ensuring consistency and comparability across studies. However, standardising outcomes which can encompass all domains, and yet remain feasible for use, is extremely challenging, especially in an international context, where not only do languages differ, but cultural norms and health services are disparate.

This panel comprises researchers interested in developing outcome measures that can be used to determine the effectiveness of interventions for children with speech and language disorders. Contributors will present their own work on outcome design and implementation, before inviting all panel presenters and participants to discuss the challenges and opportunities of designing and implementing outcome measures which encompass both impairment-based (linguistic) and communicative participation outcomes.

Panel session

Discussant: Joanne Cleland

1. Carol-Anne Murphy (University of Limerick, Republic of Ireland), Melanie Dornstauder, Tricia Eadie, Susan Ebbels, Silke Fricke, Maja Kelic, Sari Kunnari, Suze Leitao, Karla McGregor, Cristina McKean, Natalie Munro, Amanda Van Horne, Tom Braddon, Clare Donnellan, Pauline Frizelle.

2. Helen Stringer (Newcastle University, United Kingdom), Sam Burr, Joanne Cleland, Sam Harding, Yvonne Wren and the MISLToe_SSD Expert Panel

3. Anniek van Doornik (University of Applied Sciences Utrecht and Utrecht University, The Netherlands), Eline Alons, Laurien Brauner, Lizet van Ewijk and Ellen Gerrits, HU

4. Sarah Lambert (Royal College of Speech and Language Therapists, United Kingdom), Kathryn Moyse

Wednesday 25 June (13:30 - 15:15) - Session 2 - Room I-10

Prosodic Phrasing as a Biomarker of Respiratory Insufficiency in COVID-19 Cases

Letícia Ferreira[1], Flaviane Fernandes-Svartman[1], Larissa Berti[2], Marcus Martins[1], Beatriz Medeiros[1], Marcelo Queiroz[1], Marcelo Finguer[1]

[1]Universidade de São Paulo (USP), São Paulo, Brazil. [2]Universidade Estadual Paulista (UNESP), São Paulo, Brazil

Abstract

This research, linked to the SPIRA-BM project: Biomarkers for Respiratory Conditions in Mobile Devices through Audio Analysis with Artificial Intelligence – FAPESP process 2023/00488-5, aims to investigate prosodic phrasing as a biomarker for respiratory failure in Covid-19 cases. Prosodic phrasing is understood as the grouping of speech segments into intonational phrases (IPs – NESPOR; VOGEL, 2007).

Our hypotheses are: (i) there are more IPs and shorter IPs in the speech of the Covid-19 patient group (PG) than in the speech of the healthy control group (CG), due to the greater need for pauses to inspire in the PG (CAGLIARI, 1992, p. 142-143); and (ii) IP boundaries may occur at unpredictable locations in the PG's speech.

To test these hypotheses, we conducted perceptual and acoustic analysis using the Praat software (BOERSMA; WEENINK, 2024), examining prosodic cues for IP boundaries, such as pause and nuclear contour, in the speech data of both the PG and CG.

The results confirmed the hypotheses and revealed that: (i) there are more and shorter IPs in the PG's speech compared to the CG's speech; and (ii) unlike in the CG, IP boundaries in the PG's speech occurred not only at expected locations but also in places that violate the IP prosodic formation rules of Portuguese.

These findings indicate that analyzing prosodic parameters can serve as a valuable tool in diagnosing respiratory diseases, such as Covid-19, providing direct support to medical institutions and healthcare professionals.

Phonetic and phonological competences in German-speaking children with hearing impairment

Theresa Günther[1], Annette Fox-Boyer[1], Jürgen Tchorz[2]

[1]University, Lübeck, Germany. [2]Technical University, Lübeck, Germany

Abstract

Children with treated hearing impairment (HI) often exhibit phonological and phonetic deviations of speech even at primary school age (Schäfer & Hoffmann, 2020). So far information on the types of speech deviations which could have a significant effect on the intelligibility of the children, are insufficient. Furthermore, the knowledge on the possible influence of task levels used to administer speech samples is limited. The aim of the study was, for the first time, to investigate the phonetic and phonological status of German-speaking HI children with phonological and acoustic measures on single word (PLAKSS-II screening, Fox-Boyer, 2014), sentence (BoDyS-KiD, Haas et al., 2020) and spontaneous speech level.

Data on all measures were collected for 23 HI children aged 7-12 years and compared to data on sentence speech level of 10 age-matched typically developing children (TD). Data were investigated for phonological pattern and a computer-based acoustic analysis of twelve vowels and five fricatives was performed. Results were compared across different speech levels and groups.

HI children showed significantly more phonological pattern than aged-matched TD children and significantly more phonological pattern on word than on sentence and spontaneous speech level.

The acoustic analysis showed that HI children qualitatively produced some but not all investigated phonemes significantly different to TD children. Also, HI children produced several vowels and fricatives significantly different on word level compared to sentence level as well as spontaneous speech level.

In summary, results indicate that HI children show phonological pattern up to a later age than typical for TD German-speaking children as well as acoustic speech deviations. Phonological pattern can best be investigated on word level, but acoustic differences indicate that also speech quality on sentence and spontaneous speech level should be assessed. Future research should investigate the interaction of the findings with children's intelligibility.

Speechreading ability for words and sentences in bilingually educated Greek-speaking students with hearing impairment

Evangelia Kyritsi[1], Katerina Nicolaidis[2]

[1]National and Kapodistrian University of Athens, Athens, Greece. [2]Aristotle University of Thessaloniki, Thessaloniki, Greece

Abstract

Background: Speechreading is the ability to derive speech-related information from other speakers' faces. Speechreading has been investigated in participants with hearing impairment (HI) or dyslexia and also in typical populations (Kyle et al., 2023; Kyle & Trickey, 2024; Mohammed, et al., 2006). Findings indicate that, although people with HI are generally better speechreaders than people with normal hearing, considerable individual variability exists. This study investigates speechreading in Greek-speaking students with HI.

Method: Fourteen students with severe or profound HI (7 female,7 male) participated in this study. Seven (aged 14;4 – 17;5) were in junior high school and seven (aged 16;8 – 20;8) were in senior high school. They attended a special school for Deaf/Hard-of-Hearing students and were bilingually educated (oral/sign language). Participants were administered two word and two sentence silent video tasks with two conditions in each: video only and video-to-picture matching. Participants saw a female speaker saying a word or sentence and they were asked to say (condition 1) or indicate by pointing to a picture (condition 2) what the speaker had said.

Results: Analysis of correct and incorrect responses showed that speechreading accuracy was poor when participants relied only on facial information. On the contrary, there was marked improvement when participants were given a series of four pictures to select from. Moreover, participants varied in speechreading ability.

Conclusions: Poor speechreading skills impact on speech perception and other language skills (e.g. vocabulary, phonological skills) known to relate to literacy (Buchanan-Worster et al., 2021; Kyle & Trickey, 2024). As there appears to be little benefit for some deaf students from speechreading-alone interactions, we argue that speechreading training should be incorporated in intervention and that educational approaches for these students should be based on appropriate purpose-built material that promotes audiovisual speech perception to enhance their communicative ability.

The role of attention-grabbing items of infant-directed speech in early lexical development

Veronika Harmati-Pap[1], Noémi Vadász[2], Bence Kas[1,3]

[1]HUN-REN Hungarian Research Centre for Linguistics, Budapest, Hungary. [2]National Archives of Hungary, Budapest, Hungary. [3]MTA-ELTE Language-Learning Disorders Research Group, Eötvös Loránd University, Budapest, Hungary

Abstract

Infant-directed speech in joint attentional settings create highly supportive environment for early language acquisition (Tomasello, 1986). Our research aims to disentangle the role of linguistic simplification and mothers' attempts to create a joint attentional environment in infants' lexical development. Earlier, we identified different patterns of maternal speech simplification in Hungarian: non-simplifying mothers, lexically simplifying mothers (reduced vocabulary, mostly for verbs) and syntactically and lexically simplifying mothers (reduced mean length of utterances and reduced vocabulary) (Harmati-Pap et al., 2024). A positive correlation was shown between the extent of maternal verbal vocabulary reduction from ADS to IDS at 6 months and infants' receptive and expressive vocabulary at 18 months.

The present study assesses the hypothesis that patterns of simplification are related to the frequent use of attention-grabbing (AG) items such as "look", "watch", "come" and "see". Using the *emtsv* Hungarian language analysis software (Simon et al., 2020), we extracted the frequency of these items from narrative samples of mothers of 6-month-olds' and analyzed its relationship with vocabulary scores at 18 months of age (H-CDI: Kas et al. 2022).

Our results show that the ratio of AG items also shows a moderate positive correlation with receptive (rho=0.239, p=0.043) and expressive (rho=0.272, p=0. 018) vocabulary scores at 18 months. According to maternal groups based on their language simplification patterns, difference has been revealed in infants' vocabulary at 18 months of age but this is eliminated when controlling for the ratio of AG items as covariates.

Mothers verbally drawing the child's attention to the shared activity continuously and explicitly engage and maintain the child in the activity. This strategy creates a distinct pattern of early IDS that enhances the linguistic environment in the early phases of development.

Perceptual Evaluation by Peers of the Speech of an Individual with Autism Spectrum Disorder: The Impact on Social Interaction

Vasiliki Zarokanellou, Maria Kousi, Christina Tzanoudaki, Alexandros Gryparis

Department of Speech and Language Therapy, University of Ioannina, Ioannina, Greece

Abstract

Speech conveys critical information about a speaker's identity, mental state, and mood, which listeners intuitively recognize through personal experience. Prosodic impairments, commonly observed in individuals with Autism Spectrum Disorder (ASD), can hinder effective communication and social interactions. This study aimed to:
(a) evaluate the ability of young adults to infer information about peers based on their speech, and
(b) assess how speech influences listeners' intentions for social interaction.

A total of 126 Greek-speaking participants aged 18–25 years were recruited, comprising 80 senior Speech-Language Therapy (SLT) students and 46 general population members. Participants listened to two anonymous audio recordings from 21-year-old monolingual Greek-speaking males: one neurotypical and one with ASD. Recordings included sustained vowels (/a/, /i/) and six sentence repetitions. Participants identified the speakers' gender, age, and neurodevelopmental condition, rated their speech characteristics, and reported their feelings and intentions for social interaction.

Key findings indicated that over 89% of participants correctly identified the gender and neurodevelopmental condition of both speakers. While approximately 85% accurately determined the neurotypical speaker's age, most SLT students and 45.7% of the general population perceived the ASD speaker as younger (<18 years). Both groups described the neurotypical speaker's speech as typical, while the ASD speaker's speech was viewed as prosodically impaired. Notably, over 20% of participants felt awkward hearing the ASD speaker, compared to >97% feeling neutral /comfortable with the neurotypical speaker. Reluctance to socially interact with the ASD speaker was reported by 46.5% of SLT students and 15.2% of the general population, as opposed to 5.1% and 2.2%, respectively, for the neurotypical peer.

SLT students demonstrated a statistically higher ability to identify speaker identity and speech characteristics, though this did not affect their attitudes toward the neurodivergent speaker. These findings highlight the complex interplay between speech perception, listener attitudes, and social intentions in ASD contexts.

Wednesday 25 June (13:30 - 15:15) - Session 2 - Room I-11

Narrative skills of school-aged children with Developmental Language Disorder

Dafni Vaia Bagioka[1], Eleni Theodorou[2], Arhonto Terzi[1]

[1]University of Patras, Patra, Greece. [2]Cyprus University of Technology, Limassol, Cyprus

Abstract

Background Developmental Language Disorder (DLD) is a lifelong condition characterized by persistent difficulties in language production or/and comprehension, with impact on academic skills, everyday interactions, social communication and behavior. The Multilingual Assessment Instrument for Narratives (MAIN) is a narrative assessment tool (Gagarina et al. 2012, 2019), adapted into Greek by Tsimpli et al. (2020). The aim of this study is to identify which of the narrative elements (micro- or/and macro-structure) differentiate DLD from NT children.

Method Fifty monolingual Greek-speaking school-aged 9-11 years old participated in the study: 25 with DLD, 25 neurotypical (NT) age and gender matched. Children were administered 4 baseline tasks to confirm diagnosis: receptive vocabulary (LEXIS: Greek tool based on PPVT), morphosyntax (Sentence Repetition: SRT), non-verbal intelligence (Raven's CPM) and working memory (Digit Backward). All children had a 70+ standard score on Raven's, while DLD children had lower scores than NT on: LEXIS, $t(48) = 4.44$, $p < 0.001$, SRT, $t(48) = 7.96$, $p < 0.001$; working memory: $t(48) = 3.44$, $p < 0.005$.
The Cat Story of MAIN was administered in retelling mode, to reduce effort for DLD children (Hayward et al., 2007). Narrative productions were evaluated with six descriptors (macrostructure: story structure components, structural complexity, internal states terms, microstructure: Mean Length of Utterances-words/C-units (MLU), Type-token Ratio (TTR), number of embedded sentences).

Results Data analyses are ongoing, with preliminary results showing differences in microstructure, where children with DLD had lower MLU. Further analyses will focus on number/type of embedded sentences and on whether baseline tasks predict the differences in narratives.

Conclusions Our study indicates a discrepancy between re-telling production skills of DLD and NT groups. This provides evidence that in mid-primary school, where complex written narratives are already required by the educational system, oral narrative skills of children with DLD fall behind.

A combined working memory and lexical intervention for word learning in DLD

Paola Calabrese, Vesna Stojanovik, Emma Pagnamenta

Reading, Reading, United Kingdom

Abstract

Background

Developmental Language Disorder (DLD) is associated with difficulties in learning new words, particularly during the initial phase of encoding. Verbal working memory (VWM) and lexical knowledge are required for encoding and storing new words, but both systems can be less efficient in children with DLD. While previous research has investigated the effectiveness of lexical interventions (Motsch & Marks, 2015) and the transfer of VWM improvements to language skills (Acosta et al., 2019), the potential interaction between these systems in enhancing word learning remains unexplored.

Methods

We examined the contributions of the lexical intervention *The Lexicon Pirate* (Motsch & Marks, 2015) and a working memory training in improving word learning in children with DLD through a single-case experimental design with multiple baselines.

Seven children with DLD aged 6;0–8;11 received 16 sessions of *The Lexicon Pirate* (twice a week for 8 weeks) and the same number of working memory training sessions. *The Lexicon Pirate* provides strategies for exploring new words independently, while working memory training included the Listening Recall task (Henry et al., 2022) and phonemic awareness training (Park et al., 2014). Pre- and post-intervention assessments included an experimental word learning paradigm, standardized tests of vocabulary and working memory, and intervention probes.

Results

Preliminary analysis of two children showed significant improvements in new word production after working memory training (β = 7.63, t = 2.06, p = .04; β = 19.43, t = 2.59, p = .01) and in word description after *The Lexicon Pirate* sessions (β = 0.81, t = 2.7, p = .009; β = 2.06, t = 6.93, p < .001).

Conclusions

Preliminary results provide evidence for the effectiveness of a combined intervention on word learning in DLD, with each intervention addressing distinct components of word learning.

Cumulative learning and syntactic delays in autistic children

Heeju Hwang[1], Krisya Louie[2], Kit Sum To[3]

[1]University of Canterbury, Christchurch, New Zealand. [2]University of Oxford, Oxford, United Kingdom. [3]University of Hong Kong, Hong Kong, Hong Kong

Abstract

Background: Children's syntax is shaped by their immediate and cumulative language experience. For example, children are more likely to produce a passive sentence (e.g., The mouse was chased by the cat) immediately after hearing a passive sentence ('immediate learning') and following exposure to multiple passive sentences over time ('cumulative learning'; Branigan & Messenger, 2016). Autistic children reportedly produce syntactically less complex utterances than typical children (Eigsti et al., 2007), but the cause of this is unknown. Existing research suggests that immediate learning capability in these groups is comparable (Allen et al., 2011; Ambridge et al., 2021; Hopkins et al., 2014). We investigate whether difficulties with cumulative learning could underlie the delays in autistic children's acquisition of syntax.

Methods: We measured syntactic learning using active and passive sentences. Thirty-nine autistic (Mage=8.2) and 49 typical children (Mage=7.4) matched on lexical knowledge and non-verbal IQ participated in two experimental sessions held a week apart. Participants were assigned to one of two learning conditions. In the single-context condition, the child took turns with a human speaker to describe picture cards depicting transitive actions (e.g., chasing) in both sessions. In the cross-context condition, the child described cards with a human speaker in one session and a computer in the other session. We examined how likely children were to produce passive sentences immediately after hearing a passive sentence (immediate learning) and in Session 2 compared to Session 1 (cumulative learning).

Results: In both learning conditions, autistic and typical children produced more passives immediately after hearing a passive sentence. Crucially, autistic children did *not* produce more passives in Session 2, whereas typical children did. Their overall production of passives in Session 2 was lower than typical children.

Conclusions: These results suggest that autistic children's syntactic delays are linked to difficulties in integrating syntactic experience across time.

Phonological profile of 2-year olds with and without language delay: Predicting language outcome at age 3

Lakshmi Venkatesh[1], Roshini Leninkumar[2], Adhirai Garibaldi[3]

[1]Sri Ramachandra Institute of Higher Education and Research, Chennai, India. [2]Vinayaka Mission's Research Foundation, Pondicherry, India. [3]Sri Ramachandra Institute of Higher Education & Research, Chennai, India

Abstract

Background: Extensive research has documented differences in measures of phonological development between children with typical language (TL) and late-talkers (LT). However, the notion of phonetic factors influencing the later development of language has received limited attention (e.g., Carson et al., 2003 in English). The current study explored differences in phonological profile at 2 years among Tamil-speaking children identified as LT or TL with varied language outcomes at age 3.

Method: 55 children were assessed for language status at age 3, among 68 children with typical language (TL; n=34) or late-talkers (n=34) at 2 years. Language was assessed in detail at both time points by a speech-language pathologist through observations over 30-40 minute semi-structured play sessions and a criterion-referenced language assessment tool. Three groups emerged based on language trajectories from 2-to-3 years: children continuing to have TL (n=28), LTs with TL (LT-TL;n=13) and LTs with persistent language delay (DL;n=14). Phonological measures at 2 years, including the size of consonant inventory, proportions of consonants by sound classes (place and manner) and size of different syllable shapes available from an earlier study (Leninkumar et al., in submission), were compared across the three groups of children.

Results: Children with TL consistently demonstrated significantly increased phonetic inventory and complex syllable shapes compared to children in LT-TL and DL groups. Although the overall consonant inventory size did not differ, children in the LT-TL group demonstrated significantly higher proportions of spontaneous utterances and syllable shapes than children with persistent language delay. Additional differences emerged among sound classes by place (retroflex) and manner of articulation specific to the Tamil language.

Conclusion: Language-specific phonological characteristics at 2 years demonstrate potential as predictors of language outcome at age three among late-talkers speaking Tamil.

Quality of Life in school-aged children with DLD: change and predictors

Mélanie van Barreveld[1,2], Iris Duinmeijer[3], Annette Scheper[1], Britt Hakvoort[4], Constance Vissers[2,1]

[1]Royal Kentalis, Sint-Michielsgestel, Netherlands. [2]Radboud University, Nijmegen, Netherlands. [3]NSDSK, Amsterdam, Netherlands. [4]Royal Dutch Auris Group, Rotterdam, Netherlands

Abstract

Background: Children with developmental language disorder (DLD) have recently been reported to have a lower quality of life (QoL) than children with typical development. QoL is a complex concept, referring to an individual's perception of their own or someone else's well-being in various life areas. Which environmental or personal factors contribute to (changes in) QoL is still unknown. The research presented here draws on data collected by a Dutch longitudinal study on DLD (called DLDLD). We aim to detect patterns of change in QoL and to identify predictors of QoL.

Method: The DLDLD study follows 600 Dutch children with (presumed) DLD for 20 years, collecting data at multiple time points. This presentation uses QoL data from ages 4 to 5 years (T1) and 8 to 10 years (T3). QoL was measured with the parent-report version of the KINDL-R. Data collection at T1 is finished (n = 511), and T3 is almost complete. Data on, amongst others, language skills (receptive and expressive), non-verbal IQ, multilingualism, socioeconomic status and presence of comorbid disorders has also been collected at the first or both measurements.

Results: Preliminary analyses were run with the currently available T1 and T3 data on the KINDL (n = 268). Data were checked for normality and outliers. Outliers on the difference between KINDL-scores (total and subscale) at T1 and T3 were winsorized. The overall QoL of children with DLD (n = 268) was significantly lower at T3 compared to T1 ($t(267) = -2.7137$, $p = 0.007$). At the subscale level, similar trends were found for emotional well-being, self-esteem, and family.

Conclusion: The QoL of children with DLD appears to deteriorate from 4 to 9 years. The contribution of factors such as language skills, socioeconomic status and comorbidity to this deterioration will also be discussed in this presentation.

Wednesday 25 June (16:30 - 18:15) - Panel Session - Auditorium

Communication Health as a challenge for Clinical Linguistics and Phonetics

Nicole Müller

University College Cork, Cork, Ireland

Abstract

Clinical linguistics has long been defined as “the application of linguistic science to the study of communication disability, as encountered in clinical situations” (Crystal, 1981, p. 1), and thus a focus on *deficit* has been inherent to the definition and focus of analysis.

In this panel, we aim to invite discussion around the wider concept of **communication health,** from the perspective of multiple interacting systems both within and beyond individuals. We would tentatively define **communication health** as **optimizing systems and processes that enable people to interact with their environments and make sense of the world**.

The individual presentations in this panel address the notion of communication health from different angles. Two presentations discuss learnings from intervention contexts: ILJ, EG and NM report on piloting a dyadic, self-management based communication intervention in Parkinson’s disease. They focus on collaborative, multi-systems strategy development by the participants. IH, HK and NM present an analysis of interactions between patients, clinicians and an assistance dog in a stroke gym, and document how the dog is integrated into the therapeutic encounter and promotes multimodal interaction.

WB and JO discuss communication barriers in healthcare and law enforcement, and how the lack of acknowledgement of these barriers places individuals with communication disorders (e.g. after stroke or TBI) at significant risk of worse outcomes.

HK, ÁK, OD and CJ discuss communication access for people with communication disability or difference from a human rights perspective, and report on a review of policy, practices and guidelines.

The panel will conclude with an open discussion on how Clinical Linguistics and Phonetics can contribute to optimizing Communication Health, including appropriate objects of inquiry, and analytical methods.

Reference:

Crystal, D. (1981). Clinical linguistics. Vienna: Springer Verlag.

ICPLA 2025 - Abstracts

Panel session

Structure of Panel, Presenters and Affiliations:

1. Scene setting: Communication Health and multi-systems interactions (15 minutes)

(Nicole Müller[1])

2. Communication health and self-management in Parkinson's Disease: a dyadic approach (15 Minutes)

(Inga-Lena Johansson[2], Emma Gleeson[1], Nicole Müller[1])

3. Communication health and negotiating healthcare and law enforcement: insights from people with aphasia and TBI (15 minutes)

(Judith Oxley[3], Warren Brown[7])

4. Multi-modality in multi-species interactions: lessons from Lola the assistance dog (15 minutes)

(Irene Hartigan[1], Helen Kelly[1], Nicole Müller[1])

5. Supporting communication access: a human rights perspective (15 minutes)

(Helen Kelly[1], Áine Kearns[4], Orla Duffy[5], Caroline Jagoe[6])

6. Audience Discussion (30 minutes)

(Authors + Audience)

Affiliations:

(1) University College Cork, Ireland

(2) Linköping University, Sweden

(3) University of Louisiana at Lafayette

(4) University of Limerick, Ireland

(5) Ulster University, Northern Ireland

(6) Trinity College Dublin, Ireland

(7) Jackson State University, USA

Wednesday 25 June (16:30 - 18:15) - Session 3 - Room I-10

Developmental aspects of Greek spectral vowel variability: The use of Euclidean distances

Polychronia Christodoulidou, Katerina Nicolaidis, Dimitrios Stamovlasis

Aristotle University of Thessaloniki, Thessaloniki, Greece

Abstract

Studying variability is important as it relates to perception accuracy (Jongman et al., 1989) and indicates speech motor control skills (Lee et al., 1999). Even though spectral within-vowel variability has been studied in typical child speech for languages like English, Korean, Greek, and Cantonese (Lee et al., 1999; Chung et al., 2012; Yang & Fox, 2013), the various methodological approaches (e.g., standard deviation, coefficient of variation, ellipses in the (non-)normalized acoustic vowel space) often lack effectiveness. Thus, this study explores the use of Euclidean distances to compare variability across age groups, aiming to uncover developmental norms, which may prove useful for clinical applications.

To this end, 72 participants with typical development were examined, with 4 males and 4 females in each of the 9 age groups: 3-, 5-, 7-, 9-, 11-, 13-, 15-, 17-year-olds, and adults. Participants were engaged in a delayed repetition task, producing 10 pseudowords five times within a carrier phrase. Pseudowords had a symmetrical /pVpV/ form (V = /i, ɛ, ɐ, o, u/) with stress on the first or second syllable (72 participants × 2 stress conditions × 2 foot types × 5 vowels × 5 repetitions = 7200 instances). F1 and F2 values at the temporal vowel midpoint, which were Lobanov-normalized and subsequently rescaled into Hertz-like values, were used to calculate the Euclidean distance of each vowel instance from the acoustic mean of its vowel category separately for each participant, stress condition, and foot type.

Results revealed considerable variability across all ages, likely due to the simple vowel system of Greek. As a result, the linear mixed-effects model indicated that only 3- and 5-year-olds exhibited larger Euclidean distances compared to adults. Additionally, Euclidean distances were greater in the unstressed condition, suggesting higher acoustic and, by extension, articulatory accuracy in the stressed condition. Gender and foot type showed no significant differences.

Shared book reading with young pre-school children with Down syndrome: exploring parent-child interactions and language boosting behaviours and comparing with typically developing peers

Mirjana Jeremic[1], Emma Pagnamenta[2], Vesna Stojanovik[1], Kelly Burgoyne[3], Sue Buckley[4,5]

[1]School of Psychology and Clinical Language Sciences, University of Reading, Reading, United Kingdom. [2]School of Psychology and Clinical Language Sciences, University of Reding, Reading, United Kingdom. [3]Manchester Institute of Education, University of Manchester, Manchester, United Kingdom. [4]Down Syndrome Education International, Cumbria, United Kingdom. [5]Dept Psychology, University of Portsmouth, Portsmouth, United Kingdom

Abstract

Background: The development of language and communication skills is a significant challenge for children with Down syndrome (DS). Shared book reading (SBR) has been proposed as a mechanism for language intervention (Jeremic et al., 2024), but few studies have examined SBR interactions with children with DS. This study investigates parental and child behaviours during SBR, including language boosting strategies, comparing children with DS to age- and language-matched typically developing peers.

Method: We recruited 32 families: 12 with 2- to 4-year-old children with DS, 10 age-matched typically developing children, and 10 typically developing children matched on receptive vocabulary. Parent-reported and standardised measures of language and cognition were collected, along with a Home Literacy Environment Questionnaire. Parent-child SBR interactions were video-recorded and analysed using the Child and Maternal Behaviour Rating Scales (Mahoney, 1998; Mahoney, 2008). We also examined parents' use of evidence-based language boosting strategies like labelling, repeating, questioning, and interpreting child communication.

Results: Parents reported frequent SBR and enjoyment of the activity but varied in their use of language boosting strategies. Preliminary findings show positive correlations between parental responsivity and child attention, initiation, and language use across groups during SBR. In the DS group, asking open-ended questions, copying, and expanding the child's utterances were positively correlated with child verbalisations. In the language-matched group, asking questions and labelling were positively correlated with child communication. Parents' interpretation of child communication was positively correlated with child vocalisations in the DS and age-matched groups.

Conclusions: Our study shows that SBR holds promise as an intervention approach for children with DS and their families as a way of optimising children's language outcomes. Further research is needed to establish which specific components of an SBR intervention are most effective and what further adaptations are needed for young children with DS.

How speech and language therapists and parents work together for children with speech sound disorder: A scoping review

Katherine Pritchard[1], Vesna Stojanovik[1], Jill Titterington[2], Emma Pagnamenta[1]

[1]University Of Reading, Reading, United Kingdom. [2]The Speech Doctor, Belfast, United Kingdom

Abstract

Background

Speech sound disorders (SSD) are broadly defined as difficulty producing speech sounds in childhood. SSD that persists into the school years can negatively affect academic outcomes and well-being.

Intervention intensity for SSD is important for effectiveness. However, there is a gap between evidence-based recommendations for intensity and clinical practice. One way that speech and language therapists (SLTs) try to bridge this gap is by working with parents. Evidence suggests SLTs believe working with parents is vital for a child with SSD to make progress.

Aims

To provide a comprehensive review of perceptions, experiences and strategies underpinning collaborative working between SLTs and parents of children, (aged ≤ 5 years 11 months) with SSD to increase intervention intensity at home.

Method

This study adhered to PRISMA-ScR guidelines. A search of 6 databases was conducted, using synonyms of 'SSD', 'Therapy', and 'Parents.' Journals and papers were hand-searched. 29 papers were included. Data was analysed using Thomas and Harden's thematic synthesis.

Results

Seven themes were identified – individualisation, setting expectations, daily life, parental knowledge, parental involvement, therapeutic relationships and supporting parents to deliver home practice. Parents value the parental and child relationship with the SLT which supports home practice. Further research is needed, as well as guidance for SLTs on how to work with parents of children with SSD to enable them to support parents deliver home practice effectively.

Conclusions

Emerging evidence supports the value of SLTs and parents working together to support home practice for children with SSD. SLTs allocating time to build positive relationships with parents to support engagement in therapy was highlighted as important. Supporting home practice flexibly and in collaboration with parents allows parents to fit home practice into their lives. Providing clear information to parents supports fidelity of, and engagement in, home practice.

Australian Speech Pathologists answer 8 quick questions about how they analyse speech sound disorders (SSD)

Tamra Staples[1], Tricia McCabe[1], Elizabeth Murray[1,2]

[1]The University of Sydney, Sydney, Australia. [2]Remarkable Speech, Sydney, Australia

Abstract

Background: Effective and evidence-based diagnosis and treatment of speech sound disorders (SSD) relies on how speech-language pathologists (SLPs) assess and analyse children's speech. While there are guidelines to support best practice, evidence from multiple sources suggests that assessment practices are variable and there is limited agreement about diagnosis of SSD subtypes. Further study is required to understand current assessment practices of SLPs.

Method: This study reports a brief online survey with questions focusing on the assessment practices with SSDs of Australian SLPs. Participants were asked around the number of assessment tasks, use of transcription, use of analysis, the time spent on analysis and the types of analysis completed. The survey was distributed through professional networks and social media. The results were analysed with descriptive and non-parametric statistics.

Results: Most of the 116 participants reported having 10+ years of experience and were spread across a range of workplaces. As a group participants most frequently reported completing two tasks in an SSD assessment, transcribing always or often and analysing the data from assessments. Participants indicated that they most frequently spent 11-20 minutes on analysis. Phonological process analysis, comparing a child's production to the SLP's internal knowledge of speech development and completing a sound inventory were most commonly used. Although there were trends, there was variability in responses (e.g. 29 participants reported 'always' completing only one assessment task).

Conclusion: There is a gap between what is recommended as best practice and what most Australian SLPs reported in some areas, particularly in relation to the number of tasks and types of analyses completed. The reasons for this difference and the implications for diagnosis and then management of SSDs are not clear. Positively, Australian SLPs also reported assessment practices in line with recommendations for best practice in other areas (e.g. transcribing often or always).

Self-supervised digital intervention for children with speech sound disorder - a single-case experimental design study

Sofia Strömbergsson[1,2], Ella Edlund[1], Magdalena Pettersson[1], Nhan Phan[3], Mikko Kurimo[3]

[1]Karolinska Institutet, Stockholm, Sweden. [2]Danderyd University Hospital, Stockholm, Sweden. [3]Aalto University, Helsinki, Finland

Abstract

Background. For children with speech sound disorder (SSD), speech intervention often involves a considerable amount of home-training, to achieve high-enough training frequency to promote speech change. A digital speech-training app has been developed that could serve as a cost-effective means to providing accessible intervention to children with SSD.

Aims. To evaluate whether self-supervised home-training with the app *Pop2TalkNordic* can expedite more target-like speech for children with SSD and to explore children's experiences of using the app.

Method. Four 4-6-year-old children with SSD participated in a single-case experimental design study, with a multiple-baseline across-subjects design. The children's production of target error patterns was monitored during baseline and intervention phases, for trained and untrained stimulus words. Three weeks of self-supervised training with the app, with an aspired frequency of 5-days a week, in 15-minute training sessions, served as the intervention. The children's app-usage was tracked, and their production of target word stimuli recorded via the app.

Results. None of the children reached more target-like production of targeted consonants as a consequence of the intervention. For two participants, slight improvement was observed on trained, but not untrained, word stimuli. In terms of user experiences, the children varied from liking the game a lot and finding it easy, to not liking the game much at all and finding it difficult.

Conclusion. In its current form, and when delivered as a self-supervised training-activity over three weeks, training with this specific speech-training app is not sufficient to expedite more target-like speech in children with SSD. More parental engagement in the children's training with the app, and changes in game design (e.g., highlighting phonological contrast, and allowing playback of multiple exemplars of target word items), are suggested routes to achieve better outcomes.

Wednesday 25 June (16:30 - 18:15) - Session 3 - Room I-11

From speaking to reading: Literacy development in children with problems in language and speech

Iris Duinmeijer[1], Luisa de Heer[1], Sietske van Viersen[2], Margoke Nijssen[1], Elise de Bree[3]

[1]NSDSK, Amsterdam, Netherlands. [2]Utrecht University, Utrecht, Netherlands. [3]University of Amsterdam, Amsterdam, Netherlands

Abstract

Background: Children with developmental language disorder (DLD) are prone to literacy problems, especially when they also have a speech sound disorder (SSD) that is phonological in nature. One key question is whether early phonology-focused intervention has a positive effect on these children's later literacy outcomes. Another question is which factors influence their literacy development over time. Both questions are addressed using data of children with DLD and SSD who either received a general language intervention (GLI) or a phonology-focused intervention (PFI) during preschool. The children's literacy outcomes were assessed at primary school age.

Method: The sample included 36 children with (a history of) DLD and SSD who participated in a phonology-focused intervention (PFI) group (n = 21) or a general language intervention (GLI) group (n = 15). Pre- and post-intervention scores for language and speech, obtained from a previous study on the effectiveness of these interventions, were available. In this follow-up study, curriculum-based literacy scores from grades 1 and 2 were collected through schools. Additionally, word-level reading, rapid automatized naming (RAN), phoneme awareness, and language production were assessed at home around 9 years (age range: 8;2–10;3). Using BAIN-ANOVA and regression analyses, we evaluated whether the two intervention groups differed in spelling and reading scores and identified variables contributing to literacy outcomes.

Results: Both intervention groups (PFI and GLI) performed within the normal range for language production, and intelligibility scores were high. Furthermore, reading difficulties were not prevalent in either group. Preliminary analyses indicate no differences in literacy outcomes between the groups. Phoneme awareness and RAN seem to be most strongly associated with literacy skills.

Conclusions: In our presentation, we will share the final results on the effects of early intervention and discuss the factors influencing literacy outcomes in children with (a history of) DLD and SSD.

Using Tools Grounded in Systemic Functional Linguistics to Explore the Narratives of Spanish-English-speaking Bilinguals who Stutter

Angela Medina

Florida International University, Miami, USA

Abstract

Stuttering is a communication disorder that is commonly recognized by specific speech behaviors and physical concomitants. Current definitions have expanded to include the range of feelings and attitudes one may experience because of their stuttering as well as impacts it can have on quality of life. The experiences a person has with stuttering are highly individualized relative to frequency and type of speech behaviors as well as stuttering-related thoughts and emotions. Similarly, one's experience of being a bilingual in that when, how, why, and to what degree one has learned and uses their languages varies across speakers. Thus, the myriad variations seen across bilingual people who stutter can make bilingual stuttering a challenging topic to investigate. For these reasons, a descriptive approach grounded in Systemic Functional Linguistic (SFL) was selected for the purposes of this study. The aim of this study was to describe the linguistic resources used by two Spanish-English speaking bilinguals who stutter ("Ivan" and "Sam") to convey their attitudes and experiences with bilingual stuttering. At the time of the study, Ivan was 29 years old and had recently arrived in the United States from Ecuador. Spanish was his home language, and he learned his second language, English, when he came to the U.S. Sam, a U.S. citizen, was 16 years old and learned English and Spanish simultaneously. Both participants were interviewed and completed surveys about their stuttering history, language history, and their perceptions about stuttering. Analytic tools grounded in SFL theory, namely those based on experiential meaning and appraisal, were used to analyze interview data. Results revealed how participants structured their talk to emphasize aspects of their experience that were significant to them in navigating their languages as bilinguals who stutter including: language learning status, variations in proficiency, language confidence, and lack of language-specific speech therapy.

Story Sense: Exploring Narrative Production and Comprehension in 7-Year-Olds

Monique Mills, Grace Jones, Mariana Mancias, Cara Wilson, Shaima Scrivner

University of Houston, Houston, USA

Abstract

To examine narrative production and comprehension, we tested 19 children enrolled in self-contained first- and second grade classrooms, most of whom were emerging bilinguals (Spanish/English) from the southcentral region of the United States. As part of a larger study on dialect detection, we elicited narratives from the Test of Narrative Language-2 (TNL-2) and administered a battery of tests to describe cognitive and language abilities, including the Diagnostic Evaluation of Language Variation-Screening Test (DELV-ST) to characterize language variation and diagnostic risk for language impairment. We observed a moderate negative correlation between diagnostic risk for language impairment and overall narrative ability ($r = -0.58$, $p < .05$). Likewise, there was a moderate negative correlation between language variation and overall narrative ability ($r = -0.59$, $p < .05$). A Mann-Whitney U test was performed to compare narrative production ($n = 19$) with narrative comprehension ($n = 19$). There was not a significant difference in performance across the two modalities, with a U statistic of 123 and a p-value of 137 at the .05 alpha level. Given that TNL-2 elicits fictional narratives that conform to traditional, Western story grammar, it is not surprising that children with no variation from Mainstream American English (MAE) outperformed those with some or strong variation from MAE in overall narrative ability. Children at lower levels of risk for language impairment produced more coherent narratives and comprehended more narrative details on the TNL-2 than did children at higher levels of risk for language impairment. Our preliminary findings indicate narration as sensitive to clinical status and language variation, and thus, a useful clinical tool. Yet, clinical researchers and clinicians will need to consider carefully how multilingualism affects narrative structures and styles.

Interaction quality in toddler classrooms: A cluster analysis across activity settings and structural associations

Rochana Mroué[1,2], Caroline Masson[1], Christelle Maillart[2]

[1]Sorbonne Nouvelle University, Paris, France. [2]University of Liège, Liège, Belgium

Abstract

Background: High-quality educator-child interactions in toddler classrooms are essential for children's socio-emotional, cognitive, and language development (Bratsch-Hines et al., 2020; Broekhuizen et al., 2018) and can help prevent early communication difficulties (Ebbels et al., 2019). Interaction quality varies across activity settings, such as mealtimes and educator-led activities, which offer both opportunities and challenges for promoting sensitivity and responsiveness (Cadima et al., 2023). Understanding these variations and their links to structural features, such as educator qualifications, is critical for designing professional development programs that enhance interaction quality (Slot, 2018; Egert et al., 2020). Cluster analysis, used only once in toddler classrooms (Wyslowska & Slot,

2020), offers valuable insights into tailoring educator training and enhancing children's language outcomes. **Objectives:** This study identifies clusters of interaction quality in toddler classrooms using CLASS-Toddler ratings (La Paro et al., 2012) across activity settings and examines their associations with structural characteristics. **Methodology:** Educator-child interactions were videotaped in 40 French toddler classrooms (children aged 15–36 months), across various activity settings. CLASS-Toddler assessed Emotional and Behavioral Support and Engaged Support for Learning. Structural features, including educator qualifications, experience, and other factors, were collected via self-reported questionnaires. **Results:** Three profiles are expected: (1) classrooms offering both high emotional and learning support, (2) classrooms with high emotional but low learning support, and (3) classrooms with overall lower quality (Wyslowska & Slot, 2020). Educator-led activities might correspond with higher-quality profiles, while mealtimes may align with lower-quality clusters (Cadima et al., 2023). Structural features, such as in-service training and qualifications, are expected to correlate with higher interaction quality (Egert et al., 2020; Manning et al., 2019). **Implications:** Professional development programs should target lower-quality settings, such as mealtimes, to strengthen educator interactions and support early language development.

Examining Receptive and Expressive Narrative Skills in Storytelling and Retelling Among Typically Developing Greek-Speaking Preschoolers: Preliminary findings using MAIN

Ioanna Orfanidou, Elena Theodorou

Cyprus University of Technology, Limassol, Cyprus

Abstract

Narratives are parts of our everyday discourse as verbal accounts of fictional or real events that follow a temporal sequence of clauses. Mastering at least four types of knowledge: a) "content knowledge", b) "structural knowledge", c) "micro linguistic knowledge" (i.e., phonological, morphological and syntactic rules of language) and d) "contextual knowledge" is required for a complete narration. Therefore, it is quite obvious that narratives represent a quite complex amalgam of the linguistic, cognitive and sociocultural skills and abilities of the narrator.

Children's narrative skills are influenced by their cultural heritage and socioeconomic background, leading to qualitative differences in how these skills develop. Researchers highlight the critical importance of narrative development, as key predictor for later social and academic achievement. Poor discourse and narrative abilities place children at risk of learning and literacy related difficulties.

Despite the importance, limited research has examined the developmental characteristics of narratives among Greek-speaking preschoolers particularly in storytelling and retelling contexts. Multilingual Assessment Instrument of Narratives (Gagarina et al, 2019) that was originally designed for assessing narrative of bilingual children could also serve as a free available but at the same time valid tool for eliciting and analyzing narrative samples of Greek monolingual preschoolers.

The present study is aiming to present preliminary data of macro- and microstructure as well as comprehension developmental patterns using MAIN four pictorial stories (2 for telling and 2 for retelling) in 10 typically developing Greek monolingual preschool children. Comparisons between

macro- and microstructural measurements across storytelling and retelling contexts will be discussed.

Initial analysis of the results provides useful information about preschool narrative skills and highlights the value of using storytelling and retelling to evaluate narrative skills comprehensively. The preliminary results provide critical insights into preschoolers' narrative development and underscore the need for apply narrative-based tools in language assessment.

Thursday 26 June (9:00 - 11:00) - Session 4 - Auditorium

Reduction and simplification norms of adjunct clusters in child Greek

Eleftheria Geronikou[1], Elena Babatsouli[2]

[1]University of Patras, Patras, Greece. [2]University of Louisiana at Lafayette, Lafayette (LA), USA

Abstract

Background: Research on children's acquisition and developmental norms of adjunct clusters in Greek has focused on two-member adjunct clusters, /sC/ (PAL, 1995; Sirika et al., 2011; Geronikou & Babatsouli, 2024; Okalidou & Babatsouli, 2025 for review). Acquisition norms for three-member adjunct clusters, /sCC/, have been reported for /str/ (PAL, 1995) and /str/, /spr/, /skl/ (Geronikou & Babatsouli, 2024), however, developmental reduction or simplification norms for these clusters have not been investigated.

Purpose: This study seeks to establish developmental norms of acquisition stages of three-member adjunct clusters, /sCC/ in Greek examining reduction and simplification patterns. Norms will be compared between different sCCs and two-member clusters comprising /s/ (sC, Cs) to disentangle children's developmental cluster realizations, ultimately guiding clinical assessment and intervention.

Method: 76 monolingual children in Greece of ages 2-5 years performed picture naming for the elicitation of cluster productions targeting /str/, /spr/, /skl/ in the words *στρογγυλό* /stroʝilo/ 'round', *σπρώχνει* /sproxni/ '(s)he pushes', *σκληρό* /skliro/ 'hard'. 12 children are of ages 2 to 3 years, 39 children 3 to 4 years, and 25 children 4 to 5 years. Word-initial /st/, /tr/, /sp/, /pr/, /sk/, /kl/ are also elicited. The elicited contexts examined here represent the most frequent Greek words comprising sCC and sC clusters, as targeted in the Phonological Assessment for Greek (PAel, Babatsouli, 2019).

Results: The proportion of cluster stages between /str/, /spr/, /skl/ within and across age groups differs as follows: Group 1: sC dominates /str/, /spr/, /skl/; C is lower in /str/, /spr/ compared to /skl/, /st/, /sp/. Group 2: evidence of spur in /spr/, /skl/. Group 3: spur in /str/, /spr/, /skl/. Overall: Cs, CC for /spr/, /skl/, and [spl] for /spr/.

Conclusion: The dissimilar developmental norms evidenced here on the reduction/simplification of sC+Liquid and respective two-member productions carry implications for clinical practicum and cross-linguistic research.

Validation of the Intelligibility in Context Scale for French-speakers in Canada

Daniel Berube, Ann Sutton

University of Ottawa, Ottawa, Canada

Abstract

Purpose: The Intelligibility in Context Scale (ICS) is a parent-reported screening tool focussed on parents' perception of their child's speech intelligibility. It has been adapted in 50+ countries and validated in 15+ languages but never for Canadian French. The purposes of this study were to evaluate the psychometric properties of the Canadian French version of the ICS (EIC-FC) and to investigate whether the EIC-FC is a useful tool for distinguishing between French-speaking children with typical development (TD) and those with speech sound disorders (SSD).

Method: A total of 68 French-speaking children between the ages of 30 months and 70 months (53 children with TD and 15 children with SSD) participated in this study. Speech production skills were assessed using the *Test de Phonologie du Français Canadien* (Canadian French Phonological Test). Parents/caregivers of the children completed the EIC-FC.

Result: The EIC-FC showed high internal consistency. Criterion validity was established through a significant positive correlation between the EIC-FC and the percentage of consonants correct as well as the whole word match. Construct validity was also established through significant positive correlations between the EIC-FC mean scores and the item scores. Comparison of children with TD phonological skills and those with SSD revealed that the EIC-FC had high sensitivity and good specificity.

Conclusion: The psychometric properties of the EIC-FC on this sample support its clinical value in measuring functional speech intelligibility in French-speaking children with SSD. The EIC-FC also provides a broader understanding of children's speech productions.

Speech sound development in children born prematurely: a scoping review

Sam Burr[1,2], Sam Harding[1,3,2]

[1]Bristol Speech and Language Therapy Research Unit, Bristol, United Kingdom. [2]Cardiff Metropolitan University, Cardiff, United Kingdom. [3]University of Bristol, Bristol, United Kingdom

Abstract

Background: Globally, approximately 13.4 million babies are born prematurely (before 37 full weeks of pregnancy) each year. Children born prematurely are more likely to experience neurodevelopmental challenges, including speech, language, and communication disorders. Premature birth has been shown to have a negative effect on language development when compared to children born at term. However, very little is known regarding the speech sound development in preterm-born children. Recent research has identified a number of key risk factors for speech sound disorder (SSD), including weak sucking at the age of 4 weeks and exclusive bottle feeding in the first 2 years of life. Preterm-born children are more likely to experience these factors compared with children born at term, and so they may be at higher risk of SSD later in childhood. This scoping review will explore what is known about the characteristics of speech sound development in preterm born children.

Methods: Using the JBI family of tools, major databases will be searched, including CINAHL, Medline, EmBase, EmCare and PsychInfo. Grey literature sources will be searched. Experimental and quasi-experimental study designs will be included. Analytical observational studies including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies will be considered for inclusion. Qualitative studies including, but not limited to, designs such as phenomenology, ethnography, qualitative description and action research. This review will also consider descriptive observational study designs including case series, individual case reports and descriptive cross-sectional studies for inclusion. Critical analysis of retained papers will be undertaken.

Results: Evidence on the characteristics of speech sound development in preterm-born children will be described. Findings from the criticial analysis of retained papers will be presented.

Conclusions: Findings will highlight current gaps in knowledge regarding speech sound development in preterm-born children. This will feed into future research in this field.

Phonological delay and disorder in children's speech: how they differ and why it matters

Barbara Dodd[1], Sharon Crosbie[2], Alison Holm[3]

[1]University of Queensland, Brisbane, Australia. [2]ACU, Brisbane, Australia. [3]University of Tasmania, Launceston, Australia

Abstract

Children with speech sound disorder (SSD) are widely recognised as a heterogeneous group, differing in severity, aetiology, surface symptomatology, developmental trajectory, associated abilities and response to specific types of intervention. This presentation evaluates the speech characteristics of two of the range of proposed subtypes of SSD: delayed phonological acquisition (persistent use of developmental error patterns) and disordered phonology (consistent use of atypical speech error patterns). A total of 68 children, aged 3 years; 2 months to 5 years;6 months, completed a standardised assessment. Both quantitative and qualitative measures were analysed to compare the speech characteristics of the two groups. Findings revealed that all children made some age appropriate errors (e.g., gliding, [twi] *tree*) as well as some delayed errors (e.g., stopping fricatives after 3;5 years, [pit] *feet*). While the children with delayed acquisition showed no consistent atypical error patterns (≥ 5 examples of an error type), they made an average of 4.3 (*sd* 3) 'one-off' atypical errors (e.g., [dʒʌvz] *gloves*). In contrast, the children with disordered phonological development used up to three atypical error patterns, with a mean of 18.3 (*sd* 8) atypical errors (e.g., backing [ki] *tea*). The groups also differed significantly on measures of percent consonant and vowel errors, and single word versus continuous speech error ratio, but showed no differences in error consistency in single words or speech sound repertoire. The results have important implications for theoretical accounts of SSD, classification of its subgroups and the psycholinguistic deficits known to be associated with each group, developmental trajectories and response to different types of intervention.

Does accent variation affect the identification of Speech Sound Disorders in Scottish-English speaking children?

Lucy Gibson, Eleanor Lawson, Jane Stuart-Smith, Anja Kuschmann, Amy Smith, Lauren Taylor, Mridhula Murali, David Young, Joanne Cleland

Strathclyde University, Glasgow, United Kingdom

Abstract

Introduction

Speech Sound Disorders (SSDs) are highly prevalent, affecting up to 25% of children in the UK (McFaul et al., 2017). SSDs are characterised by difficulties in producing, representing, organising, or perceiving speech sounds (McLeod & Baker, 2017). In Scotland there have been recent sound changes (Stuart-Smith, 1999) whereby coronal consonants are replaced with non-coronal consonants. These sound-changes have the potential to be misinterpreted as errors. It is important to investigate whether this variation impacts the identification of SSDs and if assessment tools account for accent variation. The recommended assessment in the UK is the Diagnostic Evaluation of Articulation and Phonology (DEAP) (Dodd, 2002) (RCSLT, 2024). This assessment was standardised on UK children, including some from Scotland. However, the manual instructions do not specify which accent features are considered in the scoring of the assessment.

Method

This study used data collected for the VariCS project (VariCS, 2024), which investigated the variability in children's speech in Scotland. The DEAP diagnostic screen was administered to 275 children (aged 5-12 years) in Scottish schools. Recordings were phonetically transcribed, and errors categorised as age-appropriate or not, according to manual instructions. Phonological and accent features present in the sample will be noted and a comparison will be made with the DEAP norms.

Results

Initial analysis shows that 45/275 children had speech errors. These errors include: cluster reduction, coalescence, gliding, backing, stopping, deaffrication, affrication, dental fronting, consonant elision and syllable elision. Sociophonetic features include glottalization of /t/ and derhoticisation of post-vocalic /r/ (Lawson et al. 2018).

Conclusions

We will evaluate levels of variation in children's speech and determine how these sound-change variants might be differentiated from developmental errors in children speaking Scottish English. The findings will be used to develop a clinically-useful list of typical sound variants SLTs can expect to encounter in Scottish-English child speech.

(References_in_PDF)

Educational Performance of Polish-Speaking School-Aged Children With Speech Sound Disorders. A Multiple Case Study

Agata Trębacz-Ritter

Adam Mickiewicz University in Poznan, Poznan, Poland

Abstract

Background: An increasing number of children in schools require support from school-based speech-language pathologists. Polish researchers estimate that up to 47% of primary school students aged 7-9 may experience speech sound disorders. These children are at greater risk of educational challenges, including difficulties in literacy, mathematics, and peer relationships, compared to their peers with typical speech. However, the degree of these risks depends on individual and environmental factors.

Aim: This study aimed to explore the educational performance of 18 third-grade primary school students with speech sound disorders from the complementary perspectives of children, parents, and teachers.

Method: A multiple case study strategy was employed to better understand the heterogeneity among these children. During the first meeting, assessments focused on phonological processing skills, rapid automatized naming, school integration, and speech participation and activity. Over three subsequent meetings, academic achievements were evaluated in reading, language awareness, and math. Semi-structured interviews with parents and teachers provided additional insights into the children's school functioning. While each case was analyzed individually, a cross-case analysis identified broader trends.

Results: Children with higher academic achievements were more likely to have an articulation disorder without a significant deficit in phonological processing. In turn, those with a distinct phonological deficit were characterized with lower educational achievements across all dimensions. However, most of children felt well-integrated with their peers, which might be partially explained by the teachers' supportive attitude or by the observed general diversity among children in the classroom.

Conclusion: The findings highlight the importance of continuous functional assessments for children with speech sound disorders, tailored to their diverse needs and abilities. Beyond well-structured speech therapy, it is crucial to address the potential impact of persistent speech production difficulties on children's educational experiences. This approach ensures timely and appropriate support, promoting both academic success and social well-being.

Thursday 26 June (9:00 - 11:00) - Session 4 - Room I-10

Incubator Intervention in extremely premature infants – vowel space and f0 evidence that parental voice input is beneficial

Thomas Kaltenbacher[1], Birgit Breninger[1], Bradley Mackay[2]

[1]University of Salzburg, Salzburg, Austria. [2]University of Michigan, Ann Arbor, USA

Abstract

Early incubator intervention with parents' voice stimulation may have a strong effect, but how to measure it? Vowel space and f0 analysis of infant recordings from cooing to babbling to 12 months may show how speech development benefits from incubator exposure to parents' voices.

An extremely premature infant (27th week of gestation) received immediate parental and sibling linguistic stimulation in the incubator via an i-pod connected to the 3,5mm audio input of a Dräger Babyleo® TN500 incubator.

Parents and staff played the recording (total of 47 minutes) to the preterm baby during the 103 days in the NICU more than 170 times.

Analysis of recordings of the infant at 6 weeks (uncorrected age), 4 months (uncorrected), 4 months corrected and 9 months corrected looked at vowel space area (in Bark and Mels) and f0. Older sibling recordings from the same age, served as a control for vowel space and f0. The stimulation material was also analyzed.

Recordings show that after 12 months of linguistics input, i.e. at the age of 12 months (9 months corrected) both produced a VSA covering an area of around 33 Barks. F2-F1 values show no significant difference between the two children at 12 months. F0 analysis of rising, falling and level pitch shows that the premature infant seems to have acquired the general pattern of his parents by 9 months corrected, same as the older sibling. The premature infant's f0 was significantly higher than the sibling's at 4 months (corrected) and 9 months (corrected) which might be explained through the higher rate of infant directed speech as the Covid-19 pandemic restricted exposure to other family members reducing adults talking among themselves.

The two parameters support the approach that immediate linguistics intervention with individually designed speech stimulation protocols can counteract the negative effects on linguistic development.

An ultrasound and acoustic study estimating the vowel space of Cantonese-speaking healthy adults

Shuying WANG[1], Min Ney WONG[1,2,3,4], Bruce Xiao WANG[5,2], Yu SUN[6,2], Zhen SONG[6,2], Ho Yee NG[1], Hang Ching LAM[1], Yong Ping ZHENG[6,2]

[1]Department of Chinese and Bilingual Studies, Hong Kong Polytechnic University, Hong Kong, Hong Kong. [2]Research Institute for Smart Ageing, Hong Kong, Hong Kong. [3]Research Centre for Language, Cognition, and Neuroscience, Hong Kong, Hong Kong. [4]The HK PolyU-PekingU Research Centre on Chinese Linguistics, Hong Kong, Hong Kong. [5]Department of English and Communication, Hong Kong, Hong Kong. [6]Department of Biomedical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong

Abstract

This study aims to estimate the vowel space of Cantonese-speaking healthy adults using ultrasound tongue imaging (UTI) and formant data, investigating differences in articulatory and acoustic space between males and females, across different phonological contexts, and the relationship between these spaces. Ultrasound and synchronized formant data of three corner vowels (/a:/, /i:/, /u:/) in isolated and CV/CVC contexts were obtained from 5 male and 5 female healthy Hong Kong Cantonese speakers. Tongue contours were automatically recognized using a U-Net model with manual correction and fitted using cubic polynomials. The x-y coordinates of the highest point of the tongue body were extracted as tongue height and advancement values, and corresponding formant values (F1 and F2) were measured using *Praat*. The results showed that male speakers have a larger articulatory space but a smaller acoustic space than female. For articulatory space, vowel type had a significant effect on both tongue advancement (TA) and tongue height (TH), aligning with expected patterns. However, neither gender nor context appeared to have a significant overall effect on the articulatory space. In contrast, for acoustic space, vowel type and gender had a significant effect on both TA and TH, with limited context effects observed in female speakers. Pearson correlation coefficients will be used to investigate the relationship between articulatory and acoustic vowel spaces. These findings provide valuable insights into the articulatory and acoustic characteristics of Cantonese vowels, highlighting the influence of factors such as vowel type and gender. The results will serve as a reference for ongoing research into the vowel space of speakers with dysarthria, contributing to a better understanding of speech production in both healthy and clinical populations. This study lays the groundwork for future investigations into the relationship between articulatory and acoustic measures in Cantonese, with potential implications for speech therapy and assessment.

Formant stability in the speech of Italian-speaking subjects with dementia: a pilot study

Gloria Gagliardi[1], Riccardo Giabbani[1], Elena Martinelli[1], Yuka Naito[2], Chiara Meluzzi[2]

[1]Alma Mater Studiorum - University of Bologna, Bologna, Italy. [2]University of Milan, Milan, Italy

Abstract

The phonetic characteristics of speech are well documented as being highly discriminative between neurotypical populations and individuals with dementia. Over the past decades, most research has focused on suprasegmental and temporal features. Few studies investigate vowel space, which, however, appears to be reduced among dementia patients. This study explores formant stability in dementia speech. We analyzed a subcorpus from the DemCorpus-Basilicata, which includes speech samples collected from six Italian-speaking women from Basilicata diagnosed with Alzheimer's Disease and their neurotypical peers. So far, we have analyzed static and dynamic formant measures (in Bark) of the seven Italian stressed and unstressed vowels. While the static formant measures considers the first three formant frequencies (F1, F2, F3) at the midpoint of the vowels, the dynamic measures includes spectral change and spectral angle. Our preliminary results show different trends with respect to the static measures: independently from stress, F1 and F2 were higher in the patient group than in control group, while F3 was lower. The differences in F1 and F2 values between the groups seem to be related to vowel height and its frontness, respectively. We found significant differences between the two groups for most of the formant values, with F2 values being significantly different between the groups for all vowels (regardless of stress). These findings suggest that F2 values may be those most useful for discriminating between Alzheimer's sufferers and their neurotypical peers. As to dynamic measures, we found that the patient group had significantly higher values than the control group for most stressed and unstressed front vowels. Since both groups showed high variability in spectral change, further analysis will be conducted to examine the effect of syllable structure. Although still preliminary, our results imply the usefulness of formant variability to diagnose dementia

Biomarkers for identifying respiratory failure: acoustic analysis of voice and speech

JOSE QUIRINO[1], MARCELO FINGER[2], LARISSA BERTI[1]

[1]UNESP, MARÍLIA, Brazil. [2]USP, SÃO PAULO, Brazil

Abstract

Introduction: Speech analysis has become a key tool in using artificial intelligence (AI) for identifying and classifying clinical issues, offering new opportunities for healthcare. However, the algorithms often do not clarify which characteristics are learned from the audio signals for decision-making. Thus, combining AI with studies that identify predictive characteristics for specific clinical conditions is essential. **Objectives:** This study aims to compare acoustic parameters of speech and voice in individuals with and without Respiratory Failure (RI) and determine which parameters predict RI.

Method: The study analyzed audio samples from 193 individuals, divided into two groups: a control group (n=93) and subjects with RI (n=100). The speech sample involved producing a sentence with 16 words, 30 syllables, and 60 phones, designed to create pauses according to prosodic constituency rules. Audio files were processed using Praat software (version 6.3.16, August 2023). The study was approved by the Research Ethics Committee (number: 30918120.0.3002.5483). **Results:** Factorial ANOVA ($p<0.05$) revealed significant differences between the groups in all speech parameters. Subjects with RI had more and longer pauses, longer total utterance time, and a lower articulatory rate, producing fewer words, syllables, and phones per second compared to controls. Voice analysis showed differences in mean fundamental frequency (F0), with patients having higher-pitched voices. However, the standard deviation of F0 was not significantly different between the groups. The minimum F0 varied by sex, with an interaction between sex and group. Regression analysis indicated that total utterance time, pause number, and average pause duration were significant predictors of RI (ÿ = -0.551; 0.394; 0.379). **Conclusion:** Speech parameters were found to be predictive of RI and can be tested as biomarkers using AI to develop a tracking system for individuals with respiratory failure.

The development of anticipatory coarticulation in Greek children

ANASTASIA DERI, KATERINA NICOLAIDIS

ARISTOTLE UNIVERSITY, THESSALONIKI, Greece

Abstract

In this study we investigate the development of lingual coarticulation in Greek children using ultrasound tongue imaging. We describe anticipatory vowel-to-consonant patterns in six 7-year-old children, ten 14-year-old adolescents and ten adults and provide information on the developmental course of coarticulation as a function of the involved speech segments, in line with similar converging evidence in other languages (Zharkova et al., 2018, Abakarova et al., 2022). The quest is important to advance theories of speech development and enhance the clinical assessment and intervention of disordered speech.

Tongue movements were recorded during the production of real disyllabic words, where we measured coarticulation in the first stressed syllable with C=/ p, t, k, f, s, x/ and V=/i, a/. Vocalic anticipation at the midpoint of the consonant was analysed along the tongue spline and on the highest point at the tongue dorsum. Data collection and analysis was performed with the Articulate Assistant Advanced (AAA) software (v220.5.1, 2023).

The results of the study suggest that the development of coarticulation in Greek children is conditioned by the articulatory restrictions of the segments. V-to-C coarticulation across the three age groups varied according to consonant identity, with consonants imposing stronger articulatory demands on the tongue being more resistant to vowel effects (Recasens et al. 1997). Children and adolescents showed increased token-to-token variability in tongue position compared to adults. Differences in the magnitude of coarticulation among the three age groups were not consistent across consonants but related to their articulatory complexity. Our findings suggestde that the nature of the developmental differences is related to children's immature speech motor abilities as well as the articulatory challenges imposed by the individual segments on children's productions (Zharkova et al., 2011, Zharkova, 2018).

Incorporating automated speech recognition programs to facilitate clinical speech analysis cross-linguistically

Wilbur Bennett III, Elena Babatsouli

University of Louisiana at Lafayette, Lafayette, USA

Abstract

Background: Narrow phonetic transcription is labor and time intensive (MacWhinney, 1998) being cumbersome in clinical practicum. Automatic speech recognition and segmentation can reduce the complexity and time involved. Attempts to automate the process have found success, but it usually requires a skilled programmer (Braunschweiler et al., 2010; Knowles et al., 2015; Mahr et al., 2021; Mathad et al., 2021; Weinberger & Kunath, 2011).

Purpose: This proposal models the integration of computer software in research and clinical practicum aiming to streamline orthographic and phonetic transcription for speech analysis, using Greek as the example language. We will examine how researchers/clinicians can integrate programs, like Whisper (Alec Radford et al., 2024), Montreal Force Aligner (McAuliffe et al., 2017), and Praat (Boersma & Weenink, 2024) into assessment analysis.

Method: After recording a simulated adult running-speech session using the *Phonological Assessment for Greek* narrative (Babatsouli, 2019), the audio was processed with Whisper to create an orthographic transcription. Then, the audio and transcription were aligned with MFA to create a phonemic transcript. The audio and phonemic transcript were examined with Praat to catalog errors.

Results: Overall, the process was successful with most of the audio correctly transcribed orthographically and phonemically. The final product is useful for quick analysis of key areas in the assessment. Whisper's main limitation is that the current models focus on clean transcriptions that eliminate repetitions, fillers, and pauses. The absences cause alignment errors. At first, MFA was missing some vocabulary from the assessment, but this was overcome by updating the dictionary with missing vocabulary.

Conclusion: Automatic speech recognition programs can reduce time and effort in conducting narrow phonetic transcriptions with adequate supervision. As improvements are incorporated into language models for MFA and Whisper, the benefits of using these programs will enhance assessors' task productivity and accuracy. The methodology is applicable across languages.

Thursday 26 June (9:00 - 11:00) - Session 4 - Room I-11

Psychometric properties of the Intelligibility in Context Scale for Brazilian Portuguese

Matheus Alpes[1], Julia Cipolato[2], Ana Rita Valente[3], Jacqueline Nascimento[4], Patrícia Mandrá[2], Marisa Lousada[3]

[1]Universidade Federal Fluminense, Nova Friburgo, Brazil. [2]University of São Paulo, Ribeirao Preto, Brazil. [3]University of Aveiro, Aveiro, Portugal. [4]University of São Paulo, Bauru, Brazil

Abstract

Introduction: Intelligibility is usually impaired in children with speech sound disorder.The Intelligibility in Context Scale (ICS), translated into more than 60 languages, including Brazilian Portuguese (ICS-BP), allows parents to evaluate speech intelligibility across various contexts. **Objective:** To determine the psychometric properties of the ICS-BP. **Methods:** The study included 60 children, mostly male (n = 46, 76.7%), aged between 49 and 60 months (M = 55.05; SD = 4.2). Fifteen children had parental/teacher concerns regarding their speech, while 45 did not. Parents completed the seven-item ICS-BP. The phonology subtest of Child Language Test -ABFW was used to assess phonological systems and to calculate the Percentage of Consonants Correct (PCC) and parents completed the ICS to evaluate their children's intelligibility. Kruskal-Wallis test and Spearman coefficient were used for group comparisons and correlation calculations. Linear regression models were used to predict PCC. Internal consistency was calculated using Cronbach's alpha. To analyse sensitivity and specificity, a Receiver Operative Characteristic (ROC) was used. **Results:** The majority of parents reported a mean score of 4.6 (in a total of 5) at the ICS with different listeners. The ICS showed excellent internal consistency (α = 0.95). A significant correlation was found between ICS scores and PCC (r = .790). Sensitivity (0.98) and specificity (0.87) of ICS were considered high. **Conclusion:** The ICS-BP has good psychometric properties, suggesting that this version of the instrument can be used to measure the intelligibility of preschool Brazilian children.

AN OVERVIEW AND RECOMMENDATIONS FOR THE CURRENT STATUS FOR ASSESSMENT REGARDING ALTERNATIVE AND AUGMENTATIVE COMMUNICATION SYSTEMS IN TURKEY

Betül Sazoğlu[1,2], N. Evra Günhan Şenol[1]

[1]İstanbul Medipol University, İstanbul, Turkey. [2]Günışığı Çocuk Merkezi, İstanbul, Turkey

Abstract

Alternative and augmentative communication systems (AAC) encompass all tools, systems, and strategies used to support the communication needs of various populations with complex communication needs, enabling communication with their partners. Speech and language therapists (SLTs) are the primary professionals responsible for ensuring appropriate AAC adaptation. However, the recommendation and use of AACs in clinical practice by SLT's is quite limited in Turkey. This research has a two-fold goal: examining Turkish SLTs' perspectives on their AAC experiences and introducing an assessment form to facilitate the use of AAC. As a part of the project an assessment form, the "Communication, Language, and Speech & AAC Assessment Form", is designed and prepared with contributions from AAC users of various ages and diagnostic groups. The form is presented to the participant SLPs along with sample videos showing AAC users communicating through an AAC or without their AAC to see its impact on their perceptions regarding AAC practices. Adopting a qualitative research methodology semi-structured interviews were conducted with nine participating SLTs. Data were analyzed thematically using MAXQDA 24, identifying five themes and twelve sub-themes. Participant SLTs were found to be willing to experience AAC but were affected by societal, political, and educational factors. Efforts are needed at family, expert, and community levels, especially by SLTs, for individuals with complex communication needs to acquire AAC. Expanding AAC use in Turkey and increasing resources will positively affect the communication rights of individuals with complex needs. Future research should focus on developing AACs in collaboration with SLTs, communication partners, experts, societal awareness, health policies, and enhancing existing AACs.

Verb morphology among Tamil-speaking preschoolers with and without language delay

Adhirai Garibaldi[1], Lakshmi Venkatesh[1], Jayashree Bhat[2], Prakash Boominathan[1]

[1]Sri Ramachandra Institute of Higher Education & Research, Chennai, India. [2]Yennapoya University, Mangalore, India

Abstract

Background: Verb morphology is a common area of difficulty for children with language delay;—specific characteristics of difficulties varying with language typology. The current study focusses on Tamil, an inflectionally rich agglutinative language spoken by over 81 million people worldwide. Preliminary developmental data on the acquisition of verb morphology among Tamil-speaking children suggests patterns of early acquisition; little is known about the profiles among children with language delay. This study examined the production of verb morphology among Tamil-speaking three-year-olds with and without language delay.

Method: Five verb tenses - simple present, past, future, present continuous, past continuous and the person-number-gender (PNG) inflections were assessed using a picture elicitation task. Participants included 80 children with typical language (TL) and 41 with language delay (DL), further subgrouped by severity. Eight stimuli per tense were used. PNG inflections were analysed from the simple present and present continuous tense productions. Responses were profiled as accurate, substitutions or omission of tenses.

Results: Children with TL demonstrated acquisition of PNG inflections, simple present, simple past, and future tenses. Simple present and PNG inflections were emerging among children with DL. Substitutions by children in the TL group were predominantly "near misses," differing from the target by a single feature. Substituted responses of children with DL predominantly consisted inflected forms within their repertoire. Patterns of substitutions with limited use of bare verb stems contrast with findings from English and support the morphological richness theory for acquisition of inflectionally rich languages (Leonard et al., 1987; Leonard 1989).

Conclusions: Findings add to the research on early acquisition of verb morphology among children speaking agglutinative languages; children with delay also demonstrated simpler inflected verb forms. Such data on acquisition of verb morphology in Tamil is vital for informing the development of language-specific assessment and intervention strategies for children with delay.

Adaptation of the Mini-linguistic State Examination (MLSE) to Norwegian and the development of a “Living with PPA” questionnaire trough co-research

Ingeborg Sophie Ribu[1], Monica Norvik[2], Peter Bekkhus-Wetterberg[3], Hedda Døli[4], Nina Helen Erikstad[4], Ingvild Elisabeth Winsnes[5]

[1]Oslo Metropolitan University, Oslo, Norway. [2]University of Tromsø, Tromsø, Norway. [3]Oslo University Hospital, Oslo, Norway. [4]Statped, Oslo, Norway. [5]University of Oslo, Oslo, Norway

Abstract

Introduction: There is a growing demand for language-specific tools to assess and monitor language impairments and outcomes in persons with Primary Progressive Aphasia (PPA). This study outlines the adaptation of a language screening battery, and the development of a questionnaire designed to evaluate the impact of living with PPA in Norway.

Methods: This study is twofold: adapting an existing tool to Norwegian and developing a questionnaire. Data collection for both tools is ongoing, with initial results based on pilot data.

1. The Mini-Linguistic State Examination (MLSE) (Patel et al., 2022) was adapted from English to Norwegian, incorporating linguistic and cultural features, while maintaining fidelity to the original. Linguistic variables, such as frequency, word structure, and syllable length were considered, avoiding items from existing aphasia assessment tools. New illustrations were commissioned, and name agreement ratings were obtained from 50 people over two rounds. A pilot version of the MLSE was administered to 15 people (7 female, mean age 65,2, mean education 12,2 years).

2. Three co-researchers, each with a recognized variant of PPA, attended four meetings with the main researchers, discussing the effect of PPA on well-being and participation. Their suggestions informed the creation of the “Living with PPA” questionnaire.

Results:

1. Following the MLSE pilot, final items for the Norwegian version were selected, and norming data collection continues.

2. The co-researchers contributed to developing a questionnaire for with PPA and their therapists to assess the effects of PPA on everyday life. The questionnaire covers five topics: Language, Activities, Help and support; Feelings and Emotions, and Other.

Discussion: These Norwegian tools are crucial for assessing speech and language deficits following PPA, and impact of PPA on everyday life.

Patel, N., Peterson, [...], & Garrard, P. (2022). A ‘Mini Linguistic State Examination’ to classify primary progressive aphasia. *Brain Communications*, *4*(2), fcab299. https://doi.org/10.1093/braincomms/fcab299

Pronoun Production in Autism: Effects of Bilingualism and Theory of Mind

Andromachi Tsoukala[1], Maria Vender[2], Marta Tagliani[2], Pauline Wolfer[3], Franziska Baumeister[3], Elisabet Vila Borrellas[4], Stephanie Durrleman[3]

[1]University of Cambridge, Cambridge, United Kingdom. [2]University of Verona, Verona, Italy. [3]University of Fribourg, Fribourg, Switzerland. [4]Universitat de Barcelona, Barcelona, Spain

Abstract

Background: Pronoun production constitutes a clinical marker for developmental language disorder [1], but holds less clear status in autism spectrum disorder (ASD), with meta-analyses [2] suggesting variation between languages (cross-linguistic differences) and individuals (cognitive and language experiential factors). Because bilingualism may enhance Executive Functions (EF) [3] and Theory of Mind (ToM) [4], which support pronoun production (perspective shifting) [1], we expected bilingualism to offset differences between ASD and typically developing (TD) children [5].

Methods: We elicited pronoun production from 214 children (M_{AGE}=7;9, Range=[2;8-13;1]) with different language backgrounds using a tablet-based task (see *Figure*). We recorded whether children: (i) produced a pronoun, further categorising it into target or wrong (person/number/gender/case error); (ii) produced a noun phrase (NP); (iii) omitted the object. In GLMMs, we examined:

Simple effects and interactions:

- **Group**: TD (N=151); ASD (N=63)
- **Bilingualism**: monolinguals (N=61); bilinguals (N=153)
- **Condition**: whether target was 2nd (ACC2) or 3rd person (ACC3) singular accusative pronoun

Covariate:

- **Age**
- **Language**: English (N=25); German (N=75); French (N=52); Italian (N=30); Spanish (N=32)
- **ToM**: First-order false beliefs [6]
- **EF (inhibition):** Simon effect [7]
- **EF (cognitive flexibility):** Dimensional Change Card Sort [8]

Results: All children produced NPs more often than pronouns in ACC3, and vice versa in ACC2 where more target pronouns were also attested. ASD children produced fewer target pronouns than TD. A three-way interaction revealed that, in ACC2, monolingual ASD children produced more wrong pronouns (29.1%) than TD peers (1.41%) while bilingual ASD (6.57%) and TD peers (8.22%) did not differ, supporting our hypothesis. ToM increased pronoun and target pronoun production odds, and decreased object omission odds. Among covariate options, ToM explained more variance in certain cases, followed by Age and other covariates.

Conclusion: Findings highlight ToM's contribution to pronoun production for all children, and bilingualism' role in mitigating difficulties in ASD.

Polish phonological assessment tools and their validation in a monolingual and bilingual context

Paulina Zydorowicz

Adam Mickiewicz University, Poznań, Poland

Abstract

The aim of this contribution is twofold: 1) to present a novel Polish phonology assessment tool (*The Polish Phonology Test*) along with the results of its validation, and 2) to extend the process of validation to a bilingual context. The tools are consistent with those developed for 16 other languages in a cross-linguistic study of phonological development that is embedded in the framework of constraint-based nonlinear phonology (Bernhardt & Stemberger, 2022). So far the Polish assessment tools were put to the test in two case studies: of typical and protracted phonological development (PPD). The results allowed for a thorough examination of the child on several tiers of phonological analysis: features, segments and word structure. The analysis also enabled devising an intervention scheme for the child with PPD, a unique scheme that exploits the child's strengths to work on the child's needs. Above all, the two studies allowed for the evaluation of construct and content validity as well as the efficiency of the examination procedure. In the next stage of validation, two independent tests, the Polish Phonology Test (Author, 2022) and *the German Phonology Test* (Ullrich, 2011) will be administered to test phonological acquisition of a 4-year-old bilingual German-Polish-acquiring child residing in Austria. The study aims to trace Polish and German phonological development individually as well as capture interactions between the two languages.

References

Bernhardt, B. M., & Stemberger, J. P. (2022). phonodevelopment.sites.olt.ubc.ca.

Ullrich, A. (2011). Evidenzbasierte Diagnostik phonologischer Störungen – Entwicklung und Evaluation eines Sprachanalyseverfahrens auf der Basis nichtlinearer phonologischer Theorien. [Evidence-based assessment of phonological disorders – Development and evaluation of speech analysis procedures based on nonlinear phonological theories] [Doctoral dissertation]. University of Cologne.

Thursday 26 June (13:30 - 15:15) - Panel Session - Auditorium

Children's speech development around the world: A transformative paradigm shift

Sharynne McLeod, Helen Blake

Charles Sturt University, Bathurst, Australia

Abstract

Background: Communication professionals and researchers have undertaken research and developed evidence-based resources, assessments, and interventions in over 100 of the world's languages. An unacknowledged portion of this work has been undertaken and published in non-English languages and orthographies. However, reviews of English literature state much of the research into child development, and children's language development has been about English or closely related Indo-European languages in the northern hemisphere (McLeod, in press). Communication specialists require resources to move beyond an English- and Western-centric perspective of speech development in order to embrace the world's children, including those who speak indigenous and marginalized languages and dialects. The aim of this panel is to present research from around the world that provides a cross-linguistic account of multilingual and/or monolingual children's speech development.

Method: During this panel, international experts will compare children's speech development in languages and dialects including Bulgarian, Dutch, English (Australian, Fiji), Kurdish, Persian/Farsi, Polish, Spanish (Peruvian), Tamil, and Welsh as well as multilingual development in English and French, English and Greek, and English and Vietnamese. The panel will begin with an overview of children's speech development in over 70 languages and dialects across the world. Next, the authors will systematically present information about speech development to enable comparison between languages and dialects and showcase resources available in languages other than English.

Results: Each presenter will describe the adult form of their language (dialect), including the consonants, vowels, consonant clusters, tones, prosody, word shapes and writing system. Next, they will present research evidence about children's speech development in the language (dialect). Finally, authors will review the assessments, interventions, and resources that are available in that language and dialect.

Conclusion: This information provides a transformative solution for how disciplines can reduce disparities and support multilingual children's communication across the world.

ICPLA 2025 - Abstracts

Panel session

Organisers:

Sharynne McLeod, Charles Sturt University, Australia
Helen L. Blake, Charles Sturt University, Australia

Presentations

1. Children's speech development: A transformative paradigm shift – **Sharynne McLeod**, **Helen L. Blake**, Australia

2. Bulgarian children's speech development – **Diana Ignatova, Stefka H. Marinova-Todd**, Bulgaria

3. Dutch children's speech development – **Anniek van Doornik**, The Netherlands

4. Australian English children's speech development - **Helen L. Blake**, Australia

5. Fiji English children's speech development - **Suzanne C. Hopf**, Fiji

6. Kurdish children's speech development – **Talieh Zarifian**, Iran

7. Persian/Farsi children's speech development - **Talieh Zarifian**, Iran

8. Peruvian Spanish children's speech development - **Chelsea Sommer, Tanya Flores**, USA

9. Polish children's speech development - **Paulina Zydorowicz, Ewa Czaplewska,** Poland

10. Tamil children's speech development - **Lakshmi Venkatesh**, India

11. Welsh children's speech development - **Rhonwen Lewis**; Wales

12. English and French children's speech development - **Daniel Bérubé**, Canada

13. English and Greek children's speech development – **Elena Babatsouli**, USA

14. English and Vietnamese children's speech development - **Kate Margetson**, Australia

Disclosure: The authors in this presentation are authors of chapters in The Oxford Handbook of Speech Development in Languages of the World, edited by Sharynne McLeod, to be published by Oxford University Press in 2025.

Thursday 26 June (13:30 - 15:15) - Session 5 - Room I-10

Visual complexity matters: Eye-movement patterns of children with reading difficulties when differentiating similar Chinese characters

Xiu Yan HUANG, Chuen Yan YIP, Carol K.S. To

Academic Unit of Human Communication, Learning, and Development, Faculty of Education, Hong Kong, Hong Kong

Abstract

Chinese characters have complex internal structures requiring adequate visual processing skills for recognition. Deficits in visual attention have been observed among Chinese children with reading difficulties (RD), contributing to challenges in character recognition. This study aims to compare the eye movements of Chinese children with and without RD when processing visually similar Chinese characters, examining the effect of visual complexity on their performance. Sixteen children with RD and 14 typically developing (TD) peers (aged 9 -12 years, in primary 4-6) in Hong Kong completed a timed orthographic similarity judgment task featuring simple and complex character stimuli. Accuracy, reaction time, and eye-movement patterns (number of fixations, total fixation duration, number of saccades, and average saccade amplitude) were analyzed and compared. Results showed similar accuracy across groups but significant differences in reaction time and eye movement patterns. Significant interaction effects were observed across several variables with character complexity identified as a key determinant of task difficulty. Although all children are affected by character complexity, those with RD exhibited a more pronounced impact across multiple dimensions. Notably, differences in saccade amplitude were evident even for simple characters, indicating that the visual processing challenges in RD children extend beyond character complexity. The atypical eye-movement patterns observed in children with RD underscore the heightened visual-cognitive demands of reading Chinese. Eye-tracking measures show promise as sensitive indicators of reading difficulties and may hold potential for use in assessment.

Neuroimaging as a feasible tool for studying late talking in toddlers

Ruochen Ning, Nicole Bazzocchi, Karla Washington

University of Toronto, Toronto, Canada

Abstract

Background: Late talking (LT), affects approximately 18% of toddlers. While many LT toddlers catch up to their typically developing (TD) peers by school-age, some develop developmental language disorder (DLD). Current educational and clinical assessments focus primarily on behavioral performances, leaving a critical gap in understanding the neural basis of LT. Neuroimaging

techniques, though challenging due to motion artifacts when applied to toddlers, can offer potential insights into neural mechanisms underlying LT, which is crucial in informing more targeted interventions and identifying early markers for DLD. This research explored the feasibility of using neuroimaging tools with toddlers through an on-going clinical trial (3R01DC19337-04S1).

Methods: Nine LT toddlers aged 18-30 months and two TD peers participated. Toddlers completed pre, post, and follow-up language assessments (parent interviews and language samples) and neuroimaging sessions. Toddlers and their parents received appropriate instructions for a sleep scan in accordance with an established protocol. For toddlers who were unable to sleep, an awake scan was conducted, and children had the option to watch a video. Neuroimaging sessions included the acquisition of high-resolution T1-weighted brain images and diffusion imaging scans. Reasons for failure were monitored.

Results: All participants (100%) completed behavioral assessments successfully. Success rates for the three neuroimaging sessions were 55%, 67%, and 100%, respectively. Failures were mainly due to excessive motion. Despite challenges posed by motion, the study demonstrated: 1) feasibility when applying neuroimaging tools to investigate neural mechanisms of LT in toddlers and 2) that the memory-language relationship was differentially implicated in LT (e.g., less connectivity) relative to typical development.

Conclusion: This study underscores the feasibility of employing neuroimaging tools with LT toddlers. The acceptable success rates offer promising evidence in favor of including LT toddlers in the neuroimaging environment, a critical step toward understanding the neural basis of LT.

Adaptation of a receptive vocabulary test for Norwegian

Ingeborg Sophie Ribu[1], Christiane Lingås Haukedal[2], Iqra Batool Akhtar[1], Christopher Viken[1]

[1]Oslo Metropolitan University, Oslo, Norway. [2]University of Oslo, Oslo, Norway

Abstract

Background: In general, there is a lack of norm-based and validated language assessment tools for the majority of the world's languages, in particular tests that cover a wide range of ages and clinical populations. In Norwegian, there are no adapted language tests available that cover the whole lifespan.

Here we outline the adaptation of the *Peabody picture vocabulary test* (PPVT) (Dunn, 2019) to Norwegian. Previous versions of PPVT in Scandinavian languages have had an early ceiling effect, and are not commonly used in clinical practice.

Methods: We created a pilot version of the PPVT, consisting of 269 items. Norms for frequency and objective age of acquisition norms from the Norwegian McArthur-Bates Communicative Development Index served as a basis for the adaptation. Familiarity ratings were obtained from 79 native speakers. The test was piloted on 20 young adults (7 males, age 17-25 years, mean age 21,6).

Results: The familiarity ratings indicate that all items are known to some raters, however no raters were familiar with all words. The mean score on PPVT was 235,7 out of 269 (sd. 6,7, range 224-246). There was a positive correlation between accuracy on PPVT and the frequency and familiarity of the items.

Conclusions: Collection of normative data is ongoing. Results from the pilot indicates that there is no ceiling effect of this version. The linguistic adaptation that was carried out, rather than mere translation, will increase the validity of the test results and final version of the Norwegian adaptation of the test.

References

Dunn, D. M. (2019). *Peabody Picture Vocabulary Test—5th Edition*. Pearson Clinical and Talent Assessment.

Bilingualism and Parkinson's disease: insights into processing models from an oral description task

Maite Zaragoza-Cortés[1], Irene Mitjavila Casals[1], Isabel Gomez-Ruiz[2], Faustino Diéguez-Vide[1]

[1]Universitat de Barcelona, Barcelona, Spain. [2]Department of Neurology, Hospital General de L'Hospitalet (Consorci Sanitari Integral), L'Hospitalet de Llobregat, Spain

Abstract

Background: In the field of research on Parkinson's disease and bilingualism, the heterogeneity of results regarding the affectation of the different linguistic levels (phonology, morphology, syntax, lexicon and semantics) and of each language (first or second) stands out. This study aims to compare the performance at all linguistic levels and in both languages of bilingual patients with Parkinson's disease in an oral production task. In a more theoretical level, our results also contribute evidence to the bilingual processing models, mainly the declarative-procedural model (Ullman, 2001; Paradis, 1994) and the shared network model (Perani & Abutalebi, 2005).

Method: Participants were Spanish-Catalan bilinguals with Parkinson's disease, with equal representation of early and late bilinguals. They completed the oral description task from the Bilingual Aphasia Test (Paradis, 1987) in both languages, which consists of a 6-image story-narration. The analysis includes the transcription and labelling of the recordings, arranging the items by speech complexity, language contact phenomena and errors in phonology, morphology, syntax and lexicosemantics.

Results: Performance is compared by linguistic level, grouping the sample according to bilingualism type (early vs. late) and language (L1 vs. L2).

Conclusions: The results provide insights into bilingual language processing models, as this research contributes to a deeper theoretical understanding of language processing in bilinguals with

Parkinson's disease. Additionally, this contribution opens doors to revisit speech therapy tactics and also enrich the understanding of bilingual processing in healthy individuals.

References

Paradis, M. (1994). Neurolinguistic aspects of implicit and explicit memory: implications for bilingualism. En NC Ellis (Ed.), *Implicit and explicit learning of Second Languages* (pp. 393–419). Academic Press.

Perani, D. & Abutalebi, J. (2005). The neural basis of first and second language processing. *Current Opinion in Neurobiology*, *15*(2), 202-206.

Ullman, M. (2001). A neurocognitive perspective on language: The declarative/procedural model. *Nature Reviews Neuroscience,* 2(10), 717–726.

The computerized Token Test as an assessment tool for sentence comprehension deficits in PWA.

Michaela Nerantzini[1], Eirini Koukourava[2], Ioannis Papakyritsis[3], Spyridoula Varlokosta[4], Arhonto Terzi[3]

[1]University of Ioannina, Ioannina, Greece. [2]Rehabilitation and Recovery Center ANIMUS, Larissa, Greece. [3]University of Patras, Patras, Greece. [4]National and Kapodistrian University of Athens, Athens, Greece

Abstract

The Token Test (De Renzi & Vignolo, 1962) assesses auditory language comprehension and, because of its sensitivity, it has been used to determine aphasia severity. Recently, a multilingual digital version of the shortened version of Token task, the *Token Test App,* was developed (Bastiaanse et al., 2016; for Greek: Nerantzini et al., 2020). The task also involves cognitive processes, such as verbal working memory (WM) and inhibitory control, as sentences with increasing levels of structural complexity and WM load are included. The purpose of this study is to investigate how WM interfere with participants' performance in separate subsections of the task, when WM demands are manipulated.

25 Greek-speaking individuals with aphasia (mean age: 49.4; mean years of education: 10) with an average of 6 months post onset and 45 healthy non-brain-damaged participants (mean age: 54.3; mean years of education: 10.2) took part in the study.

Our results suggest that the *Token Test app* is a suitable measure of language processing, as it can accurately discriminate between participants with aphasia of varying severity levels and healthy adults. Additionally, significant correlations were attested with the auditory comprehension scores of other behavioral measures (i.e., BDAE diagnostic score, NAVS), suggesting that language comprehension is highly dependent on syntactic processing skills. Additional correlations were found between neuropsychological measures assessing cognitive abilities (e.g., MMSE, Folstein et al., 1975; Digit Span Task-WAIS-III; Wechsler, 1997) and subtests with syntactically more complex structures,

denoting the influence of WM on verbal comprehension when cognitive capacities are taxed by task demands. Finally, a high test-retest reliability was obtained across participants, indicating validity and stability of performance (2 weeks in between sessions). Overall, these data support the idea that cognitive abilities directly affect auditory comprehension in people with aphasia. Implications for treatment are also discussed.

Thursday 26 June (13:30 - 15:15) - Session 5 - Room I-11

Phonological awareness and motor rhythm skills in adolescents with intellectual developmental disorders

Claire Boilley[1], Laure-Hélène Canette[2], Anne Vilain[1], Hélène Loevenbruck[1]

[1]Université Grenoble Alpes, Grenoble, France. [2]Université Lyon 1, Lyon, France

Abstract

Background: Phonological awareness (PA) is essential for literacy development and is often impaired in individuals with Intellectual Developmental Disorders (IDD). Understanding factors that support PA development is therefore crucial. This study investigates the potential association between PA and music rhythm abilities, a link observed in typically developing children and those with dyslexia.

Methods: Twenty-four adolescents with IDD from two special education schools (S1 and S2) addressing different levels of disability were recruited. They were tested on a set of tasks : PA, rhythm as well as general cognitive skills. We measured both global PA scores and scores for tasks tapping into supraphonemic (SUP) vs phonemic (PHON) representations. Rhythm tasks involved sensorimotor synchronization (tapping to the beat) at 100bpm and 150bpm continuation at the same tempi. We measured stability and asynchrony of the tapping in the synchronization task, and consistency in the continuation task.

Results: Non-verbal reasoning skills were higher in S1 than in S2. PA was impaired compared to typical development norms, and S1 outperformed S2 overall. When selecting only participants who could synchronize to the beat, S1 and S2 showed similar values of stability and asynchrony in the synchronization task, but S1 displayed higher consistency in the continuation task. Significant correlations between PA and rhythm skills were found, but those differed between groups and across phonological grain sizes (SUP vs PHON).

Conclusion: There may be different patterns of relationships between PA and rhythm skills in individuals with IDD, which appear to vary according to individual traits and PA task characteristics.

Exploring Multimodal Parental Responsiveness within Family-Centered Early Intervention: Perspectives from India

Monica Kaniamattam[1], Judith Oxley[2], Namrata Pai[3]

[1]Moravian University, Bethlehem, USA. [2]University of Louisiana at Lafayette, Baton Rouge, USA.
[3]Magpie Speech Therapy, Bangalore, India

Abstract

Parental responsiveness plays a crucial role in children's communication development, encompassing nurturing, affection, involvement, and support during child-rearing. Research shows that these behaviors vary across cultures due to factors like ethnicity, socioeconomic status, and maternal education. However, there is limited research on culturally appropriate parental responsiveness, especially in collectivist cultures such as India, particularly when considering childhood developmental disabilities.

The current study employs multimodal discourse analysis to examine verbal and nonverbal parental responsive behaviors of Indian parents of children with developmental disabilities to generate knowledge for implementing culturally sensitive family-centered early intervention practices. The multimodal discourse analysis framework was chosen because it emphasizes multimodal action and interaction rather than the combination of language supplemented by other modalities. Two parents and their treating speech-language pathologists participated in video-reflexive ethnography sessions. This study is part of a larger video-reflexive ethnography aimed at understanding Indian parents' social-cultural construct of their role in early intervention and how the quality of parent-child interaction evolves through participation in family-centered early communication intervention.

The analysis uncovered cross-cultural differences in parent interaction conventions, emphasizing the significance of nonverbal cues alongside verbal communication. Parents utilized multiple sensory modalities to connect with their children during everyday activities. Nonverbal forms of maternal responsiveness, such as smiling, hand positions, and movements during playful interactions, was identified as equally significant as verbal forms by both SLPs and parents.

Overall, this study sheds light on the complex relationship between culture and parental responsiveness, in early communication intervention for children with developmental disabilities. Additionally, we will discuss how video-reflexive ethnography and multimodal discourse analysis, can provide new perspectives on family-centered early communication intervention practices in India and similar contexts. Practitioners working with immigrant parents can use the current findings to better understand and foster developmentally supportive parenting behaviors.

Are parental checklists useful for the assessment of language ability of young children with Down syndrome?

Vesna Stojanovik

University of Reading, Reading, United Kingdom

Abstract

Background: Research on child language has widely reported use of parental checklists, especially the MacArthur Bates Communicative Inventory (MCDI) (and various versions of it) as a robust, reliable and valid assessment of children's comprehension and production up to age 3. There is evidence for the MCDI that it has a reasonable predictive and concurrent validity (Feldmann et al., 2000; Feldman et al., 2005); its concurrent validity has also established for children with Down syndrome (Miller et al., 1995). An issue arises when parent-delivered interventions use the MCDI as a primary outcome measure, as concerns emerge of potential assessment bias (parents implement intervention and assess their child language). The aim of the present study is to investigate the associations between a parent-reported measure and direct measure of language for a group of young children with Down syndrome as a way to confirm concurrent validity.

Method: Data from 35 children with Down syndrome were collected. The children were between 14 and 32 months of age. They were administered the Reading Communicative Development Checklist (RCDI) (Hamilton et al., 2000) which is based on the MCDI, and a direct measure of language, the Pre-School Language Scale (PLS-4). 16 of the children were part of an intervention which was delivered jointly by parents and researchers.

Results: There was a significant correlation between the total vocabulary score (including use of sign) on the RCDI and the total score on the PLS-4, rho=.728 for the group of children who had not had an intervention. For the group (n=16) who had intervention codelivered by their parents, there also a significant positive correlation between the RCDI and the PLS-4, rho=.684

Conclusion: Parental checklists such as the MCDI are robust and are valid as assessment tools for young children with langauge delays.

Preliminary Findings into Speech Inconsistency in Cypriot-Greek Bi-dialectal Children: A Comparison Between Typical Development and Inconsistent Speech Disorder

Theodora Papastefanou, Kakia Petinou

Cyprus University of Technology, Limassol, Cyprus

Abstract

Background: Inconsistent Speech Disorder (ISD) is a subtype of Speech Sound Disorder (SSD) marked by variable production of the same phoneme or word, reducing intelligibility (Dodd et al., 2004). This variability differentiates ISD from other SSDs, emphasizing the need for context-specific diagnostic tools (Crosbie et al., 2005). Identifying speech inconsistency is crucial for diagnosis and therapy, as it contrasts significantly with developmental or articulatory speech difficulties (Holm et al., 2007). However, limited normative data, especially for specific age groups and linguistic contexts, complicates accurate diagnosis and intervention.

Aims: This study examines speech inconsistency in Cypriot-Greek bi-dialectal children, comparing those with ISD to typically developing (TD) peers. Moreover, it aims to provide preliminary data on speech inconsistency in this linguistic context.

Methods: Thirteen Cypriot-Greek bi-dialectal children aged 5–8 years participated, including seven TD children and six with ISD. Speech inconsistency was assessed using a 20-word list repeated across multiple trials. Inconsistency scores were calculated as the percentage of words with variable productions within the session.

Results: Significant differences were observed between groups. TD children showed minimal inconsistency (mean = 7.2%), while ISD children exhibited higher variability (mean = 69.3%). Individual variability was noted, with some ISD children showing reduced inconsistency during trials, suggesting potential within-session improvements.

Discussion/Conclusion: This study highlights substantial differences in speech inconsistency between ISD and TD Cypriot-Greek bi-dialectal children, demonstrating the importance of localized research in underrepresented linguistic varieties such as Cypriot-Greek. These findings provide evidence for future studies to refine assessment and intervention strategies for ISD in bi-dialectal populations, where linguistic variability may interact with speech disorder features.

Variation in language development of children with Developmental Language Disorder during early intervention

Bernadette Vermeij[1], Karin Wiefferink[1], Ron Scholte[2], Harry Knoors[2]

[1]NSDSK, Amsterdam, Netherlands. [2]Behavioural Science Institute, Radboud University, Nijmegen, Netherlands

Abstract

Background:

In the Netherlands, early intervention is offered to children with presumed Developmental Language Disorder (DLD). The intervention combines groupwise language intervention, individual speech and language therapy and parent-implemented language intervention. Because children with DLD are a heterogenous group, we may also expect a heterogeneous development during intervention. We therefore studied the language development of children with presumed DLD during early intervention and studied differences in age groups (< 36 months and ≥ 36 months at intervention start).

Method

This study included 183 children with presumed DLD (45 children < 3 years of age at intervention start; mean age 32 months, 138 children ≥ 3 years; mean age 40 months). Receptive syntax expressive syntax, receptive vocabulary and expressive vocabulary were assessed with norm-referenced tests at intervention start and ending using Routine Outcome Monitoring. A repeated measures MANOVA was carried out to examine language progress and to compare the age groups on receptive syntax, receptive vocabulary, expressive syntax and expressive vocabulary. The Reliable Change Index was used to study individual progress.

Results

On average, children in both age groups showed significant improvement in all four language domains. The younger children showed more language progress than the older children in all four domains. When examining individual progress, most of the children displayed reliable improvement for expressive vocabulary. Most children developed in the same pace as their typically developing peers for receptive syntax, receptive vocabulary, and expressive syntax.

Conclusions

Children stabilized or even improved language proficiency during the intervention, indicating that the language gap between these children and typically developing children did not widen further. Younger children displayed more language progress than older children in all four domains, but it is unclear what might explain this difference. When analyzing results, the RCI turned out to be a valuable addition to group results.

Thursday 26 June (16:30 - 18:15) - Session 6 - Room I-10

Reducing Task Demands in Speech Perception Assessment for Children: Addressing a Clinical Challenge

Kathryn Cabbage[1], Michelle Swartz[2], Thomas Carrell[3], Elaine Hitchcock[4]

[1]Washington State University, Spokane, WA, USA. [2]Stockton University, Galloway, NJ, USA. [3]University of Nebraska-Lincoln, Lincoln, NE, USA. [4]Montclair State University, Bloomfield, NJ, USA

Abstract

The connection between speech perception and production has been of interest to researchers and clinicians alike for decades. While children with speech sound disorder (SSD) often exhibit speech perception difficulties, this is not always the case (Cabbage & Hitchcock, 2022; Hearnshaw et al., 2019; Lof & Synan, 1997). Inconsistent findings may stem from methodological challenges associated with assessing speech perception in children. Locke (1980) highlighted the need to prevent non-perceptual factors (e.g., fatigue, inattention) from being misinterpreted as perceptual deficits. Thus, reliable and efficient tools are needed to assess speech perception accurately.

The Wide Range Acoustic Accuracy Scale (WRAAS) uses an adaptive method to individualize stimulus presentation which significantly reduces the number of trials required to determine a specified discrimination threshold (Carrell et al., 1999; Hitchcock et al., 2022). WRAAS uses probability estimation to ensure that the bulk of stimulus trials are centered near the individual's perceptual threshold, minimizing "wasted" trials on stimuli well above or below the threshold. This study examines the correlation between children's speech perception and WRAAS task demands, as measured by Trials to Completion and Total Task Duration.

METHOD

We administered 3 syllable discrimination tasks via WRAAS to 169 children (ages 4;5 – 17;5) with varying speech/language/reading skills, including 108 children with SSD.

RESULTS

Data analysis is ongoing, however preliminary results show no significant correlation between perception skill and Trials to Completion or Total Duration. These results suggest that WRAAS mitigates fatigue effects for children when assessing speech perception.

DISCUSSION

This study investigates the clinical utility of WRAAS as an efficient, adaptive tool for assessing speech perception in children with and without SSD. Its reliability makes it suitable for larger-scale implementation studies. Ultimately, WRAAS could support data-driven clinical decisions in settings like schools, enhancing the diagnosis and treatment of perceptual skills in children with SSD.

ICPLA 2025 - Abstracts

Exploring Accuracy and Variability of VOT Perception in Children with Speech Sound Disorders using Natural Speech

Elaine Hitchcock[1], Laura Koenig[2]

[1]Montclair State University, Upper Montclair, USA. [2]Adelphi University, Garden City, USA

Abstract

Research on speech perception in children with speech sound disorders (SSD) suggests that while these children may show minimal perceptual assessment differences from typically developing (TD) peers, they are more likely to judge inaccurate productions as acceptable. Much of this research relies on synthetic stimuli manipulating a single acoustic cue, limiting its applicability to natural speech. Additionally, perceptual judgments may be influenced by the distributional properties of the dataset. This study examined the perception of voicing in adults and children with SSD and TD using naturally produced toddler speech stimuli Participants included 20 adults with typical speech, 15 children with TD, and 14 children with SSD, all monolingual English speakers who met strict inclusion criteria. Voicing errors were exclusionary for all listeners. Stimuli were bimodally distributed such that /b d/ tokens always had lower VOTs than /p t/ distributions. Accuracy for appropriate voice onset times (VOTs) was highest in adults (94–99%), followed by typically developing (TD) children (88–98%), and children with speech sound disorders (SSD) (83–97%). Accuracy was slightly lower for short VOTs compared to long VOTs across all groups. Thus, adults slightly outperformed children, and children with TD performed marginally better than those with SSD. Response variability (measured by standard deviation of group responses) was highest in children with SSD, followed by TD children, and lowest in adults. For inappropriate VOTs, response variability was similar across all groups, and accuracy was higher than expected. Interestingly, as a group, children with SSD had slightly shorter response times than those with TD. Along with secondary cues, the bimodal stimulus distribution may have contributed to relatively high accuracy for inappropriate VOTs. Overall, the work highlights the need for further investigation into speech perception for children with SSD.

Perception of gender in speech to boys vs girls

Tori Keeping[1], Fangfang Li[1], Tyler Bonnell[2]

[1]University of Lethbridge, Lethbridge, Canada. [2]University of Calgary, Calgary, Canada

Abstract

Gendered patterns in speech production exist in young children (Fox & Nissen, 2006; Li et al., 2016), but there are many reasons to consider when evaluating why these patterns might emerge. Using a social learning perspective, children imitate the behaviours of adults, including speech production, through observational learning (Bandura, 1969). One possible explanation as to how children learn gendered behaviours is that adults speak differently to boys than they do to girls. To evidence this, we investigated whether naive adult individuals can hear differences in the ways adults speak to boys

versus girls using a perception study. Perception research indicates that adults can identify, at a rate above chance, the gender of children in audio recordings (Fung et al., 2021; Perry et al., 2001). However, it remains unknown whether adults can use gendered patterns in speech to identify the gender of an unseen conversational partner. In the present perception study, participants (*N*=57) listened to audio clips of university students speaking to images of babies and had to guess whether the individual in the audio clip was talking to a boy or a girl. Results indicated overall chance accuracy, however, some individuals were able to guess correctly at a rate above chance. Although this may suggest that there are no gender differences in the speech in our stimuli, or that these differences are not distinctive enough to hear in our stimuli, we hypothesized that if gender differences exist in child-directed speech, these should be more pronounced in mothers' speech to their own children of different genders. The investigation of this hypothesis is currently in progress.

Building a typical and disordered speech dataset for teaching and assessing phonetic transcription in Speech and Language Therapy students in Ireland

Alice Lee[1], Nicola Bessell[1], Maeve Sharkey[1], Jill Titterington[2], Fiona Cooke[1], Claire Mansfield[3], Emma Screene[1]

[1]University College Cork, Cork, Ireland. [2]The Speech Doctor, Belfast, United Kingdom. [3]Cork University Hospital, Cork, Ireland

Abstract

Background

Competence in phonetic transcription is required for Speech and Language Therapists (SLT) and SLT students, but the teaching and assessment of the skill varies between academic programmes. Additionally, speech materials of Irish English speakers for such purposes are scarce. One way to address these issues is to develop a large-scale shared online resource for direct teaching, self-learning (e.g. via virtual learning environment (VLE)), and assessment. Informed by the experience of SLT students and Practice Educators (PE) in learning phonetic transcription and applying it to clinical placement, this project makes a start by creating a speech dataset of 15 Irish English-speaking children and adults.

Method

Speech samples (single words, sentences, and spontaneous speech) of 5 children with speech sound disorders, 5 children with typical speech development, and 5 healthy adults with no speech difficulties are to be audio-recorded. Three research team members (NB, MS, JT) will phonetically transcribe the single words to produce answer keys for teaching and assessment. Online surveys were used to gather the current Year 2-4 students' opinions regarding barriers and facilitators to the learning of phonetic transcription, and suggestions on learning tools, as well as the PEs' views about expected speech assessment skills level (particularly phonetic transcription) in clinical placement through the 4 years of SLT study. The new digital learning tool will be shared on the VLE with students and PEs who will have the opportunity to assess its acceptability and face validity.

Results

The project is underway. Results will be available and reported at the conference.

Conclusions

As relevant consent for using the resource by the Irish SLT programmes and data sharing through CLARIN will be sought, we envisage that the resource will contribute to sustainability of SLT student training in Ireland. Plans for further development will be discussed.

Efficacy of an online self-pace Cantonese phonetic transcription training module for speech therapy students

Min Ney Wong[1], Eddy C. H. Wong[2], Bruce X. Wang[1], Oscar T. K. Cheng[1], Janet H. Y. Ng[1], Cymie W. Y. Ng[1]

[1]The Hong Kong Polytechnic University, Kowloon, Hong Kong. [2]The University of Hong Kong, Pokfulam, Hong Kong

Abstract

Background:

Clinical phonetic transcription is a crucial skill for speech therapists (STs) in both clinical practice and research. In addition to phonetic transcriptions in English, ST students in Hong Kong are also expected to perform phonetic transcriptions in Cantonese to cater for local clinical needs. However, there are limited resources for Cantonese transcription training. This study aimed to develop an online self-paced training module for Cantonese phonetic transcription and investigate its efficacy in improving ST students' transcription skills.

Methods:

An online self-paced phonetic transcription module was created using Blackboard Learn. Participants (N = 59), including 29 less experienced year 1 and 30 more experienced year 2 masters ST students, viewed five lecture videos and completed five exercises at introductory, intermediate, and advanced levels. Pre- and post-training tests were also administered.

Results:

A two-way repeated-measure analyses of variance was performed to evaluate the effects of group (experience level) and time (pre- vs post-training) on the test scores. Results showed a significant main effect for time but not for group nor the interaction between group and time. Post-hoc pairwise comparisons with Bonferroni adjustment revealed significant differences between pre- vs post-training scores in both groups, indicating a substantial improvement in the participants' phonetic transcription performance after training, regardless of experience level.

Conclusion:

The online self-paced Cantonese phonetic transcription training module effectively improved ST students' transcription skills, regardless of their prior experience level. This study highlights the potential of online self-paced learning resources in enhancing specialized clinical skills for ST students. The developed module addresses the need for Cantonese-specific transcription training materials and can serve as a valuable resource for ST education programs in Hong Kong and other Cantonese-speaking regions. Further research is recommended to explore the long-term retention of the acquired skills and the module's effectiveness in a larger sample of ST students.

Thursday 26 June (16:30 - 18:15) - Session 6 - Room I-11

Applying linguistic research to child development: identifying which aspects of children's morphological skills predict vocabulary development in early elementary school.

S. Helene Deacon, Sofia Giazitzidou

Dalhousie University, Halifax, Canada

Abstract

Here we present on highly applied research, in which we examine the role of children's skills with morphemes in explaining the pace of their vocabulary acquisition. The pace of children's vocabulary acquisition in the elementary school years is nothing short of remarkable. It has long been argued within psycholinguistics, that, as the fundamental building blocks of words, morphemes, or more specifically, children's skill with morphemes, is responsible, at least in part, for their gains in vocabulary. Here we leverage new theoretical conceptualizations and measurement advances to test competing predictions as to which aspect of morphological skills is most relevant to gains in vocabulary: morphological awareness or morphological analysis. Within the field of psycholinguistics, the first refers to the awareness of and ability to manipulate morphemes and the second to the use of morphemes to understand words. We contrast these two predictors in a longitudinal study of 336 English-speaking children, followed from Grade 1 to 4. At Grade 1, children completed measures of morphological awareness and morphological analysis, along with control measures of reading comprehension, word identification, word reading efficiency, phonological awareness, nonverbal ability, working memory, and age. Vocabulary was assessed at both Grades 1 and 4. Data were analysed with structural equation modeling. Modeling including all controls revealed that only morphological analysis uniquely predicts gains in the development of vocabulary from Grade 1 to 4. These findings specify the aspect of morphological skills most relevant for vocabulary growth, and show the value of applying psycholinguistic approaches to understanding key aspects of child development.

The Greek Lexical and Grammatical Aphasia Assessment Test (LexiGrAph): Validation of a comprehensive aphasia language battery in Greek.

Spyridoula Varlokosta[1], Evangelia - Antonia Efstratiadou[2], Michaela Nerantzini[3], Ilias Papathanasiou[4]

[1]National and Kapodistrian University of Athens, Athens, Greece. [2]University of Peloponnese, Kalamata, Greece. [3]University of Ioannina, Ioannina, Greece. [4]University of Patras, Patras, Greece

Abstract

Although numerous screening tools are available in English[1-4], there is a critical shortage of cross-linguistic clinical research tailored to the linguistic features of specific languages. This gap is particularly evident in Greek, where the lack of standardized language assessment tools for aphasia hinders effective rehabilitation and evidence-based practices. The current study addresses this need by presenting the development and validation of the Greek Lexical and Grammatical Aphasia Assessment Test (LexiGrAph), a comprehensive tool designed to evaluate aphasic deficits while accounting for the linguistic properties of the Greek language.

LexiGrAph assesses lexical and sentence-level deficits across modalities (comprehension and production), incorporating novel materials and well-established psycholinguistic principles. It comprises four subtests: (1) Verb/Noun Naming (VNN), (2) Verb/Noun Comprehension (VNC), (3) Primed Production of canonical (SVO) and non-canonical (OVS) constructions (PP), and (4) Sentence Comprehension Task (SCT). SCT evaluates a broad range of sentence structures, including canonical (e.g., active sentences, subject-extracted wh-questions and relative clauses) and non-canonical constructions (e.g., topicalized OVS, object-extracted wh-questions and relative clauses), along with constructions involving pronominal clitics and non-active verbal morphology. LexiGrAph was administered to 40 aphasia patients (mean age: 67.33years) with varying types and severity and to 140 healthy individuals (mean age: 42.05 years).

Findings demonstrate that LexiGrAph is an effective diagnostic tool for detecting and characterizing aphasia in Greek-speaking individuals. It provides an in-depth evaluation of lexical and grammatical deficits and is sensitive to structures that commonly deteriorate in aphasia. Strong positive correlations between LexiGrAph subtests and corresponding measures from other screening tools (e.g., BDAE) underscore its high predictive validity. LexiGrAph offers clinicians a valuable resource for comprehensive assessment and supports evidence-based rehabilitation in Greek-speaking populations.

Innovation and challenges of spoken and aphasic speech data: Introducing the CACLA corpora

Ilias Papathanasiou[1,2], Athanasios Karasimos[3], Eva Efstratiadou[4], Gerasimos Fergadiotis[5]

[1]University of Patras, Patras, Greece. [2]National and Kapodistrian University of Athens, Athens, Greece. [3]Aristotle University of Thessaloniki, Thessaloniki, Greece. [4]University of the Peloponnese, Kalamata, Greece. [5]Portland State University, Portland, USA

Abstract

Computational linguistics models provide a bridge between linguistic theories and data. Specific theoretical assumptions and research hypotheses can be tested by implementing them in a computational application and observing whether it can reproduce the observed data. These approaches also can be used to generate predictions about clinical data in order to improve, modify and adjust theoretical, applied, and clinical approaches (Quique, Evans & Dickey, 2019; Routsis & Economou, 2015). Previous evidence has shown that word frequencies calculated from corpora based on film and television subtitles can readily account for speaking and reading performance, since the language used in subtitles greatly approximates everyday language. SUBTLEX-GR (Dimitropoulou et al. 2010), a subtitled-based corpus consisting of more than 23 million Modern Greek words, was based on translated Greek files of English movies and TV series.

We are going to present the design and principles of CACLA corpora that contain the following subcorpora: (a) GRTVScriptsCorpus, a subtitled-based corpus of more than 1100 Greek TV series scripts and dialogue transcripts, (b) GRNewsTextsCorpus, that contains 100-files corresponding to TV news, (c) ENGTVGreekSubtitlesCorpus, a subtitled-based corpus consisting of more than 2500 Greek Subtitles of English TV series and (d) AphasiaSpeechCorpus, a collection of confrontation naming (noun and verb production) and narrations of people with aphasia. We use several corpus tools, such as AntConc, Voyant Tools, TAll, Sketch Engine, and GPT-4o to build several queries and extract some complicated questions and relations between the spoken and aphasic data. In addition to the word form frequencies, we will present measures of contextual diversity, part-of-speech specific word frequencies, and word bigram frequencies, giving researchers of Modern Greek access to the full range of norms recently made available for other languages. Our purpose is build the first implementation of an intelligent machine algorithm for creating a computer adaptive anomia test in Greek.

The impact of mood disorders and mild cognitive impairment on language performance: insights from a community healthcare setting

Nomiki Karpathiou[1,2], Angeliki Tsapanou[3,2,4], Xanthi Arampatzi[2], Panagiota Zoi[2], Faidra Kalligerou[2], Paraskevi Sakka[2]

[1]Department of Speech & Language Therapy, University of Peloponnese, Kalamata, Greece. [2]Athens Alzheimer's Association, Athens, Greece. [3]Department of Speech & Language Therapy, University of Patras, Patras, Greece. [4]Columbia University, New York, USA

Abstract

Introduction

Language impairments are frequently observed in individuals with mood disorders and may be exacerbated by the presence of mild cognitive impairment (MCI). Given the high prevalence of mood disorders among individuals attending memory clinics, examining their impact on language performance provides valuable insights into the relationship between mood disturbances, cognitive decline, and communication abilities.

Aims

The study aimed to evaluate the impact of mood disorders and cognitive decline on language performance, focusing on verbal fluency and naming abilities. The moderating effects of education and mood severity were also explored.

Methods

In a community healthcare setting, a sample of 183 participants was divided into two groups: with and without a mood disorder diagnosis (n_1 = 92 and n_2 = 91, respectively), matched for age and education. Each group was further divided into neurotypical and MCI subgroups. Participants underwent a comprehensive cognitive evaluation, including verbal fluency and naming measures, as part of the Addenbrooke's Cognitive Examination-Revised. Statistical analyses included ANOVA and multivariate regression models to evaluate the interaction of mood disorders, cognitive decline, severity of depressive symptoms, and education on language performance.

Results

Significant differences in verbal fluency were observed across groups and subgroups. Individuals with MCI and mood disorders showed significantly reduced verbal fluency scores compared to neurotypical counterparts (p < .001). Severity of depression negatively correlated with verbal fluency (r = -0.19, p = .032), particularly in the MCI subgroup with mood disorders. Naming performance was less affected but was significantly influenced by education (p < .001) and gender (p = .023). No significant interactions were observed between mood disorders and cognitive decline for naming.

Conclusions

Education emerges as a critical factor in preserving naming abilities. Mood disorders exacerbate verbal fluency deficits, particularly in individuals with MCI, highlighting the critical need for targeted cognitive-linguistic interventions in this high-risk group.

Amusia hearing screening test results among learning-disabled and normal children

Sofia Manika, NIKOLAOS TRIMMIS, IOANNIS PAPAKYRITSIS

Department of Speech&Therapy,University of Patras, Patra, Greece

Abstract

Sofia Manika, Nikolaos Socrates Trimmis

Department of Speech and Language Therapy, School of Rehabilitation Sciences, University of Patras, Patras, Greece.

Background and Aim

Amusia, also known as tone deafness, is an auditory disorder for processing music exhibited by amusical subjects. In the present study, a comparison of hearing screening test was made among typical students and those with learning disabilities. It also examined whether variables such as gender, age, and music education affect the detection of amusia.

Method

The present screening test, framed in 7 trials, was administered to 140 individuals, 80 males and 60 females, aged 6 to 12 years old. Of these, 80 were typical students, and the remaining 60 had a diagnosis of learning disability. All the participants were native speakers of Greek, had normal hearing thresholds bilaterally, and had no history of traumatic brain injury. Failure on the test suggested administering the Montreal Battery of Evaluation of Amusia (MBEA) diagnostic test to confirm this disorder's existence with high validity. All participants were tested in a sound booth, and recorded stimuli were presented through supra-aural headphones at a comfortable hearing level.

Results

Analyses of the data revealed a significant difference between the two groups. 5% of typical students, as opposed to 41.6% of individuals with learning disabilities, failed the screening test. The variables of gender, age, and music education didn't affect performance on the screening test. This study's behavioral results align with the literature that suggests a high correlation between tonal deafness and learning disabilities. Continued effort in amusia research should shed more light on the question of whether or not music processing corresponds to a learning disability.

Keywords: amusia, screening test, learning disabilities

Friday 27 June (10:00 - 10:45) - Panel Session - Auditorium

Articulation and phonological considerations for working with bilingual English-Spanish and monolingual Spanish speakers

Chelsea Sommer[1], Angela Medina[1], Tanya Flores[2]

[1]Florida International University, Miami, USA. [2]University of Utah, Salt Lake City, USA

Abstract

Spanish is the fourth most common language in the world. However, there are many countries such as the United States, Australia, and others where there are more Spanish speakers than there are Spanish-speaking speech-language pathologists (SLPs). SLPs must assess children in the language(s) they speak. However, this can be challenging when the clinician is not familiar with the language. The purpose of this tutorial is to share differences between the English and Spanish phonological systems and discuss clinical implications through examples and case studies.

English and Spanish share many of the same consonants, however, there are several unshared sounds and unshared phonetic features. Although phonemes in English and Spanish appear to be phonemically identical (perceived as the same sounds), many are different at a phonetic level (produced with different acoustic features, such as aspiration and duration). This tutorial will compare English and Spanish phonemes. Specifically, the panelists will highlight differences in aspiration and voice onset time (VOT), approximants unique to Spanish, dialect(s), English-influenced Spanish, Spanish-influenced English, Spanish word structure, syllabification differences, and Spanish vowels.

Case studies will be shared with time for reflection and discussion. Clinical implications will be discussed regarding materials to assess Spanish speakers, unique clinical considerations when selecting goals, and the importance of caregiver report (and use of the Intelligibility in Context Scale: ICS for monolingual Spanish and bilingual English-Spanish speakers). This panel aims to provide knowledge to anyone wanting to learn more about the Spanish phonological system and working with Spanish speakers.

Panel session

Each panel presenter will speak for approximately 12-15 minutes in this 45-minute panel presentation.

Chelsea Sommer, PhD, CCC-SLP, is a bilingual English-Spanish speaking speech-language pathologist and an assistant professor at Florida International University. Her areas of expertise surround speech development in children with cleft palate, bilingualism, and global health.

Angela Medina, PhD, CCC-SLP, is interim associate dean of academic affairs and associate professor of communication sciences and disorders in the Nicole Wertheim College of Nursing and Health Sciences at Florida International University in Miami, Florida. Dr. Medina's research focuses on the

lived experiences of Hispanic/Latino and Spanish-English speaking bilingual adults who stutter. In this line of work, she infuses her background in linguistics with her expertise in stuttering and qualitative research methods.

Tanya Flores, PhD, is a sociophonetician and Associate Professor of Spanish Linguistics at the University of Utah. Her research focuses on sound changes motivated by social factors using qualitative and quantitative methods. The combination of methods examines socio-phonetic variation by factoring in motivators such as phonetic environment, and speaker and listener traits. Her current research projects focus on Spanish intonation acquisition by native speakers of Japanese, and dialectal variation in children with speech and hearing disorders.

Friday 27 June (9:00 - 10:45) - Session 7 - Room I-10

Exploring associations among different measures of Mean Length of Utterance in Cypriot-Greek–speaking children: a comparative analysis MLU in morphemes, words, syllables, and segments

Louiza Voniati[1], Spyros Armostis[2]

[1]European University Cyprus, Nicosia, Cyprus. [2]University of Cyprus, Nicosia, Cyprus

Abstract

Background

This study explores associations among different measures of Mean Length of Utterance (MLU) in children acquiring Cypriot Greek (CG). MLU is a critical metric in assessing language development, providing insights into a child's linguistic abilities and progress. Accurate measurement of MLU is essential for both research and clinical practice, as it helps in diagnosing language impairments and tracking developmental milestones. This research aims to determine the consistency across four MLU measures in CG, namely, MLU calculated in morphemes (MLU-m), words (MLU-w), syllables (MLU-syllables), and speech sounds (MLU-segments). Understanding the relationships among these different measures can enhance our ability to assess language development more accurately and flexibly.

Method

Language samples were collected from 22 CG-speaking children (11 boys; 11 girls) longitudinally at 36, 40, 44, and 48 months of age. The associations between the four abovementioned MLU measures were examined with Bonferroni-corrected pairwise correlations.

Results

The analysis revealed significant strong positive correlations for all pairs of MLU measures ($p < .0005$ in all cases):

- MLU-m and MLU-w: ($r = .955$)
- MLU-m and MLU-syllables: ($r = .955$)
- MLU-m and MLU-segments: ($r = .951$)
- MLU-w and MLU-syllables: ($r = .977$)
- MLU-w and MLU-segments: ($r = .972$)
- MLU-syllables and MLU-segments: ($r = .994$)

Conclusion

The findings indicate that MLU measured in morphemes, words, syllables, or segments are almost perfectly correlated in CG. This suggests that any of these measures can be reliably used to assess language development in CG-speaking children, as they essentially capture the associated linguistic abilities. This consistency across different MLU measures simplifies the assessment process and provides flexibility in choosing the most convenient metric for various research and clinical purposes. This study also contributes to the broader field of clinical phonetics and linguistics by offering valuable data on the linguistic characteristics of this population.

Children's speech development around the world in 170+ recordings

Helen L. Blake, Sharynne McLeod

Charles Sturt University, Bathurst, Australia

Abstract

Background: While there is increasing literature describing evidence-based research, assessments, and interventions that support children's speech development in languages of the world, resources in additional mediums, such as audio and video files can provide a unique contribution and enhance listener appreciation and understanding. This presentation describes how over 170 recordings were developed and collated in collaboration with international experts to assist professionals supporting children's speech development.

Method: Authors of chapters in The Oxford Handbook of Speech Development in Languages of the World (McLeod, in press) were asked to record video summaries of their chapter describing where the language was spoken, language components (vowels, consonants, tones), and assessments and interventions available to support children learning to speak that language. Children and adults who

spoke the language were invited to record audio samples. Children were under 12 years of age with typically developing speech (may contain typical developmental/non-adult productions). Audio samples were elicited by reading/retelling “The North Wind and the Sun” (Aesop) or saying the country they lived in, what they liked to do/play, and counting from 1 to 20.

Results: Seventy-eight videos describing 50 languages were recorded and made freely available on the Multilingual Children's Speech website; 28 languages were described in both English and the language. Audio samples were recorded by 51 adults and 48 children speaking their own language. Consistent templates in video summaries and audio samples allow common and unique elements of speech development to be identified and compared across languages.

Conclusion: The curated data within the 170+ audio and video files should prove useful to professionals including speech-language pathologists, teachers, and linguists as well as to anyone wanting to listen to children, adults, and professionals speaking these languages. The recordings also highlight the benefits of multilingualism and international collaborations in building diverse interdisciplinary knowledge.

Stimulability of Phones as an Indicator of Speech Sound Disorders in German-Speaking Children?

Wiebke Freese[1], Annette Fox-Boyer[1], Silke Fricke[2]

[1]University of Luebeck, Luebeck, Germany. [2]University of Sheffield, Sheffield, United Kingdom

Abstract

Late or inadequate intervention for children with speech sound disorders (SSD) can have long-term consequences such as a negative impact on educational outcomes and socio-emotional development. The identification of early indicators of SSD is therefore of importance for early identification and treatment. International research suggests stimulability of phones as a potential tool for the early identification of SSD. As data from German-speaking children is still limited, this project aims to investigate whether stimulability of phones can be used to identify SSD in young German-speaking children. A correlation between stimulability and other phonological skills is hypothesised.

75 monolingual German-speaking children aged 2;0 to 3;5 years, without suspected SSD or developmental difficulties (*n* = 25 per age group: 24-29 months, 30-35 months, 36-41 months), were assessed twice, using a phone stimulability task and a German inconsistency word test. The follow-up assessment was conducted three months after initial assessment.

Data collection is completed. To answer the research question, PCC-A and PVC-R will be analysed for both the stimulability and inconsistency tasks, as well as the inconsistency score and phonological pattern. Further, correlation analyses and a qualitative analysis of the data will be conducted. This

way, both the development of the children on a longitudinal basis and possible correlations between stimulability of phones and further speech skills will be investigated.

Stimulability is a simple and time-efficient task, making it suitable for use with young children. It can also be used by individuals without expertise in speech and language therapy - such as educators or paediatricians. This has the potential to facilitate early identification across professions and thus, contribute to early intervention for children with SSD.

Acoustic analysis of atypical suprasegmental characteristics across different connected speech activities: Data from Greek dysarthria

Eleni Nikou, Emilia Michou, Ioannis Papakyritsis

Department of Speech and Language Therapy, School of Health Rehabilitation Sciences, University of Patras, Greece., Rion, Patras, Greece

Abstract

Background

Acoustic quantification of connected speech poses significant challenges for researchers, especially when analysis involves degraded speech signal, as in the case of dysarthria[1,2]. Nevertheless, in clinical settings (semi)spontaneous speech data have high ecological validity and are often the basis for intervention planning. The goal of this study is to demonstrate the clinical utility of acoustic quantification of suprasegmental speech symptoms using a case study design.

Method

Connected speech data from two speakers with dysarthria (sentence & text reading and conversational speech) and two typical controls were acoustically analyzed in terms of the core speech symptoms of the patients. The female speakers' speech was characterized by slow articulation tempo and scanning speech[3], while the male patient presented with atypical temporal speech patterns due to issues with speech respiration. Acoustic analysis was largely based on temporal measures, including breath group duration,pause duration and position, voice onset time of stop consonants and measures of voiced vs.unvoiced speech duration (e.g. % locally unvoiced frames).

Results

Overall, acoustic measures could accurately reflect perceptual symptoms. The female speaker's slow speech movements were evident by her slow articulation transitions. Her extended intra-word pauses contributed to the perception of syllable by syllable manner of speaking. On the other hand, the short breath groups, the frequent and extended inter-word pauses and the extended periods of whispered phonation found in the speech of the male patient mirrored his difficulties with speech breathing management. Finally, comparisons of patient perfromance across tasks was also reavealing; the

female speakers' speech patterns were strikingly consistent, whereas the male patient was affected by linguistic complexity.

Conclusions

Findings justify the feasibility and clinical relevance of acoustic metrics of connected speech. For both patients, data from other,commonly used speech tasks (vowel prolongations, AMRs, SMRs single word productions) could not accurately mirror their primary speech symptoms.

Is Slowing 'Simple'? Variations in the Model Used to Train a Slowed Articulatory Rate of Speech to Naïve Adults

Virginia Shaw[1], Mackenzie Walburger[1], Claire Neufeld[1], Tyler Bonnell[2], Fangfang Li[1]

[1]University of Lethbridge, Lethbridge, Canada. [2]University of Calgary, Calgary, Canada

Abstract

Parents who seek to support their children's speech and language development often receive a general recommendation to "slow down your speech", to improve the effectiveness of their speech and language models. However, there is limited research on how well parents, as adults without experience in changing their speech, can produce a slower speech rate model given minimal training, and what rate of speech should be the target for "slower speech" models. To address this question, we hypothesized that *training a significantly slowed rate of speech (66% decrease in articulatory rate via modeling of differential vowel prolongation) would allow naïve adults to achieve slower articulatory rates than are typically reported for parents taught "slowed rate" models (i.e. > 25% reduction), and that this rate change could be achieved with minimal instruction*. Fifty-three young adults were assigned to one of four Groups, 3 for training slowed rate production (**CT** = Control Group; **SR_12** = Slowed Rate, 12-syll/sentence; **SR_6** = Slowed Rate, 6 syll/sentence; **SR_NM** = Slowed Rate, No auditory Model – written instruction only). Participants were trained to produce the target rate through 10 slides of rate instruction and practice via PowerPoint. Pre- and post-training audio recordings of single sentences in a picture-description task were compared using a Bayesian mixed-effects model to characterize changes in articulatory rate (in syllables/sec, pauses removed), with a focus on the Group x Condition interactions. **Significant reductions in articulatory rate from Baseline average were found for the SR_12 and SR_6 Groups,** achieving **~56% and ~52% reduction (95% CI), compared to a 2.05% rate increase for CT Group**, (~18% rate decrease for SR_NM). Findings support our hypothesis: "overshooting" to a 'slower than typical' auditory speech rate model can be effective for teaching naïve adults to slow down their speech, even with limited, non-interactional training.

Friday 27 June (9:00 - 10:45) - Session 7 - Room I-11

Multisyllabic productions in Persian-speaking children with typical versus protracted phonological development

Mersede Imani-Shakibayi[1,2], Talieh Zarifian[1,2]

[1]University of Social Welfare and Rehabilitation Sciences, Tehran, Iran, Islamic Republic of. [2]Pediatric Neurorehabilitation Research Center, Tehran, Iran, Islamic Republic of

Abstract

ObjectiveThe use of polysyllables, defined as words comprising three or more syllables, has been identified as a potentially valuable diagnostic and clinical tool. A notable proportion of words in Persian are polysyllabic. Therefore, the accuracy of their articulation may have considerable implications for the intelligibility of speech. Given the potential role of polysyllables in identifying risk for future literacy difficulties, the aim of this study was to investigate differences between typical and phonological disorder groups in terms of phonological indices and mismatch patterns of polysyllables.

MethodThe study was cross-sectional. Two groups of typically developing children (N=40) and children with phonological disorders (N=40), aged between 48 and 84 months participated in the study. The Persian Multisyllabic Words Test was employed to elicit the production of polysyllables.

Result The findings revealed that children with phonological disorder demonstrated significantly lower scores than their typically developing counterparts on all phonological measures, including percent consonant correct, proximity of whole word correct, and proportion of whole word proximity ($p < .001$). The primary error patterns were identified in the PD group were: fronting ($M = 19.32$, $SD = 9.14$), final consonant deletion ($M = 14.42$, $SD = 10.72$), voicing ($M = 10.65$, $SD = 9.92$), and backing ($M = 9.45$, $SD = 8.14$).

Conclusion The assessment of multisyllabic words is an invaluable tool for evaluating the accuracy of a child's speech, particularly in the context of selecting appropriate treatment goals. This lends support to the recommendations put forth by previous researchers that the inclusion of polysyllabic words in the assessment of children's speech is justified. This study, while reiterating and corroborating previous findings and evidence, also provided evidence from Persian, demonstrating that despite the differences in linguistic structure between languages regarding segmental and suprasegmental measures and error patterns, the observed articulatory accuracy and phonological processes were similar.

Examining the association between CAS and Executive Functions in the Greek language: Preliminary results

Christina Nikitopoulou[1], Ioannis Papakyritsis[2], Maria Vlassopoulos[1], Carole Morel[3]

[1]1st Department of Psychiatry, School of Medicine, Eginition Hospital, National and Kapodistrian University of Athens, Athens, Greece. [2]Department of Speech and Language Therapy, School of Health Rehabilitation Sciences, University of Patras, Patra, Greece. [3]Department of Neuroscience, Icahn School of Medice at Mount Sinai, New York, USA

Abstract

Purpose: Childhood apraxia of speech (CAS) is a neurological, pediatric speech sound disorder in which the precision and consistency of movements underlying speech are impaired without neuromuscular deficits (ASHA, 2007). The existing literature on CAS reports a high rate of co-occurring cognitive–linguistic weaknesses beyond motor speech core deficits. Specifically, children with CAS diagnosis may encounter difficulties with planning/programming, auditory-perceptual skills, and memory processes (Shriberg et al., 2012). Other functional deficits include phonological awareness and rapid naming, learning difficulties, and challenges with nonverbal sequential functioning, supporting a broader conceptualization of CAS disorder (Bombonato et al., 2022). This study aims to determine whether there is an association between CAS, severe Phonological Disorder (PD) and executive functions (EF) in the Greek language.

Methodology The subjects recruited were monolingual Greek speakers aged 4;0-7;11, who presented severe difficulties during speech sound production and were distributed into three groups: CAS, PD and CAS+PD. Exclusionary criteria were cognitive delay, structural deficits, evidence of dysarthria, syndromes and hearing or visual impairment. We employed the Greek AXEL (Assessment of Executive Functions in Elementary School) to measure individual executive functions. The data collected for each measurement were then used to compare the groups.

Results Outcomes for individuals bearing a CAS diagnosis are highly variable. While acknowledging the limited sample size of our first cohort, we observed trending and statistical differences in the executive functions, notably in non-speech analogies geometric measurements, between PD subjects and subjects displaying CAS phenotypes (CAS, CAS+PD).

Conclusion Our current results emphasize the importance of comprehensive assessments, from planning/programming to executive functions, to better evaluate and tailor the therapeutic strategy. Future studies, including larger sample sizes, will allow a more accurate representation of speech performances across disorders and establish the possible relation between CAS, PD and executive functions.

Speech-Music Therapy in the treatment of Childhood Apraxia of Speech

Mirjam van Tellingen[1,2], Joost Hurkmans[1], Anne Marie van de Zande[3], Hayo Terband[4], Ben Maassen[2], Roel Jonkers[2]

[1]Revalidatie Friesland, Beetsterzwaag, Netherlands. [2]University of Groningen, Groningen, Netherlands. [3]Rijndam Revalidatie, Rotterdam, Netherlands. [4]University of Iowa, Iowa City, USA

Abstract

Background

Speech-Music Therapy for Aphasia (SMTA), a combination of speech and music therapy, is used in the treatment of children with childhood apraxia of speech (CAS). Children with CAS experience problems in functional communication and social participation because their intelligibility is negatively impacted by inappropriate prosody, segmental errors and disrupted co-articulation.

Our study with a boy with CAS without comorbidities showed improvement in producing consonant clusters, consistency, and intelligibility in daily communication after 20 sessions of SMTA.

CAS often co-occurs with neurodevelopmental disorders, leading to additional challenges in daily communication. However, most treatment studies so far exclude children with CAS+ neurodevelopmental disorders.

Aim

The aim of this study is to evaluate SMTA in the treatment of CAS in children with co-occurring neurodevelopmental disorders.

Methods

A study in case series design was conducted, including an eleven-year old boy (T.) and six-year-old (A.) and ten-year-old girl (E.) with CAS and intellectual disability. The protocol included pretest, baseline, treatment, posttest, and follow-up after two months of no treatment. SMTA was conducted twice a week in 30-minute sessions for ten weeks. Treatment items were selected to be relevant for functional communication and appropriate for individual speech goals. Outcome measures included segmental accuracy, intelligibility and functional communication.

Results

Outcome measures indicate that improvement differed across children. A. en T. showed improved intelligibility and production of trained items, with no generalization to other speech tasks. E. did not improve on measures of speech production, but did improve on the FOCUS questionnaire on functional communication.

Conclusion

Two children with CAS and co-occurring intellectual disability improved in their production of trained items after treatment with SMTA, whereas one other improved on functional communication. This study shows the potential of SMTA for this target group in training words and phrases for functional communication in daily life.

Differential diagnosis of Childhood Apraxia of Speech from phonological disorder in Persian-speaking children of Iran

Talieh Zarifian, Mersede Imani shakibayi

University of Social Welfare and Rehabilitation Sciences, Tehran, Iran, Islamic Republic of

Abstract

Objective: Childhood apraxia of speech (CAS) is one of the most controversial speech disorders in the category of motor speech disorders. To date, no research has been conducted in Iran on the diagnostic criteria for this disorder, nor has a valid assessment method for diagnosing it been established. The objective of this study was to develop and introduce appropriate assessments for diagnosing this disorder based on the evidence obtained and the characteristics of the Persian language.

Methods: This study employed a cross-sectional, descriptive-analytical methodology. The five tests of an oral-motor assessment, a word-level inconsistency, a polysyllabic word production , a connected speech , and a prosody assessment were administered to 41 typically developing children, 19 children with phonological disorders (PD) (M= 64.52 months, SD=9.52), and seven children with CAS (M= 85.54 months, SD=24.52).

Results: The findings showed a significant difference between the mean scores of all phonological measures of the connected speech test ($p = 0.01$), the polysyllabic production test ($p < 0.001$), and the motor tasks of rapid repetition of syllables (monosyllables and trisyllables) ($p < 0.001$) between the CAS and PD groups. However, no significant difference was observed between the mean scores of the inconsistency ($p = 1$), prosody ($p = 0.619$), chunking ($p = 1$), oral-motor ($p = 0.272$), and the repetition of challenging phrases tests ($p = 0.164$).

Conclusions: According to the results of the group comparisons, the measurement of phonological measures of the connected speech test and the production of polysyllabic words, rapid and sequential repetition tasks of syllables (monosyllabic and trisyllabic), can be utilized to differentiate CAS from PD. These results are largely consistent with the existing evidence from various studies conducted in English, French, German, and Egyptian Arabic.

Speech variability in childhood apraxia of speech (CAS): A potential treatment outcome measure.

Patricia McCabe[1], Lim Jacqueline[2], Ilaria Scarcella[1], Donna Thomas[1], Alison Purcell[3], Maryane Gomez[1], Chantelle Highman[4], Jacqueline McKechnie[5]

[1]The University of Sydney, Sydney, Australia. [2]James Cook University, Townsville, Australia. [3]Western Sydney University, Campbelltown, Australia. [4]Curtin University of Technology, Perth, Australia. [5]University of Canberra, Canberra, Australia

Abstract

One of the key features of childhood apraxia of speech (CAS) is variability in production (ASHA, 2007). Variability in CAS, also called inconsistency, has been reported as both token-to-token (whole word variability) and as phonetic variability, where phoneme production varies across and within word tokens. It is widely believed that high variability result in reduced speech intelligibility.

This paper will review the key evidence describing variability in the speech of children with CAS. Recent research (e.g. Lim et al, 2023, Scarcella et al., 2024) has suggested that changes in variability can be harnessed to indicate improvement prior to, and in parallel with, changes in speech accuracy during therapy.

Using data from a range of CAS treatment studies (Gomez, 2022; Lim 2023; Nightingale, 2023 & Scarcella, 2024), this post-hoc analysis will demonstrate that, for some children, positive changes in variability may precede notable changes in accuracy. The paper will therefore propose that measures of accuracy should be used in parallel with measures of variability and suggest how interventions may be designed to enhance these changes.

References

American Speech-Language-Hearing Association. (2007). Childhood apraxia of speech.

Gomez, M. (2022). *Treating Childhood Apraxia of Speech: Evaluating the Kaufman Speech to Language Protocol. Doctoral Dissertation.* The University of Sydney. https://hdl.handle.net/2123/29624

Lim, J., McCabe, P., & Purcell, A. (2023). Changes in variability during intervention for childhood apraxia of speech: Implications for therapy. *Clinical Linguistics & Phonetics, 37*(3), 291-314.

Nightingale, E., Gomez, M., McCabe, P., & McKechnie, J. (2023). *The impact of the Nuffield Dyspraxia Programme (NDP-3) on speech consistency of children with Childhood Apraxia of Speech (CAS)*. Poster presented at the 32nd World Congress of the IALP 2023, Auckland New Zealand.

Scarcella, I., Thomas, D. & McCabe, P. (2024). *How speech consistency changes in children with Childhood Apraxia of Speech (CAS) after undergoing Rapid Syllable Transition (ReST) treatment.* Unpublished manuscript.

Posters

Wednesday 25 June (15:30 - 16:30) - Session 1

The Impact of Primary Dysmenorrhea on Acoustic Features: A Case Study of Italian Vowel Production

Giorgia Albertin

Alma Mater Studiorum University of Bologna, Bologna, Italy

Abstract

Primary dysmenorrhea, characterized by uterine cramps occurring during menstruation in the absence of other pelvic pathologies [1], is the most prevalent gynaecological condition among women of reproductive age [2]. It significantly impacts quality of life and correlates with pelvic pain chronicling [3, 4]. Despite its debilitating nature, treatment is often neglected due to the normalization of menstrual pain [5].

Voice studies in pain conditions have highlighted the possibility of distinguishing significant from non-significant levels of pain based on acoustic parameters [6]. This study investigates whether differences in F1, F2 and duration of vowel production (/a/, /i/, /u/) can be observed in Italian-speaking women during dysmenorrheic menstrual phase (P1) compared to non-menstrual phase (P2). Speech samples were collected from five monolingual, native Italian-speaking women aged 25–30, who met the criteria of having no diagnosed pelvic pathologies, being nulliparous, and not using hormonal contraceptive pills. The vowels were analysed in stressed and unstressed CV syllables in target words in a sentence repetition task. Participants completed the Visual Analogue Scale (VAS) [7] to measure perceived pain, and the test was designed with PsychoPy [8] and administered online via Pavlovia, allowing participants to complete the test from home to avoid exacerbating menstrual discomfort. As expected, VAS scores reported higher pain levels during P1 (mean = 5, range 1–7) compared to P2 (mean = 0.2, range 0–1).

Acoustic analysis revealed generally higher F1, F2, and vowel duration values in P1 compared to P2, except for F1 in stressed /i/ (see Table A, Table B in Appendix). These findings suggest a potential link between dysmenorrhea pain and vocal parameters, such as an increase in F0 and reduced speech rate, that can be influenced by pain-induced alterations in physiological processes. Future research could explore these connections to support screening for painful gynaecological pathologies.

ICPLA 2025 - Abstracts

Phonetic Variants of Urdu Consonants and Vowels

Saira Ambreen, Carol To

The University of Hong Kong, Hong Kong, Hong Kong

Abstract

Background: Phonetic variants should be taken into account while assessing phoneme production. This study explores the use of phonetic variants of Urdu consonants and vowels in the speech of adult native speakers.

Method: Sixteen Urdu-speaking adults (21 – 40 years; *M* = 30.6) from Pakistan participated in this study. The sample was balanced in terms of gender. Urdu Speech Assessment Test (USAT; Ambreen & To, 2022), which is a single-word picture naming test, was used for the elicitation of speech samples. USAT elicits all Urdu consonants and vowels. The audio-recorded speech samples were later transcribed in Phon (v.3.4; Hedlund & Rose, 2021). The productions of all phonemes were extracted, which were used to identify the variants of all consonants and vowels. Initial, medial, and final word positions were considered while exploring the variants of consonants. The criterion used to determine the phonetic variant was that at least 30% of the participants had produced it at least once.

Results: Phonetic variants were found for 15 out of 38 consonants /bʰ, ɖ̪ʰ, h, k, m, p, q, ʈ̪, ŋ, g, gʰ, ʈ, ʒ, ʔ, ʧ/ and nine out of 23 vowels (monophthongs) /eː, iː, ũː, æː, ɑː, ə, ə̃, ɪ, ʊ/. There were three consonants /q, ʈ̪, ŋ/, and three vowels /ə, ɪ, ʊ/ that were produced as more than one variant.

Conclusion: These findings would be beneficial while determining the accuracy of the child's productions. Considering these common variants as correct productions would also help in avoiding the misdiagnosis of phonetic variants as a disorder.

Can we use digital (Kinetic) learning games to enhance language development in young autistic* children? *preferred term by the autistic community (Kenny et al., 2016)

Melina Sofia Armaganidou[1], Maria Kampouri[2]

[1]University of Patras, Patras, Greece. [2]UCL IOE, London, United Kingdom

Abstract

Introduction: This study explores the benefits of digital Kinetic camera games (Kinems), a movement-based learning platform with integrated monitoring and reporting systems. These games, which blend physical activities with cognitive tasks, offer flexibility and agency for teachers and therapists. Given their natural user interaction, they appear promising for children with autism, particularly in supporting speech and language development. This research investigates whether Kinems can impact vocabulary development (receptive and expressive) in children with autism, specifically within early years autism schools.

Method: A participatory research design was employed, with a practitioner-researcher also acting as a teaching assistant. Using a multiple baseline design, we conducted a 10-week intervention twice a week. Five autistic boys, aged 4-6, participated. Receptive and expressive vocabulary, along with autism severity, were assessed both before and after the intervention. Teacher and staff interviews provided additional insights into each child's progress.

Results: Post-intervention assessments revealed significant improvements in both expressive and receptive vocabulary. Participants also showed reduced conduct problems, increased motivation, and fewer challenging behaviors. Gains were not confined to game-play sessions but were observed in other activities and interactions. Teachers noted generalization of these improvements, such as increased verbal communication and more appropriate social behaviors across various contexts. A follow-up conducted one month later, along with a study six months afterward, confirmed the intervention's sustained benefits over time.

Conclusions: The results are promising for both educators and game developers, as such games can be further adapted for classroom use. These games offer a dual function as both diagnostic tools and instruments for skill development. Given ongoing challenges in goal-setting and assessment in special education, digital movement-based games could be a valuable addition to Special Educational Needs schools.

Polyphthongs in Typical and Atypical Speech

Martin Ball

Bangor University, Bangor, United Kingdom. Wrexham University, Wrexham, United Kingdom. University College Cork, Cork, Ireland

Abstract

Background

This presentation examines polyphthongs in both typical and atypical speech. Polyphthongs are vocalic units inhabiting a single syllable and the most common form is the diphthong where the articulators glide from one position to another, as in English /aɪ/. However, triphthongs, tetraphthongs and pentaphthongs have all been reported, albeit some of these in specific connected speech contexts and at the allophonic level (Ball & Hu, in preparation). Not all languages have polyphthongs and here we present lists of languages that do have them, and some evidence concerning polyphthongs in atypical speech.

Method

Using published sources, the sound systems of a large number of languages were investigated and languages with polyphthongs at the phonemic level were assigned to separate categories (diphthong and triphthong). A very few examples of both tetraphthongs and pentaphthongs were found at the phonetic level and are included out of interest.

Results

A subset of a dozen diphthong languages will be presented, covering half a dozen different language families (and thus geographical areas) and ranging from just 3 phonemic diphthongs to 13. Twenty languages with phonemic triphthongs (all of which also have diphthongs) are included covering 5 different language families. The rare tetraphthong is reported from two languages, and the pentaphthong from one. Also presented are typical patterns of polyphthong use in atypical speech, including monophthongization in developmental disorders, and diphthongization in motor speech disorders (see chapters in Ball & Gibbon, 2013).

Conclusion

The presentation illustrates the large number of different polyphthongs that can be found cross-linguistically, and their importance to clinical linguists.

References

Ball, M. J. & Gibbon, F. (Eds.) (2013). *Handbook of vowels and vowel disorders.* New York: Psychology Press.

Ball, M.J. & Hu, F. (Eds.) (in preparation). *Diphthongs, triphthongs and polphthongs: A survey.* University of Toronto Press.

Speech and Language Therapy in Wales: The availability and adequacy of bilingual Welsh resources.

Jazmine Beauchamp[1], Eirini Sanoudaki[1], Sarah Cooper[1], Martin Ball[1,2]

[1]Bangor University, Bangor, United Kingdom. [2]University College Cork, Cork, Ireland

Abstract

Previous survey studies have reported a lack of bilingual resources available for Speech and Language Therapists (SLT) around the world (Bloder et al., 2021; Mulgrew et al., 2022). The studies highlight that many current assessments are translated from English and few of these assessments were designed for bi- and multi-lingual service users. In the context of Welsh, evidence shows little progress has been made to increase the number of bilingual Welsh-English resources, and the resources that are available are not reflective of the Welsh language or the bilingual Welsh population (Thomas et al., 2022).

This study aimed to explore resources from the point of view of Speech and Language Therapists themselves, by employing a questionnaire. The questions explored the availability of bilingual Welsh resources for SLTs, the adequacy of resources to be used with SLT caseloads, and SLTs' views on bilingual Welsh medium resources. The questionnaire was distributed across Wales; with 45 responses (ongoing data collection), and plans for follow-up interviews.

Analysis of the existing data shows that a majority of SLTs lack Welsh medium resources to use with service users needing support and intervention through the medium of Welsh. The existing data also provides insights into current practices without Welsh resources and how these issues are being solved temporarily. The results provide empirical evidence for the need to create original bilingual Welsh-English resources within Speech and Language Therapy in Wales.

The power of adaptation: translating extIPA for cross-linguistic clinical use

Ines Carović[1], Martin J. Ball[2], Daniel Bérubé[3], Chiara Meluzzi[4], Nicole Müller[5], Ioannis Papakyritsis[6], Tomislav Ivanjko[1]

[1]University of Zagreb, Zagreb, Croatia. [2]Bangor University, Bangor, United Kingdom. [3]University of Ottawa, Ottawa, Canada. [4]University of Milan, Milan, Italy. [5]University College Cork, Cork, Ireland. [6]University of Patras, Patras, Greece

Abstract

The extended International Phonetic Alphabet (extIPA) significantly advances clinical phonetics, addressing transcription challenges associated with atypical speech phenomena. Building on foundational work by Ball and Rahilly (2002, revised 2018), recent updates (Ball, 2024) provide tools for detailed descriptions of disordered speech and prosodic disorders. Despite its strengths, its accessibility across diverse linguistic contexts remained limited, necessitating translation into other languages.

This project translated the extIPA charts into Croatian, French, German, Greek and Italian, tailoring them to the phonetic and phonological characteristics of each language. A multi-layered transcription approach was introduced, integrating segmental and prosodic analyses to provide a comprehensive framework for transcribing and understanding speech disorders.

The translated extIPA charts have shown high usability and accessibility, according to early feedback from clinicians. The multi-layered transcription approach has enriched clinical and research analyses, offering nuanced insights into segmental and prosodic features of disordered speech. These enhancements address previously unmet transcription needs, improving the effectiveness of clinical interventions.

This project broadens extIPA's global applicability by introducing translations, multi-layered transcription methods, and proposing a web platform to centralize resources. The platform would feature interactive multilingual charts, tutorials, and templates for future translations, promoting cross-cultural collaboration and refinement. By enhancing accessibility and usability, this initiative supports clinicians and researchers in providing effective, culturally informed interventions for speech disorders worldwide. Future goals include extending translations to additional languages and expanding online resources to make extIPA an indispensable global tool in clinical phonetics.

Ball, M. J. and Rahilly, J. (2002). Transcribing disordered speech: the segmental and prosodic layers. Clinical Linguistics and Phonetics, 16(5), 329–44.

Ball, M. J., Howard, S. J., Miller K. (2018). Revisions to the extIPA chart. Journal of the International Phonetic Association. 48(2):155-164. doi:10.1017/S0025100317000147

Ball, M. J. (2024) Changes to certain extIPA diacritics. Clinical Linguistics & Phonetics, 38:7, 692-695, DOI: 10.1080/02699206.2024.2365205

Enhancing phonetic transcription skills through training and gamification

Tomislav Ivanjko, Ines Carović

University of Zagreb, Zagreb, Croatia

Abstract

Background:
Phonetic transcription is a fundamental skill in speech perception, essential in both typical speech phonetics and clinical linguistics and phonetics. Traditional teaching methods often fall short in engaging students and achieving transcription accuracy. This study introduces a gamified approach to phonetic transcription training through a game inspired by the classic "Snake" mechanics. The game supports learning IPA symbols and can also be adapted for extIPA symbols, making it applicable for both typical and atypical speech contexts.

Method:
The research will involve two groups of students: a control group using traditional training methods and an experimental group using the game for transcription practice. Players in the game navigate a "snake" by correctly identifying IPA or extIPA symbols and transcribing phonetic sequences. The game provides instant feedback, offering error corrections and explanations. The study will compare the outcomes of different training types and evaluate their effectiveness in improving transcription accuracy.

Results:
Preliminary implementation of the game in introductory phonetics courses demonstrated increased student motivation and improved transcription accuracy compared to traditional methods. Students reported higher confidence and satisfaction in learning IPA symbols. It is anticipated that the experimental group will outperform the control group in transcription precision and consistency due to the interactive, feedback-driven design.

Conclusions:
Gamification shows promise as an effective supplementary tool for phonetic transcription training, enhancing accessibility and engagement. In addition to IPA, the tool's adaptability for extIPA expands its application to clinical and atypical speech contexts. Future research should explore further customization for various languages and skill levels, ensuring its broad applicability in phonetic education. By combining gamified learning with traditional methods, this approach paves the way for more effective and enjoyable transcription training.

Cross-cultural adaptation and validation of Ultrax2020 (Ultrasound Technology for Optimising the Treatment of Speech Disorders) into Brazilian Portuguese

Aline Mara Oliveira[1], Joanne Cleland[2]

[1]Federal University of Santa Catarina, Florianopolis, Brazil. [2]University of Strathclyde, Glasgow, United Kingdom

Abstract

Speech Sound disorders (SSDs) result from different etiologies and affect different levels of speech production. SSD can be categorized into three main types: speech delay (phonological disorders), residual speech errors, and motor speech disorders (Shriberg et al., 2019). ULTRAX 2020 is a tutorial and an evaluation protocol and intervention for children, adolescents and adults with SSDs (Cleland, 2018).

Aim: The objectives of the current study are to culturally adapt and validate the ULTRAX 2020 tutorial into Brazilian Portuguese (BP), which is already validated in English, for the assessment and intervention of individuals with SSDs. By doing so we will optimize speech therapy intervention through the implementation of speech ultrasound for children speaking BP. Methodology: ULTRAX 2020 was translated into BP using cross-cultural adaptation guidelines (Gulimen et al., 1993). The original manual was translated into BP by three translators. These translations were then combined into a single version by consensus among translators. Linguistic variations of BP were considered (linguistic adaptations, mainly the assessment and intervention corpus), for example phonological processes, such as the simplification /r/ in simple or complex syllables, are frequently observed as errors in the speech of Brazilian children and these types of errors were considered in the stimuli. A backwards translation (PB – English) was carried out with the aim of verifying whether the translation reflected the content of the original version. The next steps will be an analysis by expert committee (brazilian speech therapist and linguists). Ultrasound videos of the specific speech errors that occur in BP will be made and implemented into the tutorial. The ultrasound videos will be reviewed by Brazilian experts and there will be a pilot study with children with SSDs.

Expected results: The translation and cross-cultural adaptation into BP will contribute to faster and more effective ultrasound intervention for children with SSDs.

Intrinsic Pitch and Vowel Production in Childhood Apraxia of Speech

Bhavana Bhat[1], Mirjam van Tellingen[2], Hayo Terband[1]

[1]The University of Iowa, Iowa City, USA. [2]Revalidatie Friesland, Beetsterzwaag, Netherlands, University of Groningen, Groningen, Netherlands

Abstract

Background

Intrinsic pitch is an inherent property of vowels where high vowels have a higher fundamental frequency than low vowels (1, 2). Although extensively studied in adults, it remains underexplored in children. Vowel errors and inconsistent vowel produc9on are well-known characteris9cs of Childhood Apraxia of Speech (3, 4). We inves9gated if children with CAS exhibit intrinsic vowel pitch and analyzed differences compared with typically developing (TD) children.

Method

17 children with CAS (4;11–6;10 years, 3 females, 14 males) and 8 with TD (4;07–6;01 years, 1 female, 7 males) repeated simple disyllabic non-word uXerances six 9mes. S9muli comprised a consonant (/b, d/), and a corner vowel (/a, i, u/) produced in a carrier sentence (/he dəCV wɪːr/; 'hey the CV again'). A Praat script extracted mean F0 and formant values (F1-F3) in Barks. Outcome measures mean pitch, normalized pitch, F1-F0, and F3-F2 were evaluated using Linear mixed model analyses.

Results

The main finding of our study is that intrinsic pitch is present in children with CAS with a paXern similar to TD children. Addi9onally, we observed differences in vowel characteris9cs in children with CAS that are ambiguous. In contrast to previous findings, children with CAS did not show a generalized neutralized produc9on of vowels, rather we observed vowel specific differences. Children with CAS produced the /a/ vowel with an exaggerated openness whereas they produced /u/ with more of a fronted produc9on compared to TD children.

Conclusions

Where intrinsic pitch appears to be preserved in children with CAS, they do show differences in ar9culatory dimensions of vowel produc9on compared to TD that are vowel specific. Clinicians should take these vowel specific differences into account when choosing therapeu9c targets.

Computer Adaptive Anomia Test in Greek

Evangelia - Antonia Efstratiadou[1], Athanasios Karasimos[2], Ilias Papathanasiou[3]

[1]University of Peloponnese, Kalamata, Greece. [2]Aristotle University of Thessaloniki, Thessaloniki, Greece. [3]University of Patras, Patras, Greece

Abstract

Background:
Anomia, a hallmark of aphasia, significantly impairs communication and diminishes the quality of life for people with aphasia (PWA). Despite advances in treatment approaches, the development of sensitive and robust metrics to assess anomic deficits remains a significant challenge.

Aims:
This study aims to create a psychometric framework for assessing anomia severity and treatment efficacy in PWA using item response theory (IRT). The proposed metric will (i) address calls for increased value in healthcare delivery, (ii) provide precise estimates of overall anomia severity, (iii) support repeated assessments without compromising validity, and (iv) dynamically adapt to patient severity, thereby minimizing testing burden while maintaining precision.

Methods:
The study is being conducted in Greece, recruiting PWA following left hemisphere strokes from public hospitals and rehabilitation centers. Data collection includes administering the Boston Naming Test, Boston Diagnostic Aphasia Examination, and Oral Confrontation Naming Task featuring 56 verbs and nouns, using the Snodgrass and Vanderwart (S&V) picture set adapted for Greek speakers. The study aims to recruit 70 participants by July 2025. Responses will be analyzed using a Bayesian 1-parameter logistic (1-PL) IRT model to calibrate item difficulty and refine the metric.

Preliminary Results:
Data from 35 participants show promising response variability across noun and verb naming tasks, supporting the feasibility of an IRT-based approach. Preliminary findings indicate that the proposed framework can enhance the assessment of individual anomia severity by addressing a broader spectrum of lexical retrieval difficulties.

Conclusion:
These findings highlight the potential of a dynamic and psychometrically robust metric for anomia assessment. This tool is expected to improve clinical evaluations, support repeated and adaptive testing, and reduce patient burden while maintaining high precision. Continued data collection and refinement will further validate its utility and effectiveness.

Prevalence of Phonological Disorder Severity Levels in a University Clinic in Brazil

Vanessa Giacchini

Federal University of Rio Grande do Norte, Natal, Brazil

Abstract

Phonological disorder is a speech sound alteration commonly observed in preschool and school-aged children. It is characterized by incorrect use of speech sounds, such as deletion or substitution of phonemes with similar characteristics, which compromises speech intelligibility. The severity of this disorder can be assessed in various ways, with the Percentage of Consonants Correct (PCC), proposed by Shriberg and Kwiatkowski (1992), being one of the most widely used. PCC calculates the number of correctly produced consonants and classifies the severity of the disorder as mild (above 85%), mild-moderate (65% to 85%), moderate-severe (50% to 65%), and severe (below 50%). This study aimed to calculate the PCC of children treated at a university speech clinic at the Federal University of Rio Grande do Norte. Sixteen children aged 4 to 8 years, diagnosed with phonological disorder, participated in the study. In the initial evaluation, spontaneous naming of words containing all phonemes of the Portuguese language was performed. Data were analyzed to determine each participant's PCC. The results showed that most children presented with mild-moderate severity, while only one case was classified as severe, where speech intelligibility is significantly impaired. The low number of severe cases may reflect late access to treatment. The study highlights the importance of preventive actions in speech development, as significant alterations can impact not only communication but also the acquisition of written language. These findings emphasize the need for early and ongoing interventions to minimize the effects of phonological disorders on children's overall development.

What did COVID-19 Do? My Child Sounds Different

Leslie Kokotek[1], Karla Washington[2,1], Nicole Bazzocchi[2]

[1]University of Cincinnati, Cincinnati, USA. [2]University of Toronto, Toronto, Canada

Abstract

Background:

Jamaican children speak Jamaican Creole (JamC) and English, with English being the language of instruction. During the COVID-19 pandemic, children used less JamC due to the requirement of using English within the virtual classroom. This study characterized bilingual Jamaican preschoolers' speech productions before, during, and after COVID-19 for English productions to identify possible trends across these time-periods.

Methods:

Forty-one typically developing bilingual Jamaican preschoolers ages 3;6-to-5;3 were recorded producing word-level responses in different groups: Before COVID-19, *n*=6; During COVID-19, *n*=10; and After COVID-19, *n*=25. Acoustic whole-word durations and percent consonant correct-revised (PCC-R) were established for each production to examine durational and transcription-based

differences. Thematic analysis and subsequent member checking was also completed to document parents' perspectives about their child's talking.

Results:

We observed a statistically significant difference in PCC-R scores (p=.02) between the Before (M=82.4, SD=6.7) and During COVID-19 groups (M=93.9, SD = 7.3), with an 11.5-point difference on average, 95% CI [1.9, 21.2]. A statistically significant difference (p=.004) also existed between the Before (M=82.4, SD=6.7) and After COVID-19 groups, (M=98.4, SD=2.5), with a 16-point difference, 95% CI [7.1, 24.9]. For the durational analyses, a statistically significant difference was observed (p=.024) between the Before (M=.01, SD=.003) and During COVID-19 groups (M=.02, SD=007), with a .01-point difference on average, 95% CI [.001, .02]. Themes of increased English use, decreased JamC use, and 'children sounding differently' were also found. Member checking (i.e., community members: parents, teachers, administrators, researchers) in Jamaica confirmed the children's parents' observations as being accurate.

Conclusion:

Regardless of the approach used, differences based on timepoint were observed in children's productions. More research is needed to better capture the impact of environmental circumstances on Jamaican children's intelligibility and heritage language loss.

Early speech-language development in a pair of dizygotic twins, one developing typically, one later diagnosed with Rett syndrome

Sigrun Lang[1,2], Peter B. Marschik[1,3,4,5], Zuzanna Laudańska[3], Bernd Wilken[6], Christian P. Schaaf[7], Alisa Hahn[1], Tomas Kulvicius[1,3], Jeff Sigafoos[8], Sven Bölte[5,9], Luise Poustka[3], Jeffrey L. Neul[10], Dajie Zhang[3,4]

[1]Child and Adolescent Psychiatry and Psychotherapy, University Medical Center Göttingen, German Center for Child and Adolescent Health (DZKJ) and Leibniz ScienceCampus Primate Cognition, Göttingen, Germany. [2]University of Applied Sciences and Arts Hildesheim/Holzminden/Göttingen, Faculty of Engineering and Health, Health Campus Göttingen, Göttingen, Germany. [3]Department of Child and Adolescent Psychiatry, University Hospital Heidelberg, Heidelberg University, Heidelberg, Germany. [4]interdisciplinary Developmental Neuroscience (iDN), Division of Phoniatrics, Medical University of Graz, Graz, Austria. [5]Center of Neurodevelopmental Disorders (KIND), Centre for Psychiatry Research, Department of Women's and Children's Health, Child and Adolescent Psychiatry, Region Stockholm, Karolinska Institutet & Stockholm Health Care Services, Stockholm, Sweden. [6]Department of Pediatric Neurology, Hospital Kassel, Kassel, Germany. [7]Intitute of Human Genetics, University Hospital Heidelberg, Heidelberg University, Heidelberg, Germany. [8]School of Education, Victoria University of Wellington, Wellington, New Zealand. [9]Curtin Autism Research Group, Curtin School of Allied Health, Curtin University, Perth, WA, Australia. [10]Department of Pediatrics (Neurology), Vanderbilt Kennedy Center, Vanderbilt University Medical Center, Nashville, Tennessee, USA

Abstract

Background: 'Regression of acquired spoken language functions' is one of the clinical consensus criteria of Rett syndrome (RTT), a rare neurodevelopmental disorder mainly affecting girls. Even though clinically manifest usually after infancy, there is increasing evidence for atypical developmental features as early as in the first year of life. This retrospective study compared the early

speech-language development of a pair of dizygotic twin girls, one developing typically and one later diagnosed with RTT in their first two years of life.

Method: Applying retrospective audio-video analysis, we segmented and analyzed vocalizations from shared home video material available for the 3rd, 5th, 6th, 7th, 8th, 9th, and 12th month of the first year and the 18th, 21st, 23rd, and 24th month of the second year. Analyses focused on articulatory complexity, linguistic variability, and voice characteristics.

Results: Despite experiencing the same social-communicative environment, speech-language development diverged. From the first to the second year of life, the twin developing typically showed an increase of articulatory complexity and linguistic variability. The twin later diagnosed with RTT, who in her 7th month produced a high number of vocalizations including highly variable canonical sounds, in her second year of life presented a subsequent reduction in vocalization quantity, articulatory complexity, and linguistic variability. Concerning voice characteristics, the twin later diagnosed with RTT demonstrated a range of typical vocalization features but also deviations. Especially in her first year of life, we observed atypicalities in frequency and distribution of inspiratory and high-pitched vocalizations.

Conclusion: Circumventing one of the common limitations of retrospective studies (i.e. data of different children collected at different times, in unlike situations, and of different quantities), the deviations observed in this retrospective twin study may highlight genetically driven individual- and condition-pertinent characteristics and help to deepen our understanding of early speech-language profiles in RTT.

A Cantonese Database of Video Interviews for Conversation Analysis – A preliminary report

Maginot Shing-Lok Yip, Rachel Wai-Ching Lo, Cherie Cheuk-Lam Wong, Dustin Kai-Yan Lau

The Hong Kong Polytechnic University, Hong Kong SAR, China

Abstract

Introduction

Clinical judgement of manifestations of language problems at conversation are usually subjective. One possible way to improve the validity of clinical judgement is to make reference to databases of conversation samples obtained from typical individuals. To our knowledge, existing databases of conversation in Cantonese, a dialect of Chinese used by people in the southern China area, are basically not openly accessible (e.g. Leung & Law, 2001; Luke & Wong, 2015). While the Cantonese Aphasiabank (Kong & Law, 2019), which contains Cantonese samples from both healthy and language-impaired native Chinese speakers, is freely accessible, the language samples are primarily monologues, which makes it an undesired data source for conversation analysis. In the current study, we report an openly accessible web-based database of Cantonese conversation samples obtained from online videos.

Methods

A total of 28 videos hosted in the webpage of Radio Television Hong Kong, public broadcasting service supported by the Hong Kong Government, were selected. Each video contains the conversation between an interviewer and one to two interviewees. The theme of the conversation

includes ‘art and culture’, ‘entertainment’, ‘finance’, ‘ leisure’, ‘politics’, and ‘sports’. The conversations were orthographically transcribed. Utterances were tagged according to the corresponding speakers. Words were tagged subsequently according to their parts-of-speech.

Results

A total of 20668 utterances were transcribed and included in the database. On average there are 709.5 (range from 406 to 1354) utterances in each video and 139.6 (range from 32 to 664) times of change of turns in each video.

Discussion

Currently, the transcribed utterances are further analyzed to group them into different turn-constructional units. Transition-relevance places will also be tagged accordingly. Upon completion by Jan2025, the database will be a useful reference for clinicians to identify common conversational behaviours, including but not limited to turn-taking and turn-sharing, preferentially used in Hong Kong Cantonese.

An update on DELAD – An initiative for facilitating sharing of corpora of disordered speech

Alice Lee[1], Nicola Bessell[1], Henk van den Heuvel[2], Satu Saalasti[3], Katarzyna Klessa[4]

[1]University College Cork, Cork, Ireland. [2]Radboud University, Nijmegen, Netherlands. [3]University of Eastern Finland, Joensuu, Finland. [4]Adam Mickiewicz University, Poznań, Poland

Abstract

Background

DELAD stands for Database Enterprise for Language And speech Disorders (http://delad.net/). The initiative aims to provide researchers a platform to discuss ongoing technical, legal and ethics issues related to corpora of disordered speech sharing, as well as assistance in archiving their speech data in an ethical and secured manner. The project was initiated by Professors Martin Ball and Nicole Müller in 2015. This poster will report the latest progress since our last presentation at ICPLA 2023.

Method

The Steering Group members meet monthly to update each other on any pertinent issues and identify opportunities (e.g., conferences) to advertise the initiative. We organise regular workshops and invite researchers with relevant expertise to contribute to discussions related to open access of research data. We also systematically follow up on items/tasks that arise from participants’ suggestions at the workshops.

Results

The Steering Group succeeded in securing funding support from CLARIN (Common Language Resources and Technology Infrastructure) to create an entry for ‘Corpora of Disordered Speech’ in the CLARIN Resource Families (https://www.clarin.eu/resource-families/corpora-disordered-speech). The Resource Families page lists 32 disordered speech datasets (e.g. Dutch Corpus of Pathological and Normal Speech (COPAS), Middag et al., 2010), with key metadata (e.g. resource size, annotations and

licences) and a brief description for each item. The project started in the fall of 2023 and was completed in August 2024. With IT support from CLARIN, the Steering Group held the seventh hybrid Workshop, in conjunction with The 21st International Congress of Linguistics (ICL) Conference in Poznań, in September 2024. Currently we are conducting an online survey to collect data about researchers' experience in sharing datasets of disordered speech. Results will be reported at the conference.

Conclusions

Steady development of DELAD has been made. The Group welcome collaboration opportunities that concur with its mission.

Temporal characteristics and vowel space in the speech of persons with psychosis: a case study

Marijana Lukić[1], Marko Liker[1], Aleksandar Savić[2,3]

[1]University of Zagreb, Faculty of Humanities and Social Sciences, Zagreb, Croatia. [2]University Psychiatric Hospital Vrapče, Zagreb, Croatia. [3]University of Zagreb, School of Medicine, Zagreb, Croatia

Abstract

It is often reported that speech contains the most informative collection of features for diagnosing psychosis-spectrum disorders. However, no valid speech-based biomarker for psychosis has yet been established. Two major strategies for finding speech-based biomarkers are: a) fully automated analysis of large sets of abstract acoustic features, and b) semi-automatic analysis of a small set of hypothesis-driven phonetic acoustic features. Although significantly more time consuming, the second approach is claimed to have certain advantages in explaining why a set of acoustic features is connected with one type of patients rather than another. Temporal characteristics of speech and vowel space have been especially useful in this context.

The present investigation is focused on using semi-automatic phonetic approach to analyze speech in persons with psychosis. This investigation is a part of an ongoing research effort connected with the global multilingual consortium (Speech Bank Project, https://discourseinpsychosis.org/).

Four patients with mild current symptoms, but different diagnosis were included in this investigation (two patients with acute schizophrenia-like psychotic episode; two patients with schizophrenia had two previous episodes). The total duration of the speech material was between 11 and 29 minutes per speaker and it was collected according to the consortium protocol modified for Croatian. Temporal parameters included: speech rate (SR), articulation rate (AR), SR-AR ratio, articulation duration, pause duration, utterance duration and variability, number of syllables and variability in each utterance, pause duration and variability in each utterance, pause type, distribution and frequency. Vowel space was estimated based on the first two formants.

The analysis showed advantages of semi-automatic segmentation and annotation, but it also confirmed the time-consuming nature of the approach. SR-AT ratio, pause type and durational variability of successive pause-utterance intervals proved very useful in differentiating patients. Vowel space was reduced when compared with normative data for Croatian, but inter-participant differences were observed.

Normative and disordered tongue rest position: illustrations from EMA and CBCT studies

Anita Lorenc[1], Agnieszka Borowiec[2], Łukasz Mik[3], Katarzyna Klessa[4]

[1]University of Warsaw, Warsaw, Poland. [2]Laboratory of Speech, Warsaw, Poland. [3]University of Applied Sciences in Tarnow, Tarnow, Poland. [4]Adam Mickiewicz University Poznan, Poznan, Poland

Abstract

The key role in the functional efficiency of the stomatognathic system is attributed to primary functions, including tongue rest posture. The vertical tongue positioning in the normative resting posture has been confirmed in many studies. However, the findings regarding the positioning of different parts of the tongue vary, and often focus on selected regions of the tongue. For example, some studies indicate stabilization of the tongue apex behind the upper incisors near the incisive papilla, while others report it near the lower teeth. This contribution provides a description of the normative and disordered resting positions of all tongue parts within their physiological positioning in the orofacial system.

A diagnosis including a CBCT (Cone Beam Computed Tomography), and EMA (electromagnetic articulography) examination was conducted for 6 females: 3 representing the biological, functional and articulatory norm, and 3 with functional speech articulation disorders (F80.0; ICD-10-classification).

According to the EMA and CBCT results: (1) the laminal-predorsal part of the tongue stabilizes near the incisive papilla, while the apex is located just behind the upper incisors; (2) the postdorsum stabilizes in the region of the soft palate; (3) the lateral borders stabilize near the junction of the structures of the upper dental arch and the palate. A postdorsal space forms between the anterior and posterior closure. The mediodorsum is separated from the hard palate. An interocclusal space forms between the jaws. The lips are connected effortlessly. Three types of disordered tongue resting position were distinguished based on the apex positioning: (1) behind the lower teeth, (2) positioned interdentally at the incisal edge of the lower dental arch, (3) behind the upper teeth.

Our interdisciplinary examination provides a description of the physiological resting tongue posture (as opposed to lab-elicited positioning) with reference to all tongue parts, enabling the distinction between the normative and compensatory strategies.

Sturge Weber Syndrome: Profile of Speech Sound Development

Katherine Hays, Judith Oxley

University of Louisiana at Lafayette, Lafayette, USA

Abstract

Background

Sturge Weber Syndrome (SWS) is a rare congenital neurological disorder affecting 1 in 50,000 newborns (Sloneem et al., 2022). It is characterized by a unilateral port-wine stain, glaucoma, and neurological symptoms like seizures and hemiparesis, leading to functional variability (Bachur & Comi, 2013; NIH, 2022). The medical aspects are well-documented, but research on SWS's effects on

speech-language development is limited (Raches et al., 2012; Gittins et al., 2018; Sloneem et al., 2022). Ongoing case study research (Oxley et al., 2023) documented apraxic features in a child's speech with SWS (Rivera, Cannito, & Oxley, 2024). The evolution of treatment for the speech sound disorder are reported here.

Method

We used exploratory case study methodology to align with family priorities and to match the rapid evolution of the child's emerging communication profile, given that SWS communication characteristics are complicated by an array of symptoms secondary to effects of medication to treat seizures and the aftermath of the seizures. Intelligibility was very poor, necessitating support from communication books. Speech treatment drew on conventional motor speech techniques combined with maximal oppositions to establish contrasts based on syllable shape, place/manner of articulation for consonants, and vowel features.

Results

Early gains were observed in the production of closed syllables. Between ages 3;8-4;11 the child's phonemic inventory grew from /p/, /b/, /m/ and central vowels to include /t,/d/,/k/, /g/, /m/, /n/, /s/, /h/, /j/ and /l/, and a range of vowels. The child is now 8 years old, and the profile of childhood apraxia of speech is clearer.

Conclusion

The complex communication profile necessitated attention to speech, language, and multimodal communication and was modulated by the child's health status and response to seizure medication. Natural speech is the child's preferred modality, but intelligibility remains low (44%) in connected, spontaneous speech comprising mostly 1-2-word utterances.

The role of right hemisphere in L2 processing: insights from a case study

Christos Papatzalas[1], Ilias Papathanasiou[2,3]

[1]Department of Speech and Language Therapy, University of the Peloponnese, Kalamata, Greece. [2]Department of Speech and Language Therapy, University of Patras, Patras, Greece. [3]Medical School, National and Kapodistrian University of Athens, Athens, Greece

Abstract

Direct electrical stimulation (DES) is a technique that temporarily disrupts neural activity and is widely used to map eloquent cortical and subcortical regions during awake brain surgery. This procedure offers a unique opportunity to investigate language representation, as patients are awake and actively participate in various tasks (Duffau et al., 1999; Ojemann et al., 2008). Here, we present a case in which electrical stimulation of the right middle frontal gyrus (MFG) in a bilingual patient elicited errors in her second language (L2) but not in her first (L1). While previous research has found involvement of the right hemisphere in L2 processing (e.g., Leonard et al., 2010), DES-based studies remain scarce.

The patient, a 36-year-old right-handed female, presented with a Spetzler-Martin grade III arteriovenous malformation (AVM) in her right hemisphere. She was a late bilingual (L1: Bulgarian, L2: Greek), having moved from Bulgaria to Greece at the age of 18 to study. The preoperative behavioral

assessment, conducted in Greek, revealed no deficit in speech, language, or cognition. For cortical mapping, an object naming task was selected for both languages. A translator was present in the operating theatre to ensure accurate interpretation of her Bulgarian responses.

During cortical mapping, stimulation of the MFG caused anomias and phonemic paraphasias when the patient named objects in Greek (L2), although no errors occurred during naming in Bulgarian (L1). It should be noted that any stimuli the patient had difficulty responding to were excluded during perioperative sessions. Postoperatively, the patient exhibited no significant changes in speech or language, maintaining preoperative performance levels.

The selective disruption observed in Greek aligns with previous neuroimaging studies and provides novel evidence from the field of direct electrical stimulation regarding the role of the right hemisphere and MFG in L2 processing.

How do speech and language therapists support parents to work effectively at home with their child with a speech sound disorder?

Katherine Pritchard[1], Vesna Stojanovik[1], Jill Titterington[2], Emma Pagnamenta[1]

[1]University of Reading, Reading, United Kingdom. [2]The Speech Doctor, Belfast, United Kingdom

Abstract

Background

Speech sound disorder (SSD) is broadly defined as difficulty producing speech sounds in childhood and can have a lasting impact on academic outcomes and well-being, making effective early intervention vital.

Speech and language therapists (SLTs) consider parents completing home practice for SSD essential to a child's progress. Relationships between SLTs and parents can support a parent to engage with intervention and complete home practice to optimise outcomes. Little is known about what parents feel are effective strategies for supporting them to complete home practice or how SLTs build relationships with parents that support their engagement.

Aim

To explore perspectives of parents of children with SSD ≤ 5;11.

Method

Nine parents participated in focus groups or 1:1 interviews. The researchers worked with a group of children with SSD to design the topic guide and inform the data analysis. Discussions were recorded, transcribed verbatim and analysed using Reflective Thematic Analysis.

Results

Preliminary results indicate that building effective relationships takes time. Unlike previous research, this study found that siblings can facilitate effective home practice and parents value them being

involved. Parents are not always sure what they should do during SLT-led sessions or how they should deliver home practice which impacts on their confidence and capability. Home practice is most successful when the child is having fun; this is motivating to parents and supports intervention intensity.

Conclusions

As in previous studies, this research highlights that relationships are fundamental for engagement in home practice and SLTs need to spend time nurturing these. Parents value SLTs who get to know their child and adapt their approach to suit their family. To become effective implementors parents need to understand not only what they need to do but why they are doing it.

Development of SWanS: a novel complex intervention for co-occurring features of phonological speech sound disorder and developmental language disorder

Lucy Rodgers[1,2], Ros Herman[1], Nikki Botting[1], Erica Breuer[3]

[1]City, St George's, London, United Kingdom. [2]Sussex Community NHS Foundation Trust, Brighton, United Kingdom. [3]The University of Newcastle, Newcastle (New South Wales), Australia

Abstract

Background

Paediatric speech and language therapy interventions are typically complex by nature with interweaving components. Therefore, a dynamic and multi factorial approach to the development of new interventions is needed. In this four-phase intervention development project we have been developing a new intervention for pre-school children with co-occurring features of phonological speech sound disorder (pSSD) and developmental language disorder (DLD). We focus on the outcomes of expressive vocabulary (linguistic diversity) and speech comprehensibility. We aimed to incorporate linguistic, behaviour change, and implementation science into the intervention's theory of change, presented here.

Method

We employed a sequential four phase development process underpinned by the Medical Research Council (MRC) framework for developing and evaluating complex interventions (Skivington et al., 2021). Phase 1 - systematic review to identify best available evidence. Phase 2 - survey of UK clinical practice. Phase 3- e-delphi to establish consensus on core intervention elements, including behaviour change techniques (BCTs). Phase 4- refinement of core elements using co-design methods. A diverse steering group of professionals (speech and language therapists, a specialist teacher, a bi/multilingual educational support worker) and people with lived experience (parent of a child with DLD, an adult with DLD), have overseen all phases.

Results

Our theory of change highlights the complex, multi-directional relationships between intervention components. To activate linguistic change, firstly the clinician must successfully use BCTs with parents to support activity delivery at home. The intervention will be delivered within the wider context of the clinician's service structure, which will pose its own barriers and facilitators to delivery.

Conclusions

It is only by addressing complexity that SSD/DLD interventions will have value for our children, families, and clinicians, within the real world. The interconnected strands within our theory of change need evaluating and further refinement within trialling, as in line with MRC guidance.

Establishing consensus on the core elements of a novel intervention for speech comprehensibility and expressive vocabulary: a two round modified e-Delphi with UK speech and language therapists

Lucy Rodgers[1,2], Ros Herman[1], Nikki Botting[1], Helen Stringer[3]

[1]City, St George's, London, United Kingdom. [2]Sussex Community NHS Foundation Trust, Brighton, United Kingdom. [3]Newcastle University, Newcastle, United Kingdom

Abstract

Background

Few Interventions exist for pre-school children with co-occurring phonological speech sound disorder (pSSD) and developmental language disorder (DLD) features**,** despite shared linguistic underpinnings. Speech and language therapists (SLTs) therefore rely on their clinical expertise when providing intervention **(Roulstone et al., 2015)**. This study utilises this clinical expertise, by working with a panel of specialist SLTs to achieve consensus on the core elements of a new pSSD/DLD intervention currently being developed.

Method

A two-round e-Delphi was conducted. Panellists had a self-declared interest in co-occurring pSSD/DLD, and over 5 years' clinical experience. Potential intervention elements were derived from prior research and survey of UK practice. Panellists rated the appropriateness of elements on a 5-point Likert scale. Criteria for consensus was set at >75% of panellists rating the element as appropriate/very appropriate (**Nasa et al., 2021).** Round 2 included elements which did not achieve consensus in round 1, revised in response to free text comments.

Results

Thirty five SLTs from 11 UK regions completed both rounds. In Round 1, 42/47 elements achieved consensus. Subsequent revisions included parents delivering some speech activities at home *if* feasible. A second key revision was merging the separate targets for 'sound awareness' and 'phonological awareness' into a single psycholinguistic target, in response to concerns about the number of target areas (4 in round 1- reduced to 3 in round 2), and clarity of theoretical underpinning. Following round 2 there were 44 agreed elements.

Conclusion

By involving clinicians in the identification of core intervention elements, the final intervention protocol is more likely to translate to clinical practice. However, clinicians are not the only relevant key stakeholders; further co-design work is currently being conducted with both clinicians and parents to operationalise these core elements within an intervention protocol.

The acquisition of French syntax within the syntactic cartography framework: Is the Growing Trees Hypothesis applicable? Evidence from a sentence repetition task

Alessandra Scodellari

University of Geneva, Geneva, Switzerland

Abstract

The theory of *Growing Trees* (Friedmann, Belletti & Rizzi, 2021) accounts for the order of acquisition of syntactic structures in Hebrew-speaking children aged 1 to 6. The aim of our study is to assess whether the Growing Trees hypothesis applies to French acquisition and if the language being learned impacts the acquisition process. To achieve this, we developed a sentence repetition task to assess the expressive syntax of young French-speaking children aged 2 to 5, as tests currently used in clinical practice are not suitable for those under 3.

Within the syntactic cartography framework, Friedmann et al. (2021) propose that stages marking the emergence of Hebrew syntax correspond to the cognitive maturation of three distinct areas of the syntactic tree, emerging in a strict bottom-to-top sequence. In line with Friedmann & Reznick (2021), they found that age was an unreliable factor for acquiring movement structures, although specific stabilization ages for mastery were identified. For our study, 20 French-speaking children aged 2 to 5 completed a sentence repetition task which includes 86 sentences involving various syntactic movements. Inspired by Friedmann & Reznick (2021), we analyzed children's sentence productions using the Guttmann scale (Guttman, 1944) to determine if acquisition stages are present and linked to specific grammatical structures and age. The general principles of the Growing Trees Hypothesis appear confirmed, but results suggest variation in the boundaries of French and Hebrew acquisition stages, indicating that the language system may influence the acquisition process.

This study aims to advance research on early syntax acquisition models and evaluate a tool for assessing young children's syntactic development. Expanding the child sample and making minor adjustments to the sentence repetition task are essential to validate our trend data and establish norms for early syntax assessment and early intervention planning for atypical development.

ICPLA 2025 - Abstracts

Considerations for Spanish-Influenced English in Articulation Assessments for English-Spanish speaking Bilingual Children

Chelsea Sommer[1], Alliete Alfano[1], Angela Medina[1], Gabriela Flores[2], Liana Ramirez[1], Jenna Reffaie[1], Lindsey Rothman[1], Lauren Cleto[3]

[1]Florida International University, Miami, USA. [2]Broward County Public Schools, Fort Lauderdale, USA. [3]Jackson Memorial Hospital, Miami, USA

Abstract

Background: Speech-language pathologists (SLPs) must assess children in all the languages they speak. Additionally, SLPs must be cognizant of the dialect(s) that the child speaks and account for dialects when evaluating articulation and phonological skills. If the child's dialect(s) are not accounted for in an assessment, this could lead to an inappropriate diagnosis (Cole & Taylor, 1990;

Goldstein 2001). The purpose of this study was to compare two scoring protocols to determine the impact of dialect on diagnosis.

Methods: This study was approved by the Institutional Review Board at the author's university. The caregivers of the participants completed consent to be included in the study. Caregivers confirmed that participants were bilingual English-Spanish speakers. Eight bilingual children were included in this study (five males and three females who ranged in age from three years and six months of age to six years and eight months of age). The Goldman-Fristoe Test of Articulation-Third Edition (GFTA-3) in English was administered over the Zoom platform. The sessions were recorded and then later transcribed using the International Phonetic Alphabet (IPA). The GFTA-3 tests were scored, and percent of consonants correct (PCC) were calculated both with and without accounting for Spanish-influenced English (SPIE).

Results: The average PCC was 91% without accounting for dialect, however, when SPIE was accounted for, the average PCC was 94%. Although this is not a large difference, when looking at the individual participant scores, there was one participant who would have been misdiagnosed with a speech sound disorder when they had typical speech with SPIE.

Conclusion: This study underscores the importance of accounting for SPIE when assessing Spanish-English bilingual children as misdiagnosis occurred in one child. Although this misdiagnosis only occurred in one out of eight children, that is one too many. SLPs must account for dialect when assessing speech production.

PUMA-RöSt – Students' self-supervised practice in auditory-perceptual assessment of voice

Sofia Strömbergsson[1,2], Ineke Samson[1,2], Maria Södersten[3,1], Anette Lohmander[1]

[1]Karolinska Institutet, Stockholm, Sweden. [2]Danderyd University Hospital, Stockholm, Sweden. [3]Karolinska University Hospital, Stockholm, Sweden

Abstract

Background. Perceptual assessment is central in speech-language pathology (SLP) practice, and an important target in SLP education. The website PUMA has been developed to offer opportunities to practice. *PUMA-RöSt* is one of its latest additions, comprising of material and practice tasks within the area of voice disorders.

Purpose. To evaluate students' usage of *PUMA-RöSt*, and their voice rating accuracy before and after a course in voice disorders.

Method. Enrolled students (n=32) conducted ratings of voice parameters on patient recordings (n=7), with reference to the The Swedish Voice Evaluation Approach (SVEA) assessment protocol, at course start and end. Course activities included lectures and practical work, and self-supervised practice in *PUMA-RöSt*. Student activity in *PUMA-RöSt* was logged. By course end, the students responded a survey to report their experiences. The students' rating accuracy was evaluated with reference to ratings provided by SLP voice specialists (n=8); student ratings falling within the range of expert ratings were classified as 'expert-like'.

Results. The overall proportion of 'expert-like' student ratings was higher by course end (69%) than by course start (57%). For some parameters (e.g. creakiness) the improvement was larger than for others (e.g. gratings). The students' logged activity varied, but was, for some, very low; 25% of the students had less than 5 minutes logged activity. Survey responses indicated that many felt that *PUMA-RöSt* had contributed to improved perceptual assessment skills, but still felt insecure in this regard. Many requested feedback for tasks in *PUMA-RöSt* where this was lacking.

Conclusion. In combination with other course activities, *PUMA-RöSt* can contribute to students' auditory-perceptual voice ratings becoming more expert-like. For self-supervised practice to actually take place, however, it needs to be integrated with other course activities. Self-supervised assessment tasks without feedback are more likely to contribute to learning if combined with consensus discussions or other feedback.

The relationship between language disorder and thought disorder: comparing spoken narratives of people with aphasia and people with schizophrenia

Andromachi Tsoukala[1], Vitor Zimmerer[2], Derya Cokal[3], Gabriel Sevilla[4], Maggie Douglas[5], William Jones[6], Nicol Ferrier[5], Douglas Turkington[5], Stuart Watson[5], Rosemary Varley[2], Wolfram Hinzen[4]

[1]University of Cambridge, Cambridge, United Kingdom. [2]University College London, London, United Kingdom. [3]Universität zu Köln, Cologne, Germany. [4]Universitat Pompeu Fabra, Barcelona, Spain. [5]Newcastle University, Newcastle upon Tyne, United Kingdom. [6]University of Hull, Hull, United Kingdom

Abstract

Background: Language pathologies elucidate the "language-thought" relationship through associations and dissociations. People with schizophrenia (PwS) exhibit disorganized thought reflected in speech (ICD-11), whereas people with aphasia (PwA) exhibit language impairment, with potentially spared non-verbal cognition [1]. This raises questions regarding how different skills at the language-cognition interface that support communication are affected in these conditions, and how they relate. To identify shared and distinct deficits and offer insights for clinical practice, we assessed narrative production in native English PwA, PwS and healthy controls (HC) using the "Dinner Party" [2] comic strip.

Methods: We compared 20 PwA (M_{AGE}=63.7) to 30 older HC (oHC; M_{AGE}=70.2), and 30 PwS (M_{AGE}=43.9) to 15 younger HC (yHC; M_{AGE}= 45.1). We compared PwA and PwS on the degree of deviation from their respective age-matched controls [3]. Linear models analysed:

Microstructure

- Word count, utterance count
- Mean length of utterance, mean number of grammatical dependents, mean number of clausal embeddings, morphosyntactic error ratio
- Referential error ratio
- Pause proportion

Macrostructure

- Number of propositions, accurate proposition proportion
- Organisation of propositions in reference to control data [4]
- Emotion word-descriptor proportion

Results: PwA produced more but shorter utterances than oHCs, with fewer dependents and embeddings, more morphosyntactic and referential errors, and more pauses. Their propositions were organised more unusually and were more often inaccurate.

PwS produced fewer words than yHCs, shorter utterances, with fewer dependents and embeddings, and more referential errors. PwS produced fewer propositions, organised more unusually, and fewer emotion words.

Comparing differences from respective controls, PwA showed greater microstructural deviation (fewer dependents, more morphosyntactic errors). PwS showed greater macrostructural deviation (fewer propositions and emotion words).

Conclusion: Greater microstructural deviation in PwA suggests more impairments in lexicon-morphosyntax [5]. Greater macrostructural deviation in PwS suggests more discourse-, conceptual-level challenges [6]. Correlational analyses with non-verbal cognition measures [7, 8, 9] are underway.

Age-related changes in structural and pragmatic language abilities: A cross-sectional study using Japanese CCC-2 normative data

Naotake Tsukidate[1], Hiroshi Fujino[2], Tomoko Matsui[3], Yoko Kamio[4,5], Ryuko Mizutani[6], Manabu Oi[6]

[1]Yamanashi Eiwa College, Yamanashi, Japan. [2]Tokyo Gakugei University, Tokyo, Japan. [3]Chuo University, Tokyo, Japan. [4]National Centre of Neurology and Psychiatry, Tokyo, Japan. [5]Institute for Education and Human Development, Ochanomizu University, Tokyo, Japan. [6]Research Center for Child Mental Development, Kanazawa University, Kanazawa, Japan

Abstract

Background: Language development involves acquiring structural linguistic and pragmatic communication abilities. Understanding developmental trajectories of these distinct but interrelated domains is crucial for both theoretical and clinical perspectives. This study utilized normative data from the Japanese version of the Children's Communication Checklist-2 (CCC-2) to examine developmental trajectories through cross-sectional analysis. The CCC-2 provides comprehensive measurements of structural and pragmatic language abilities.

Data and Setting: The analyzed dataset comprised 22,871 children aged 3 to 15 years. Ages were reclassified into 6-month intervals for granularity and reliable sample sizes.

Methods: Generalized additive models (GAM) were used to capture potential nonlinear developmental patterns, with age as the explanatory variable and subscale scores as responses. GAM-predicted values were transformed into cosine distances to assess trajectory similarity. Hierarchical clustering with cosine distance was then used to compare structural and pragmatic domains.

Results: Using GAM analysis with conservative spline flexibility (k=8) to avoid overfitting, we identified distinct developmental patterns. In the structural language domain, the dendrogram revealed a hierarchical clustering structure: semantics and coherence (C and D) formed the most similar cluster, followed by syntax (B) and then speech (A). In the pragmatic domain, two distinct clusters emerged: inappropriate initiation and use of context (E and G) demonstrated high similarity, while stereotyped language and nonverbal communication (F and H) formed another cluster.

Conclusions: Our findings reveal distinct developmental patterns in both language domains. In pragmatic language, abilities related to discourse regulation skills like “inappropriate initiation” and “context use” show similar rapid early development, contrasting with gradual trajectories of “stereotyped language” and “nonverbal communication”. Structural language domains demonstrate a hierarchical development pattern, with “semantics” and “coherence” showing closely linked trajectories, while “syntax” and “speech” develop more independently. These findings suggest that language abilities develop in clusters rather than uniformly, with implications for developmental theory and clinical practice.

The Progression of Phonetic Transcription Skills in a Speech and Language Therapy Training Program

Anwar Althagafi, Irena Yanushevskaya

Trinity College Dublin, Dublin, Ireland

Abstract

Background
Phonetic transcription is an essential skill for speech and language therapists (SLTs). This study compares the accuracy of phonetic transcription of consonants by Year 2 and Year 4 SLT students. The aim is to identify common errors, and to gain insights into the factors influencing transcription accuracy.

Methods
Thirteen Year 2 and sixteen Year 4 SLT students were recruited. Participants performed two transcription tasks by listening to audio-recorded speech samples (20 words in each) designed to represent typical and disordered speech. Participants completed a brief survey regarding their clinical experience, interest and confidence in transcription. The accuracy of transcription was analysed using percentage correct scores; differences across participant groups and speech samples were evaluated using a two-way ANOVA. Error patterns were examined using confusion matrix analysis.

Results
Transcription of typical speech was significantly more accurate (M=85.8%, SD=18.6%) than that of the disordered speech (M=30.5% SD=33.5%; $F(1,104)=102.7$, $p < .001$). Year 2 students scored slightly higher (M=56.4% SD=39.9%) than Year 4 students (M=53.8%, SD=38.7%), though this difference was not statistically significant: $F(1,104)=0.25$, $p=.617$. Non-pulmonic consonants were transcribed with low accuracy (0%-41%) and were frequently identified as their pulmonic counterparts. Transcription errors in voicing of fricatives were also common. Consonants in the disordered speech sample were transcribed with low accuracy, especially nasal and lateral fricatives (0%-10%) and non-English sounds like [x] and [β] (0%-3%). Survey responses indicated moderate to low interest in phonetics and low confidence in transcription skills. 56.3% of Year 4 students reported using phonetic transcription ‘sometimes’, and 31.3% used it ‘rarely’ in their clinical placements.

Conclusion
Contrary to expectations, transcription accuracy was not higher in Y4 students than in Y2 students, and both groups showed low accuracy when transcribing disordered speech sample. The study findings can inform training programs to improve SLT education.

Beyond Segments: A nonlinear Approach to Phonological Analysis in Speech Sound Disorders

Carolina Marques[1], Ana Catarina Baptista[2,3], Susana Rodrigues[2,3]

[1]MR Terapias, Lisboa, Portugal. [2]University of Algarve, Faro, Portugal. [3]Center of Linguistics of the University of Lisbon, Lisboa, Portugal

Abstract

Background: Speech Sound Disorder (SSD) is a highly prevalent condition in the clinical practice of speech therapists working with children. In the presence of SSD, several studies highlight the importance of an analysis that integrates various phonological structures and dimensions, rather than focusing solely on the segment as the basic unit of phonological acquisition (Bernhardt & Stemberger, 1998, 2000; Fikkert, 1994; Lousada et al., 2017; Wertzner et al., 2012). This approach is based on nonlinear phonology, enabling more structured and specific intervention planning.

Method: To illustrate the importance of a phonological analysis based on nonlinear phonology, speech samples were collected from a 3-year-8-month-old child, a native speaker of European Portuguese with a phonological disorder. The samples were analysed and compared using both linear phonology and nonlinear phonology approaches, using a checklist (Fernandes et al., 2023) to support the nonlinear phonological analysis of SSDs.

Results: Comparative results between both analysis perspectives show that the linear phonology approach is quite limited, primarily assessing the presence or absence of speech sounds and their segments, categorizing phonological processes and/or atypical errors. In contrast, the nonlinear phonology approach, supported by a checklist, provides a holistic and refine view of the child's phonological system, identifying the interaction between segments and suprassegmental variables, while also highlighting preserved phonological skills.

Conclusions: Nonlinear phonological analysis is an essential tool for Speech and Language Therapists (SLT), not only for evaluating assessment results but also for intervention. It enables the identification of the child's actual deficits, focusing on their origin rather than merely their manifestation. With the help of the checklist, SLT can analyse all phonological dimensions underlying the child's language profile and set more concrete and organized intervention goals.

Grammaticality Judgment as a Clinical Indicator for Language Disorders in Cypriot Greek-Speaking Children

Eleni Giannakou, Christina Lytridou, Elena Theodorou

Cyprus University Of Technology, Limassol, Cyprus

Abstract

Language processing is a critical component that contributes to social and academic development of the child. However, children with Developmental Language Disorder (DLD) or Language Disorders (LD) associated with other conditions often face challenges in this domain, particularly in syntax and morphology. These challenges can be identified and diagnosed using assessment tools with robust psychometric properties. One of the tools that, according to the literature, has been found to distinguish typically language-developing children from children with LD is one that assesses the ability of the child to judge the grammaticality of the sentences. Studies have consistently shown that children with DLD exhibit significant deficits in grammaticality judgment, especially regarding tense, third-person singular, and agreement. Despite research on other language there is no research exploring grammaticality judgment in children who speak Greek. This study aims to compare the performance of typically developing (TD) Greek Cypriot children with that of children with LD. Specifically, the study examines whether the performance of these two groups in a grammaticality judgment task significantly differs, with the hypothesis that children with LD will demonstrate poorer performance. The grammaticality judgment task is one of five tasks included in a language comprehension assessment tool for Greek-speaking children, currently in the validation phase. The task items were designed based on research findings on syntax and morphology difficulties, which serve as clinical indicators for distinguishing children with LD from TD peers. A total of 12 children with LD and 30 TD children participated in the study. Results indicated that children with LD performed significantly poorer on the grammaticality judgment task compared to their TD peers, aligning with findings from previous research. These results suggest that the task might be an accurate tool for identifying children with LD, supporting its clinical utility for Greek-speaking populations.

Navigating international waters: An autoethnographic narrative of the journey to culturally responsive higher degree research supervision

Suzanne Hopf

Charles Sturt University, Albury, Australia

Abstract

Background: Culturally responsive higher degree research supervision aims to create a supportive environment for students and supervisors from diverse cultural backgrounds (Burkard et al., 2006). This environment actively acknowledges the impact of cultural differences and seeks to respect these differences, thus creating opportunities for mutual cultural learning. This presentation aims to situate the author's key learnings about culturally responsive higher degree research supervision within the broader literature on this topic.

Method: The autoethnographic method was chosen as a reliable tool for HDR supervisors to critically reflect on their knowledge, skills, and attributes with the aim of improving their future practices

(Gravett et al., 2022; Maistry, 2015; O'Neil, 2018). In this study autoethnographic narrative methods guided a critical reflection of the author's HDR supervision between 2018 and 2024 whilst employed as a full-time speech pathology academic with an Australian university whilst living in Fiji. Critical reflection, students' and co-supervisor's feedback, and retrospective analysis of activities whilst an active participant in the supervisory process, provided the data upon which this analysis took place.

Results: The narrative illustrated the inner emotional processes of the HDR supervisor as they navigate cross-cultural contexts and negotiate diverse HDR supervisory spaces. Analysis identified that development of culturally responsive HDR supervisor practices required a continuous renegotiation of professional and person identity in response to dissonant personal and interpersonal variables (e.g., geographical, cultural, linguistic differences). Reflection of own intrinsic biases and reimagining traditional supervisory power relationships has influenced future supervisory behaviours.

Conclusion: Ensuring culturally safe passage throughout the research journey required the HDR supervisor to actively engage with their intersectional cultural identity and experiences. Autoethnographic narrative may be a useful critical reflection tool for HDR supervisors seeking to develop culturally responsive HDR supervision knowledge, skills, and attributes.

Acoustic Analysis of Childhood Apraxia of Speech in a Child with Sturge-Weber Syndrome: Preliminary Findings.

Amanda Rivera, Dr. Michael Cannito, Dr. Judith Oxley

University of Louisiana at Lafayette, Lafayette, USA

Abstract

Background

Sturge-Weber Syndrome (SWS) is a rare congenital neurological disorder affecting 1 in 50,000 newborns (Sloneem et al., 2022). It is characterized by a unilateral port-wine stain, glaucoma, and neurological symptoms like seizures and hemiparesis, leading to functional variability (Bachur & Comi, 2013; NIH, 2022). The medical aspects are well-documented, but research on SWS's effects on speech-language development is limited (Raches et al., 2012; Gittins et al., 2018; Sloneem et al., 2022). A recent panel (Oxley et al., 2023) revealed apraxic features in a child's speech with SWS. This study builds on those findings, using acoustic analysis to investigate the child's speech further.

Method

This descriptive acoustic and perceptual case report analyzed the acoustic properties of speech production in a 7-year-old girl with SWS. Her spontaneous speech, recorded during a single session of speech sound therapy at the UL Speech Language and Hearing Clinic involved direct interaction with a clinician. The recordings were analyzed acoustically and perceptually using PRAAT (Boersma & Weenink, 2015, version 6.4.07) to examine segmental and suprasegmental features.

Results

A corpus of 48 words from spontaneous connected speech was extracted from a 50-minute-long session. Each utterance was annotated using a Praat text grid, facilitating detailed analysis of individual words and syllables within utterances. Of the 48 words, evidence of apraxic errors was

found in 22 words and/or syllables. At the segmental level, inconsistent vowel (i.e., distortion, substitution & prolongation) and consonant errors (i.e., manner, place, voicing) occurred. At the suprasegmental level, errors such as dysprosdy, difficulty with complex words and sequencing sounds, and multiple initiation struggles were exhibited.

Conclusion

The current study shows evidence of features that reflect the motor planning and coordination difficulties characteristic of Childhood Apraxia of Speech, where the brain struggles to plan and execute the precise movements required for speech.

Thursday 26 June (15:30 - 16:30) - Session 2

Motor skills and phonological processing in children with speech sound disorder

Matheus Alpes[1], Nathália Cagnoni[2], Patrícia Mandrá[3]

[1]Universidade Federal Fluminense, Nova Friburgo, Brazil. [2]University of São Paulo, Ribeirão Preto, Brazil. [3]University of São Paulo, Ribeirao Preto, Brazil

Abstract

Introduction: Speech sound disorder (SSD) affects approximately 3% to 5% of the pediatric population. This disorder is characterized by the presence of phonological processes at varying degrees of severity. Speech may become unintelligible, leading to socialization difficulties and academic challenges. **Objective:** To assess motor skills and phonological processing abilities in children with SSD. **Methods:** A cross-sectional, retrospective study involving the analysis of electronic medical records of patients diagnosed with SSD in a public healthcare service in Brazil. Variables analyzed included age, sex, type and productivity of phonological processes, severity level, motor skills, and phonological processing abilities. Absolute frequency and simple percentage calculations were performed. **Results:** A total of 61 medical records were analyzed, with an average age of 5 years and 6 months. 62.7% were male, 33.9% reported developmental delays and recurrent otitis, 22.6% had upper respiratory tract infections, and 14.5% had a family history of language demands. Regarding severity, 33.9% were classified as having mild SSD, 41.9% as mildly moderate, 14.5% as moderately severe, and 9.76% as severe. Consonant cluster simplification occurred in 83.9% of participants, while the devoicing of plosives and fricatives was observed in 40.3% and 32.25%, respectively. Performance was below expected levels in phonological processing skills: pseudoword memory (34.4%), digit memory (31.4%), lexical access (21.3%), and phonological awareness (21.3%). Motor skills were also below expected levels in diadochokinesis (21.3%), speech rate (21.3%), and articulatory and orofacial praxes (16.4%). **Conclusion:** The average age was 5 years and 6 months, with a predominance of male participants. Mildly moderate SSD was the most common severity classification. A significant percentage of participants showed impairments in pseudoword memory, diadochokinesis, and speech rate.

Urdu Consonant Acquisition in Typically Developing Children

Saira Ambreen, Carol To

The University of Hong Kong, Hong Kong, Hong Kong

Abstract

Background: This study aimed to explore the accuracy patterns and the age of acquisition of Urdu consonants in typically developing children.

Method: Two hundred and eight children from Pakistan, aged between 2;7 and 6;0 years participated in this study. The participants were divided into seven subgroups based on a six-month interval. Samples were collected by using the Urdu speech assessment test (USAT). This test elicits all Urdu consonants on three word positions (i.e., initial, medial, and final) and provides two production opportunities for each consonant at each word position, depending on the language-specific phonotactic constraints. USAT provides these production opportunities in varied and phonetically controlled contexts. The speech sample was transcribed and analyzed by using Phon.

Results: The consonant accuracy patterns were explored by using percentage consonant correct (PCC), percentage initial consonant correct (PICC), and percentage final consonant correct (PFCC). All these measures showed significant age differences. PCC increased from 56.2% at 3;0 years to 73.3% at 6;0 years. Children produced initial consonants more accurately as compared to final consonants in all age groups. Considering all word positions together, out of 38 Urdu consonants, 32 emerged and 25 were acquired by the oldest studied age, i.e., 6;0 years. The age of emergence and acquisition of all Urdu consonants was also explored at initial, medial, and final word positions individually.

Conclusion: Studying speech sound acquisition in children helps in understanding the developmental process of a certain language. This study provides information about the Urdu consonant acquisition patterns. These findings can assist clinicians working with Urdu-speaking children around the world.

Acoustic confusability and multi-talker processing in autistic adults

Samra Alispahic[1], Elizabeth Pellicano[2], Mark Antoniou[1]

[1]Western Sydney University, Sydney, Australia. [2]University College London, London, United Kingdom

Abstract

During the act of speech perception, resolving the speech of multiple talkers requires cognitive resources and incurs a processing cost, such as reduced accuracy and/or prolonged response times (Martin et al., 1989; Nusbaum & Morin, 1992). Although autism is a spectrum and individuals show great variability in how their autism manifests, (Herbert & Anderson, 2008), the core deficit that autistic adults typically show is in social functioning. Consequently, much research has examined how autistic people process faces, but surprisingly little research has addressed how they process the voices of multiple talkers. To address this gap in the literature, we adapted Conrad and Hull's (1964) classic acoustic confusability study to investigate spoken-language processing. In their original study, Conrad and Hull presented sequences of visual letters and found that non-autistic participants were slower to recall sequences that were acoustically similar/confusable (e.g., B, C, D, V, P) than those that were acoustically dissimilar/non-confusable (e.g., F, H, J, K, S). Here, we asked both autistic and non-autistic participants to recall sequences of spoken letter names. Crucially, by using spoken rather than printed sequences of letters, we were able to manipulate whether sequences were produced by a single talker or multiple talkers. Both groups were more accurate (and faster) when recalling acoustically non-confusable letter sequences, as expected. This pattern of results replicated the findings of Conrad and Hull (1964). Further, both groups recalled sequences of letters produced by a single talker more accurately than sequences produced by multiple talkers. A confusability by group interaction indicated that confusability effects appeared to be more exaggerated in non-autistic than autistic listeners. These results suggest that both autistic and non-autistic listeners are sensitivity to multi-talker speech, but autistic listeners may be slightly less sensitive to between-talker acoustic differences than their non-autistic peers.

Use of Picture AAC app on iPad for Augmentative Alternative Communication System in an Autistic* Child *preferred term by the autistic community (Kenny et al., 2016)

Melina Sofia Armaganidou, Voula Georgopoulos

University of Patras, Patras, Greece

Abstract

Background:
This study examines the use of the Picture AAC (Augmentative and Alternative Communication) app (Hearty SPIN) for a 5-year-old autistic boy, who had no functional communication. The app, based on picture-based vocabulary, includes eight categories: "Foods & Drinks", "Toys", "Clothes", "Places", "Feelings", "It Hurts", "Activities", and "Other." These categories were selected to meet the child's communication needs as identified in the initial assessment. The app also features voice recording, with the voice of a Greek 8-year-old boy as the default.

Method:
The intervention consisted of 40 sessions, held twice a week at a Day Center for Children. The primary aim was to address the child's basic communication needs—making requests, expressing emotions, and improving communication skills across various environments (home, school) and with different communication partners (parents, teachers). The evaluation included three sessions: an initial interview, a first meeting between therapist and child, and assessments using various tools. The intervention was followed by a final evaluation using the same tools.

Results:
The intervention yielded significant improvements: The child showed a 14% increase in language skills (1- and 2-word sentences), 25% improvement in pre-linguistic skills, and 18% in basic vocabulary. The use of the AAC app after the intervention was 74% for communication intentions and 85% for conversation skills. These results were particularly noteworthy given the limited time the parents could dedicate to supporting the use of the app at home.

Conclusions:
These findings demonstrate that the Picture AAC app can be an effective communication tool for autistic children, as it was more easily accepted and user-friendly compared to traditional AAC methods. Continued speech therapy is recommended to further support the use of the app across all communication environments and with various partners. The success of this intervention suggests that high-tech AAC apps could be highly beneficial for autistic children.

An investigation into the lexical and semantic abilities in single word productions of young adults with Down's Syndrome.

Sarah Curtis, Jamie Williams

Nottingham Trent University, Nottingham, United Kingdom

Abstract

Lexical and semantic abilities are known to be impaired in children with Down's Syndrome, however, research does not focus on how this persists into the speech of adults with Down's Syndrome (Diez-Itza, 2021). In this talk, I will bridge this gap by detailing results of a study that investigated the lexical and semantic abilities of seven adults with Down's Syndrome in a confrontation naming task. The findings showed that in line with previous work in children, phonological processes are frequently present in the speech of adults with Down's Syndrome (Rupela, Manjula and Velleman, 2010). There are novel finding of semantic paraphasias in language of adults with Down's Syndrome which have not been recorded in the previous literature. There were significant effects of lexical properties on the presence of errors in speech, low frequency and high density resulted in more phonological errors, while low imageability resulted in more semantic paraphasias. Furthermore, capabilities although impaired in adults with Down's Syndrome, vary significantly showing individual differences in language abilities, but suggesting lexical and semantic abilities are impaired in adults with Down's Syndrome.

Phonological Markers of Otitis Media: Insights into Lateral Coda Production and Prosodic Challenges in Early Childhood

Ana Catarina Baptista[1,2], Maria João Freitas[3,2]

[1]University of Algarve, School of Health Sciences, Faro, Portugal. [2]University of Lisbon, CLUL, Lisbon, Portugal. [3]University of Lisbon, School of Arts and Humanities, Lisbon, Portugal

Abstract

Background. Ear and hearing problems caused by otitis media with effusion (OME) are highly prevalent in children, with 80–90% experiencing at least one episode before the age of one year (Bluestone & Klein, 2004). While the impact of OME on linguistic development has largely focused on grammar and vocabulary, phonology is frequently considered crucial for diagnosis (Ptok & Eysholdt, 2004). OME has an adverse consequence on the phonological performance of preschool children and can affect different domains (Abdel-Aziz et al., 2024), especially episodes of OME before the 1st year. Since the 1980s, studies have shown a relationship between segmental and prosodic units, highlighting the need to analyse both segmental and suprasegmental aspects, such as stress and syllable constituents (Bernhardt & Stemberger, 1998, 2000; Fikkert, 1994). This study aims to provide empirical data on children's phonological development with early OME, specifically focusing on lateral coda production across phonological contexts. This target structure has been reported as the most problematic in European Portuguese (Gomes et al., 2024) and the most resistant to intervention (Reis, 2021). Method. Phonological performance was assessed using a picture-naming test (FLIQ) designed to control for segmental inventory, syllable structure, word length, word position, and word stress. Three children aged 4;7 to 6;4 with OME onset during the first year of life were included with mild and intermittent hearing loss. None of the children had undergone Speech and Language Therapy.

Results. The most affected structure was the target lateral coda. Successful production was favoured in stressed syllables and word-medial position, revealing a prosodic-segmental interplay. Conclusion. Early OME episodes disrupt phonological development, particularly in contexts requiring fine segmental-prosodic processing, such as the coronal lateral associated with suprasegmental constituents. Our findings suggest that the targeted structure described may contribute to identifying clinical markers for early detection and intervention in children with OME.

Impact of Sturge-Weber Syndrome characteristics on aided communication through the lens of proxemics analysis: implications for training preprofessional SLP/SLTs

Xueao Cao, Judith Oxley

University of Louisiana at Lafayette, Lafayette, USA

Abstract

Background: Sturge-Weber syndrome (SWS) is a rare vascular disorder that could potentially impact multiple aspects of development, including cognition, perception, and communication. Due to the constellation of symptoms, the communication development of children with SWS needs to be carefully examined through an integrated lens. As one of the nonverbal communication modes, proximity in aided communication plays an important role yet is not much studied.

Method: With a primary focus on proxemic relationships among a child with SWS, the speech-language pathologists (SLPs), and the communication aids, this case study uses multimodal analysis techniques to a) identify the impacts of SWS characteristics on aided communication, and b) compare proxemic choreographies of early vs experienced communication partners to support aided communication.

Results: Results showed that cognitive and visual impairments secondary to SWS might negatively impact the conversational skills of an emergent aided communicator (e.g. initiating and terminating a topic, maintaining mutual eye contact). However, the child's performance in aided communication could also be mediated by the way the communication partner arranged the proxemic features, which varied a lot between early and experienced SLP/SLTs.

Conclusion: In conclusion, this study provides evidence on how SWS characteristics could impact aided communication and highlights clinical implications for SLP/SLTs in appropriately arranging the proxemic features involved in aided communication to support the communication development of the SWS population.

CHANGES IN VOICE AND SPEECH PARAMETERS BASED ON THE SEVERITY OF ACUTE RESPIRATORY FAILURE OF PULMONARY AND EXTRAPULMONARY ORIGIN IN PATIENTS ADMITTED TO THE INTENSIVE CARE UNIT

Tatiane Cristina de Almeida, Leisi Sossolote, Larissa Berti

UNESP, Marília, Brazil

Abstract

Introduction: Acute respiratory failure (ARF) refers to the inadequate functioning of respiratory components, leading to insufficient gas exchange that directly affects speech production which is correlated with pulmonary contraction and alveolar pressure (Kaur et al., 2023). **Objective:** To compare acoustic measures of speech and voice in patients with Acute Respiratory Failure admitted to the Intensive Care Unit (ICU), based on the origin (pulmonary or extrapulmonary) and patient outcomes (deaths or discharges).
Methods: The study included 30 ICU patients with Acute Respiratory Failure: 13 of extrapulmonary origin (2 deaths and 11 discharges) and 17 of pulmonary origin (2 deaths and 15 discharges). Recordings of sustained vowel /a/, and sentence production were made during the patients' ICU stay using a mobile phone recorder and the SPIRA software. Audio analyses were conducted using PRAAT software to assess the following parameters: utterance duration, number of pauses, average pause duration, fundamental frequency (f_0), standard deviation of fundamental frequency (f_0SD), jitter, and shimmer. In addition, heart rate (HR), respiratory rate (RR), and peripheral oxygen saturation (SpO_2) were also evaluated. **Results:** The parameters that differed based on the origin of Acute Respiratory Failure and patient outcomes were f_0 and f_0SD. Patients with pulmonary-origin Acute Respiratory Failure who succumbed had the highest fundamental frequency values ($p<0.01$) and the highest standard deviation of fundamental frequency values ($p<0.01$). HR was associated only with outcomes ($p<0.01$), with higher values observed in patients who died compared to those who were discharged. No differences were found in the other parameters. **Conclusion:** Changes in voice patterns in ICU patients with ARF were characterized by increased fundamental frequency and its standard deviation. These parameters may be tested as biomarkers for identifying Acute Respiratory Failure and assessing patient severity.

Inconsistent Phonological Disorder: Quantitative and Qualitative Measures

Barbara Dodd[1], Beth McIntosh[2], Sharon Crosbie[3], Alison Holm[4]

[1]University of Queensland, Brisbane, Australia. [2]Department of EducationUniversity of Queensland, Brisbane, Australia. [3]ACU, Brisbane, Australia. [4]University of Tasmania, Launceston, Australia

Abstract

Studies of children's consistency of word production allow identification of speech sound disorder. Inconsistent errors are reported for two groups of children: *childhood apraxia of speech* (CAS) due to 'impaired precision and consistency of movements underlying speech' (ASHA, 2007); and *inconsistent phonological disorder* (IPD) attributed to impaired phonological planning. In two studies of 135 children with suspected speech sound disorder, 22 children pronounced ≥ 40% of 25 words inconsistently on three repeated trials, without exhibiting other features of CAS. The children were monolingual speakers of Australian- or Irish-English. This poster presents the qualitative analysis of error types made by children with IPD and the effect of target words' characteristics on inconsistency. Productions were analysed for patterns of consistency (i.e. the same across three productions: all correct, or with the same error) and inconsistency (i.e. different productions: at least one correct and one error, or different errors in productions). Analysis revealed that children with IPD produced 52% of words with different errors. While 56% of all phoneme errors were developmental (age appropriate or delayed), atypical errors typified inconsistency: default sounds and word structure errors. Words with more phonemes, syllables and consonant clusters were vulnerable to inconsistency, but their frequency of occurrence had no effect. Children with typically developing speech and those with IPD had different quantitative and qualitative error profiles, confirming IPD as a diagnostic category of SSD. Qualitative analyses supported the hypothesised deficit in phonological planning of words' production for children with IPD.

The use of ultrasound visual biofeedback in intervention for speech sound disorders: an updated systematic review

Aline Mara Oliveira[1], Paola Baron[1], Joanne Cleland[2]

[1]Federal University of Santa Catarina, Florianopolis, Brazil. [2]University of Strathclyde, Glasgow, United Kingdom

Abstract

Background: In recent years, ultrasound biofeedback has emerged as a promising intervention for Speech Sound Disorders (SSDs), supporting motor learning in speech therapy (McCabe et al., 2024). While a 2019 review by Sugden et al. provided initial evidence of its use in SSD, recent randomized controlled trials (RCTs) have contributed with more robust data. This systematic review aimed to update the previous review in order to evaluate the effectiveness of ultrasound biofeedback in treating SSDs. Method: This review was registered with PROSPERO and conducted in accordance with PRISMA guidelines. The inclusion criteria encompassed all study types addressing ultrasound visual biofeedback as an intervention for SSD, published from 2018 onwards. The exclusion criteria included non-peer-reviewed studies, studies involving acquired SSD, and studies reanalyzing or re-presenting previously published data. Paper selection was performed in two stages using Rayyan software. Titles and abstracts were screened independently by two reviewers in a blinded manner. Full texts of eligible

articles were then reviewed, also in a blinded manner, with any disagreements resolved by a third reviewer. Results: The initial search identified 452 articles. After removing duplicates, 336 articles remained for title and abstract screening. This step excluded studies that did not meet the inclusion criteria or were irrelevant to the study's objective. Following this screening, 21 articles were selected for full-text review. Of these, 16 met the study criteria. Additionally, one study was manually included, resulting in a total of 17 articles selected for analysis. Conclusion: The analysis of the studies demonstrates that ultrasound biofeedback is a promising intervention for SSD, with significant improvements in target sound production reported in most studies. Notably, the methodological quality of the research has improved with the inclusion of RCTs, further strengthening the evidence base for this approach.

An adaptative and explicit syntactic training for French-speaking children with DLD: A study in progress.

Hélène Delage, Alessandra Scodellari, Stanford Emily

Psycholinguistics, Geneva, Switzerland

Abstract

Purpose: Previous studies have shown that explicit syntactic training is effective for children with Developmental Language Disorder (DLD) (e.g., Delage et al., 2024; Balthazar et al., 2020). However, these programs have limitations, including small sample sizes, absence of control groups, floor/ceiling effects, and lack of personalized training (except Ebbels et al., 2024). Moreover, no study has directly compared implicit and explicit grammar training to assess the added value of the latter. Our study aims to overcome these limitations by examining the effect of the SHAPE CODING (SC) method (Ebbels, 2007), adapted for French.

Method: 84 children with DLD, aged 5 to 11, will complete a new sentence repetition task with five blocks of syntactic structures, progressively increasing in complexity and including complex syntactic structures associated with persistent difficulties, like those containing multiple embeddings (Delage & Frauenfelder, 2020). Participants will be randomly assigned to three groups of 28: one receiving explicit SC-based training targeting the block failed in the pre-test, one receiving implicit training on the same structures but without metalinguistic explanations, and one waiting control group continuing usual language therapy.

Expected results: We expect explicit training to be more effective than implicit training, as it may help children with DLD "overcome" their implicit learning deficit, as predicted by the Procedural Deficit Hypothesis (Ullman & Pierpont, 2005). Therefore, we anticipate that children in the explicit training group will show greater improvement on targeted structures compared to those in the implicit training and waiting control groups.

Conclusion: Our major aim is to provide clinicians with an explicit and adaptative training protocol of the type that has been shown effective in randomized control studies and which can be used to support syntactic acquisition in French-speaking children with DLD.

Main Phonological Processes in Children with Phonological Disorder: Analysis of Speech Production Errors

Vanessa Giacchini

Federal University of Rio Grande do Norte, Natal, Brazil

Abstract

Phonological processes are strategies used by children during the phonological acquisition process. These processes are overcome as the child refines their articulation and acquires the distinctive features present in the speech of the language to which they are exposed. However, in some cases, these alterations are not overcome within the expected age range and persist beyond the age considered appropriate for their resolution. Thus, the objective of the study was to describe the main phonological processes present in the speech of children with phonological disorder. The study involved 16 children, aged 5 to 8 years, diagnosed with phonological disorder and attending a speech therapy clinic for speech correction. All the children had normal hearing and adequate language, except in the phonological domain. The subjects underwent a spontaneous speech collection at the beginning of the therapeutic intervention, and the results showed a significant difficulty in producing consonant clusters. This was the process observed in all the children in the sample, followed by the processes of: anteriorization of fricatives (e.g., /S/ → /s/); liquid substitution (e.g., /R/ → /l/); plosivization (preference for the plosive /t/); devoicing (e.g., /z/ → /s/); liquid deletion (e.g., /l/ → /O/); and gliding (e.g., /l/ → /j/), among others with lower frequency. The results demonstrate the children's difficulty in producing complex syllables (CCV), considered one of the most difficult structures to produce in Brazilian Portuguese. From the results, it is possible to observe that, even with a small sample, there is a significant number of errors in the speech, which will impair speech intelligibility and generate difficulties in adequate communication.

WHEN SCORES DO NOT MATCH: AN INVESTIGATION OF ASSESSMENT FIDELITY AND SPEECH AND LANGUAGE THERAPISTS' VIEWS ON STANDARDIZED APHASIA LANGUAGE ASSESSMENT TESTS

N. Evra Günhan Şenol[1], Elif Nur Kaya[2], Gülkader Temiz[1], Medine Dudu[1]

[1]İstanbul Medipol University, İstanbul, Turkey. [2]Istanbul Medipol University, İstanbul, Turkey

Abstract

Assessment is the initial and very crucial step in aphasia therapy and the use of standardized tests for language assessment is a common clinical practice. Although standardized tests provide the clinician with a blueprint to test pre-determined language skills, scoring the responses of aphasic clients is not always a clear-cut process due to the variability and complexity of the client’s communicative efforts or communicative difficulties. This study aims to investigate the views and experiences SLTs concerning a standardized language assessment test in aphasia, namely the Aphasia Language Assessment test (Afazi Dil Değerlendirme testi), widely used in Turkey. The research design involves the presentation of video footage of an SLT undertaking a language assessment with an aphasic client to 10 SLTs who have different levels of experience in the field. While watching the footage for a second time, the participating SLTs are asked to score the client’s responses on the Aphasia Language Assessment score form. After they complete the assessment, they are asked to make a list of the difficulties they experience while scoring. Through a focus group discussion with 5 SLTs who agree to participate in the second phase of this ongoing study, we seek to describe the language and condition-specific pitfalls that may impact the scoring in language tests designed to assess aphasia.

Comparison of students with Non Verbal Learning Difficulties and students with Autism Spectrum Disorders in Executive Functions

ELEFTHERIA ISMIRLIDOU

University of Macedonia, Thessaloniki, Greece

Abstract

It is said that the neuropsychological profile of children with Nonverbal Learning Difficulties (NLD) and children with Autism Spectrum Disorders (ASD) bears considerable similarities. Ten children with NLD (mean age in months=117.70±11.42), and ten children with ASD (mean age in months=119,60±9.54) participated in the said study, in order to examine their Executive Function (EF) skills (planning). NLD participants performed low planning skills by exhibiting a gradually descending achievement. In addition, ASD participants performed low planning skills as well. However, the ASD group performed more intense differences with extreme low and high scores. Both groups performed achievement below the mean. However, they differed in the type of errors. Hence, individual assessment and qualitative analysis are of high importance. The current study extends the findings from previous studies indicating differences between NLD and ASD groups. Relations between errors and cognitive characteristics of each group are discussed, as well as implications of the above findings are discussed for understanding the neurocognitive substrates of both NLD and ASD.

Place of articulation in Czech children's sibilants

Tanja Kocjančič[1,2], Kateřina Bujoková[1], Tomáš Bořil[1], Kateřina Vitásková[3]

[1]Institute of Phonetics, Faculty of Arts, Charles University, Prague, Czech Republic. [2]Faculty of Education, University of Ljubljana, Ljubljana, Slovenia. [3]Faculty of Education, Palacký University Olomouc, Olomouc, Czech Republic

Abstract

Czech sibilants differ in place of articulation with /s, z/ being alveolar and /ʃ, ʒ/ postalveolar. When children's speech is assessed for a potential speech disorder, the observed errors are typically classified in terms of place of articulation (PoA). However, to improve the assessment procedure we need to know how typically developing children produce sounds and how common errors in PoA are.

17 typically developing monolingual Czech children divided into 4 groups (3-year-olds: three children; 4-year-olds: five children; 5-year-olds: seven children; 6-year-olds: two children) provided audio and ultrasound data by producing four repetitions of six words per sibilant, resulting in 1492 productions. The target segments were transcribed and perceptually classified as standard or non-standard production. To objectively evaluate PoA, the center of gravity (COG) was measured over the middle third of the segment duration.

Group results show an increase in standard production with age for all sibilants except /ʃ/: /s/ from 49% correct at 3-years to 75% at 6-years, /z/ from 15% to 61%, /ʒ/ from 13% to 48%, while /ʃ/ remains at 37%. Overall, voiceless sibilants are more often produced as standard than voiced ones, and alveolar more often than postalveolar. Within non-standard production, change in PoA was the most frequent type in voiceless sibilants, but not in voiced ones where voicing errors were more frequent.

COG measures in standard productions showed the expected effect of PoA in all age groups, with alveolar sounds having higher values than postalveolar. However, in nonstandard productions it did not always correspond to the change marked in perceptual assessment. This observation will be further addressed with ultrasound data. Overall, the results can inform clinical decisions regarding the need for speech therapy and serve as a starting point for developing objective procedures for assessing PoA in sibilants.

Psycholinguistic norms of action and object pictures in Hong Kong Cantonese – Preliminary findings

Dustin Kai-Yan Lau

The Hong Kong Polytechnic University, Hong Kong SAR, China

Abstract

Introduction

Large-scale psycholinguistic norms are getting increasingly common. In the current study, the psycholinguistic norm of a set of 260 action pictures and 350 object pictures designed to fit the Hong Kong culture with modal names, naming response time (RT), ratings of visual complexity, picture-name-agreement and familiarity is reported.

Methods

For each of the two picture sets, a naming experiment and three rating experiments, namely ratings of visual complexity, familiarity, and name-picture-agreement using Likert scales, were conducted. For each of the naming and rating experiments, 40 undergraduate students (gender-balanced, age between 18 to 21 years) reported to have born in Hong Kong and used Cantonese to communicate since kindergarten, were recruited. Each participant was tested individually in a quiet room. For each trial, one of the randomly ordered target pictures was presented and the participant was required to name using Cantonese or give ratings according to prior instructions illustrated with examples. For each picture item, the name used by most participants was identified as the modal name. H value of each picture item, which is an index sensitive to the number and weight of alternative names, was also calculated.

Results

Results of linear regression analyses indicated that for both picture sets, the naming RT was significantly predicted by H-value, familiarity, name-picture-agreement and visual complexity. The total variances (R^2) explained by the action-picture model and the object-picture model are 71.7% and 77.4% respectively.

Conclusions

The two sets of pictures were designed to fit the unique cultural background of Hong Kong. They serve as invaluable resources for designing assessments and treatment for clinical purpose. Preliminary results of the naming performance from two patients with aphasia using the two sets of pictures collected indicated possible nouns-verbs dissociation in lexical retrieval in Cantonese (e.g. Law et al., 2015). Theoretical implications will be discussed.

Coarticulation patterns and speech intelligibility in cochlear implant users

Karla Švaljek[1,2], Marko Liker[1]

[1]University of Zagreb; Faculty of Humanities and Social Sciences, Zagreb, Croatia. [2]Neuroth, Zagreb, Croatia

Abstract

The purpose of this study is to investigate lingual articulatory configurations and coarticulatory patterns in the speech of young adult cochlear implant (CI) users and determine how each of these processes influences speech intelligibility. Previous research indicates that prelingually deaf CI users show differences not only in speech sound articulation, but also in coarticulation patterns, when compared with typically hearing persons. Although much is known about the relation between articulatory targets and speech intelligibility in CI users, the relation between the kinematics of coarticulatory patterns and intelligibility in CI speakers remains unclear. Crosslinguistic data on these processes is especially scarce. Therefore, in this study we use ultrasound to quantify lingual articulatory configurations and their coarticulatory variability in young adult CI speakers of Croatian in order to compare these kinematic data with participants' intelligibility scores and clinical data.

Seven participants with different clinical statuses were chosen for this study. They differed in age at implantation (2-10 years), rehabilitation duration (0;9-6;2 years) and speech audiogram results. Speech material was recorded in a communicative setting encouraging quasi-spontaneous speech. The analysis focused on midsagittal tongue contours of Croatian fricatives /s/ and /ʃ/ in symmetrical vowel contexts using AAA software. Articulatory configurations for /s/ and /ʃ/ were quantified and the amount of separation between the two articulatory configurations was measured. Coarticulatory variability was measured by quantifying differences between tongue splines for fricatives in different vowel contexts and by calculating RMS distance scores between them. Speech intelligibility was evaluated by 32 trained listeners on a 7-point Likert-type scale.

The results show that speakers with highest intelligibility scores coarticulate more (increased difference in tongue splines for fricatives in different vowel contexts), although they do not necessarily differentiate articulatory configurations for the two fricatives (minimal difference in tongue contours for the two fricatives). Potential clinical implications are discussed.

What do educators know about language development and language support practices in toddler classrooms ?

Rochana Mroué[1,2], Caroline Masson[1], Christelle Maillart[2]

[1]Sorbonne Nouvelle University, Paris, France. [2]University of Liège, Liège, Belgium

Abstract

Background: Language development during the early years is influenced by the quality of educator-child interactions (Anderson et al., 2021; Hoff, 2006). When critical language skills are shaped (Hoff, 2013; Shonkoff & Phillips, 2000), educators play an essential role in fostering early development. Responsive and high-quality interactions have been shown to facilitate language development (Girolametto & Weitzman, 2002; Rowe & Snow, 2020). However, educators lack specific knowledge of language development and evidence-based strategies (e.g., expansions, recasts), limiting their ability to support children's language development effectively (Cash et al., 2015; Degotardi & Gill, 2019). These knowledge gaps are problematic for identifying and preventing communication challenges in at-risk children (Letts et al., 2003). Despite the critical role of educator (Law & Levickis, 2018), little data exists on their knowledge in toddler classrooms. **Objectives:** This study assesses educators' knowledge of language development by domain (e.g., phonology, lexicon) and their use of language support practices (e.g., recasts, expansions). It also examines the relationship between their knowledge and confidence in applying these practices. **Methodology:** In 40 French toddler classrooms, 72 educators completed a questionnaire that measured their knowledge of children's language development by domain (e.g., phonology, lexicon) and their language support practices (e.g., recasts, expansions). Educators also reported their confidence in their responses using a 4-point Likert scale. Descriptive statistics were used to evaluate knowledge accuracy across language domains for language development and language support strategies and confidence pattern. **Results:** We expect inconsistencies in educators' knowledge within the same language domains and a mismatch between their confidence and response accuracy (Houben et al., 2024). **Practice or Policy:** Improving educators' knowledge of language development and evidence-based practices is essential for preventing language and communication difficulties. Targeted training programs can address knowledge gaps and enable educators to apply effective strategies across various activity settings in toddler classrooms.

ICPLA 2025 - Abstracts

Accuracy of diadochokinetic performance in 5–10-year-old children

Anja Kuschmann[1], Mridhula Murali[1], Lauren Taylor[1], Jane Stuart-Smith[2], David Young[1], Joanne Cleland[1]

[1]University of Strathclyde, Glasgow, United Kingdom. [2]University of Glasgow, Glasgow, United Kingdom

Abstract

Background: Diadochokinetic (DDK) rate is often used as the primary measure to evaluate articulatory speed in children. However, examining the accuracy of children's DDK productions can provide critical additional insights (e.g. Williams & Stackhouse, 2000), especially for interpreting atypical performance. Despite this, few studies have systematically analysed accuracy, with most excluding incorrect productions from rate calculations.

This study investigated the accuracy and error patterns of monosyllabic (/pɛ/, /tɛ/, /kɛ/) and trisyllabic (/pɛtɛkɛ/) productions in 77 English-speaking children aged 5;3–10;3 years.

Method: Children's DDK productions were recorded using an app, and subsequently labelled and analysed for accuracy in terms of frequency and types of errors. Errors were categorised into changes in voicing, place and manner of articulation, and addition of sounds following Yaruss & Logan (2002).

Results: Preliminary analysis of monosyllabic productions revealed that 33.8% of children produced at least one error during /p/ production, with fewer children producing errors in /t/ (29.9%) and /k/ (23.4%). Across the group, frequency of errors varied by phoneme, with /p/ having the highest average error rate (13.8%, range = 0-100%), followed by /t/ (9.2%, range = 0-100%) and /k/ (3.5%, range = 0-44.9%). Errors were present across all ages, regardless of phoneme. Voicing errors (e.g., /p/ → [b]) were the most common, followed by combined place and manner changes (e.g., /p/ → [ʊ]). Subsequent analyses will examine the link to DDK rate and the potential impact of reported medical issues on performance.

Conclusion: Findings show that children up to 10 years can show errors in DDK productions, demonstrating the relevance of including accuracy analyses alongside DDK rate to fully capture articulatory abilities in primary school aged children. A comprehensive understanding of accuracy and error patterns will be beneficial for interpreting atypical performance, enhancing the clinical utility of DDK tasks as a diagnostic measure.

Sturge Weber Syndrome: Communication Development

Judith Oxley, Katherine Hays, Amanda Rivera, Xueao Cao

Univeristy of Louisiana at Lafayette, Lafayette, USA

Abstract

Background

Sturge Weber Syndrome (SWS) is a rare congenital neurological disorder affecting 1 in 50,000 newborns (Sloneem et al., 2022). It is characterized by a unilateral port-wine stain, glaucoma, and neurological symptoms like seizures and hemiparesis, leading to functional variability (Bachur & Comi, 2013; NIH, 2022). The medical aspects are well-documented, but research on SWS's effects on

speech-language development is limited (Raches et al., 2012; Gittins et al., 2018; Sloneem et al., 2022).

Method

This tutorial reviews existing research, and, through reference to a single-case study, describes how the characteristics of SWS interact to create clinical challenges for supporting communication development. We used exploratory case study methodology to document the rapid evolution of the child's emerging communication profile, given that SWS communication characteristics are complicated by an array of symptoms secondary to effects of medication to treat seizures and the aftermath of the seizures.

Results

The literature review revealed that reference to speech/language/communication is scant and largely subsumed under "social development" within broader psychological assessments. Notable exceptions point to evidence of social-pragmatic disorder and possible Autism-Spectrum Disorder in subgroups, but speech development is not addressed. From the case study research, we describe how cortical and other visual anomalies, side of effects of anti-seizure drugs, and symptoms of childhood apraxia of speech interact to influence the profile of the child's use of multimodal communication. A change to Eprontia, a new pediatric formulation of topiramate, resulted in dramatic changes in the child's alertness and response to therapy, particularly to speech therapy. Introduction of a communication book and speech generating device supported communication development, including speech.

Conclusion

Published research on SWS provided little help in guiding treatment for the child's extensive communication problems; however, knowledge of the side-effects of anti-epilepsy drugs and potential impact of brain lesions contributed to clinical problem solving.

Acoustic analysis of temporal speech characteristics in Greek speakers: Effect of speaking task, normal aging and speech disorder

Stamatios Giatrou, Emilia Michou, Ioannis Papakyritsis

Department of Speech and Language Therapy, School of Health Rehabilitation Sciences, University of Patras, Greece., Rion, Patras, Greece

Abstract

Background

Greek is spoken at a fast rate, a pattern possibly related to its relatively simple syllable structure[1]. Temporal characteristics of speech are influenced by a number of variables, including speaking style, normal aging and neurological disorder[2,3,4]. Reduction of speaking rate is often targeted in intervention protocols for patients with neurogenic speech disorders[5,6]. The goal of this study is to acoustically quantify speaking rate and its modifications in typical young and elderly Greek speakers and a subset of patients with Multiple Sclerosis (MS).

Method

Data were collected from 12 elderly Greek speakers (mean:75 years), 12 young adults (mean 21 years), 4 patients with MS (39-45 years old) and an age-matched control group. Participants carried out a) a semi-structured interview, b) a picture description task and c) they were recorded reading a set of twenty sentences and asked to change their speaking rate on request from normal to both slow and fast. A series of metrics were calculated based on breath group duration and pause time. Speaker performance was also analyzed on an individual basis, calculating absolute and relative rate change for each individual speaker, which was then compared to the just noticeable difference for rate of speech[7].

Results

Overall, elderly speakers tend to speak slower in every condition compared to young adults and experienced more difficulties changing their rate on command. Both groups tended to employ a faster reading rate compared to the other speaking tasks. Additionally, all speakers with MS used a slower speech rate across tasks, but, with the exception of one patient, they did manage to successfully adjust their rate of speech accordingly.

Conclusions

Overall, the findings are in agreement with the crosslinguistic literature[2,3,4]. The analysis of the performance of the patients with MS supports the clinical utility of speaking rate modification for Greek patients with dysarthria.

An acoustic analysis of German vowel development in monolingual and bilingual kindergarten children

Carolin Schmid[1], Hannah Leykum[2]

[1]Medical university of Vienna, Vienna, Austria. [2]University of Vienna, Vienna, Austria

Abstract

Background: Common practice in speech diagnostics in Austria is monolingual and carries the risk of misdiagnosing multilingual children, who often present the majority in large cities such as Vienna. Moreover the acoustic-phonetic level is rarely investigated, and vowels receive little or no attention, even though they might differentiate between typically developed children and clinical populations (e.g., CAS, ASD), who are described to display characteristic features of vowel articulation.

Aims: This study aims to give first reference values for vowel productions of typically developed bilingual children between 3;0 and 5;11 years as compared to their age-matched monolingual peers. The data should provide fundamentals for the early identification of potential disorders.

Method: A picture naming test was performed with 56 children (half bilingual). Austrian vowel phonemes were acoustic-phonetically analyzed in terms of vowel space size, vowel formant frequencies, precision, and stability, and the effect of bilingualism and age group was statistically investigated with linear models. The analysis of the data is still ongoing and will be finished at the time of the conference.

Results: The data already analyzed indicate that bilingual children show a significant smaller vowel space, and produce less precise and more variable vowels compared to monolingual children. The difference between these two groups is larger in the younger than in the older age group. Unlike in the older age group, there seems to be an effect of onset of acquisition in the younger age group, whereas there is no gender effect in any of the groups.

Conclusions: There are significant differences between monolingual and bilingual kindergarten children regarding vowel production. Further investigations will show if typically developed monolingual and also bilingual children differ from clinical populations in their vowel production and if and to what extent vowel analyses could be used for early diagnosis.

A cross-linguistic exploration of nasometry values in English-Spanish speaking bilinguals

Chelsea Sommer[1], Mabel Aday[1], Luz Amaya[1], Leilani Fleites-Fernandez[1], Natalie Gonzalez[1], Beatriz Reyes[1], Eileen Tidd[1], Kelly Cordero[2]

[1]Florida International University, Miami, USA. [2]Phoenix Children's Center for Cleft & Craniofacial Care, Phoenix, USA

Abstract

Background

The nasometer is a tool that is typically used as part of a comprehensive resonance assessment to confirm perceptual findings. While some studies have reported differences in nasometry values across dialects (Awan et al. 2015), no study has examined nasometry values in bilingual English-Spanish speaking adults. Since the phonological system is integrated across two languages, a bilingual speaker may demonstrate accented speech and Spanish-influenced English. These factors may impact the nasometry values. The purpose of this study was to explore nasometry values in bilingual English-Spanish speakers.

Methods

This study was approved by the Institutional Review Board at the author's university. Participants provided consent to be included in the study. Thirty-nine bilingual English-Spanish speaking adults were included in this study. Participants had to be 18 years of age and older, bilingual in English and Spanish, pass a hearing screening, and have typical palate anatomy. Nasometry values were obtained from vowel, singleton, and syllable repetition in both English and Spanish. Vowels, singletons, and syllables were compared using a paired samples t-test between the English values and the Spanish values for each stimulus.

Results

No statistically significant differences were noted between the participants' productions of vowels and singletons across English and Spanish, however, statistically significant differences were noted on some syllables. Specifically, productions of /pa/ (p=.03), /ka/ (p=.005), and /ki/ (p=.02) were statistically significant across English and Spanish productions, however, no other syllable productions demonstrated statistically significant differences.

Conclusion

This study found unique differences in nasalance values across three syllable productions in English and Spanish. These findings might be due to differences in production of /p/ and /k/ in bilingual speakers across the two languages (Fabiano-Smith & Bunta, 2012). Speech-language pathologists must be cognizant of how their patient's language(s) and/or dialect(s) may influence nasometry values.

Enhancing Speech Outcomes in Childhood Apraxia of Speech: A Pilot Study of Auditory Masking and Visual-Acoustic Biofeedback

Michelle Turner Swartz[1], Katy Cabbage[2], Elaine Hitchcock[3]

[1]Stockton University, Galloway, USA. [2]Washington State University, Spokane, USA. [3]Montclair State University, Montclair, USA

Abstract

Childhood apraxia of speech (CAS) is a neurological motor speech disorder that involves impairments in speech planning and programming, leading to motor sequencing difficulties and, in some cases, challenges with speech discrimination. One prominent theoretical model, Directions Into Velocities of Articulators (DIVA), suggests that an auditory feedback control system plays a crucial role in refining the accuracy of speech sounds to align with an internal auditory target. Research examining the auditory feedback loop in CAS indicates that a flawed auditory system may contribute to persistent motor errors. Thus, as expected, therapeutic interventions focused on retraining this feedback loop to improve speech production accuracy for many children yet, non-responders persist.

This pilot study aimed to address this auditory feedback dysfunction by using auditory masking (AM). AM, which introduces pink noise to disrupt auditory feedback, has demonstrated effectiveness in treating acquired apraxia (AOS) in adults combined with visual-acoustic biofeedback (VAB) which offers the advantage of real-time visual feedback intervention. Previous research documents the effectiveness of VAB for speakers with CAS and AOS. Thus, AM, combined with VAB focuses the speaker on the visual image to learn a new sound while simultaneously blocking the impaired auditory feedback system, allowing for precise adjustments to speech production.

Three participants, aged 8 to 17, with moderate CAS and limited progress in traditional therapy for /ɹ/ production, completed twenty biweekly sessions incorporating both AM and VAB. Progress was assessed through /ɹ/ probes using acoustic measures and perceptual ratings. Preliminary results showed notable improvements in production accuracy. Furthermore, PT2 and PT3 eliminated AM and VAB during practice, while PT1 removed AM in syllables and monosyllabic words. These findings suggest that combining AM and VAB holds promise as an effective intervention for enhancing speech outcomes in children with CAS.

Phonetic Transcription and Clinical Evaluation of Mandarin-Speaking Children's Speech by English-Trained Speech-Language Pathologists and Students

Lujia Yang, Karen Pollock

University of Alberta, Edmonton, Canada

Abstract

Background

Limited research has investigated speech-language pathologists' (SLPs) abilities to transcribe speech in unfamiliar languages and ways to improve those skills. This project aims to evaluate the Mandarin phonetic transcription skills, whole-word match (WWM) judgments, and intra-word consistency (IC) judgments of SLPs and SLP students who do not speak Mandarin as their primary language.

Method

Participants included SLPs (8) and SLP graduate students (12) from diverse linguistic, educational and musical backgrounds with varying English transcription proficiency. They completed three Mandarin tasks to assess how different factors influence their transcription skills. A training package was developed to provide a comprehensive overview of Mandarin's phonological system (as compared to English), with audio examples and IPA symbols for transcribing Mandarin. Participants transcribed children's accurate Mandarin productions before training and another set of correct and errored Mandarin productions using target IPA and audio models as support after training. Listeners also completed the WWM and IC tasks. Pre- and post-questionnaires gathered information on transcriber's confidence levels and feedback.

Results

Listeners' accuracy in transcribing Mandarin consonants and vowels improved significantly with a large effect size after receiving training and support. Most listeners reported increased confidence in their Mandarin transcription skills following the training. The difference between SLPs and SLP students was not significant. English transcription accuracy and music experience/training were not correlated with listeners' Mandarin transcription accuracy, but the number of languages spoken by listeners influenced their accuracy in transcribing Mandarin consonants after training. The accuracy rate and error patterns in scoring IC and WWM tasks were also analyzed.

Conclusion

SLPs and SLP students were able to make significant progress in transcribing Mandarin as an unfamiliar language following a self-directed training program. Participants' feedback was summarized to guide future training and support revisions to the training package that will be made freely available to clinicians.

A survey of the clinical management of childhood apraxia of speech: a questionnaire for Speech-Language Therapists in Greece.

Chara Zefkili[1], Georgia Vasilogiannakopoulou[2]

[1]Othisi, Patras, Greece. [2]Logou Paignia, Kalamatas, Greece

Abstract

Title: A survey of the clinical management of childhood apraxia of speech: a questionnaire for Speech-Language Therapists in Greece.

Purpose: Little is known about the current practices of speech-language therapists (SLTs) in relation to their clinical management of childhood apraxia of speech (CAS)[1]. The current study was designed in order to investigate four questions: 1. What tests/procedures are used to assess CAS? 2. What therapeutic approaches are used to treat CAS? 3. What form and frequency of treatment are used to provide treatment for CAS? 4. What are the barriers to the implementation of evidence-based practice in CAS treatment?

Methodology: An online questionnaire was distributed to Speech-Language Therapistsin Greece, containing multiple choice, yes/no, short-answer questions and Likert scale questions, in order to investigate the four research questions. IBM SPSS Statistics Version 25 was used to analyze the results.

Results: This study has only preliminary results, that cannot be presented at this time. The completion of the study estimated by the end of March 2025.

Conclusions: Because of the fact that there are only preliminary results available, there are not conclusions yet.

“Characteristics of apraxia of speech in children with developmental speech and language delay: a cohort study of Greek preschool and school- aged children”

Eleni Kyritopoulou, Anastastia Vaggeli, Aggeliki Orphanaki, Ioannis Papakyritsis, Emilia Michou

university of Patras, Patra, Greece

Abstract

Early and appropriate diagnosis of Childhood Apraxia of Speech (CAS) is important for making clinical decisions regarding the selection of the most effective intervention. The presence of concomitant developmental language difficulties can describe the differential diagnosis process. For this reason, in this study we aim to investigate the characteristics of CAS in a group of children with developmental language delay (DLD) and a matched control group.

Friday 27 June (10:45 - 11:45) - Session 3

How preschoolers learn words: Exploring the roles of phonology and semantics.

Sabah AL BILANI, Severine Casalis

University of Lille, Laboratoire Sciences Cognitives et Sciences Affectives -UMR 9193- SCALab, Lille, France

Abstract

Context: The number of words a child knows before entering primary school strongly predicts later reading skills, particularly comprehension. Studies highlight that word learning in 5- to 6-year-olds relies on two components: phonological and semantic factors (Gray et al., 2020). According to Chiat's theory (2001), lexical learning in preschool-aged children unfolds in two stages: fast mapping and slow mapping, integrating phonological and semantic processes over time. A similar two-step mechanism, described as configuration and engagement, is observed in older children and adults (Leach and Samuel, 2007). Engagement involves lexical competition, including formal (phonological, orthographic) and semantic dimensions (Lindsay et Gaskell, 2013). However, it remains unclear whether such competition occurs in 3- to 6-year-olds. **Objectives**: This study aims to explore the roles of phonological and semantic information and their interaction in lexical learning over time during the preschool years. **Methodology**: We conducted experiments with three groups (*N*=126) of 5-year-old children, comparing three approaches to vocabulary learning: phonological focus, semantic focus, and a combined approach. Vocabulary acquisition was assessed at three intervals (immediately, after one day, and after one week) to evaluate both breadth (production, recognition) and depth (phonological judgment, semantic association) of learning. **Results**: We predict that the phonological group will outperform the semantic group in breadth measures (Janssen et al.,2019), while the combined group will achieve higher scores in depth measures. Individual differences, such as prior vocabulary size, could influence the type of information required for effective word learning. **Implications:** Connecting theoretical models, mapping theory and engagement theory, will clarify the mechanisms underlying word learning in preschool-aged children. This understanding will provide deeper insights into lexical acquisition, supporting the development of innovative approaches for assessing, diagnosing, preventing, and treating vocabulary deficits.

Investigating Child Atypical Persian Phonologies during Intervention

Elena Babatsouli, Pegah Nikrah

University of Louisiana at Lafayette, Lafayette, LA, USA

Abstract

Background: Children with social communication disorder (SCD) experience difficulties with indirect language, oral, and nonverbal communication, leading to speech/language impairment (APA, 2013). Narrative-based approaches are common for intervening in phonological deficits (Glaspey et al. 2022; Hoffman et al., 1990). Few studies have examined narrative effectiveness on general language or phonological skills before and after intervention in Persian monolinguals with SCD (Authors, 2023; 2024a,b; in press), and cross-linguistically.

Aim: This study investigates Persian phonologies in monolinguals with SCD during clinical narrative intervention, using quantitative (MLUw, whole word, syllable/ cluster accuracy, PCC, pMLU, PWP) and qualitative assessment for inferences and comparisons with previous reports.

Method: Three Persian monolingual boys with SCD, aged 3;7-4;6, participated in longitudinal elicitation procedures at Initial, Treatment, and Maintenance phases (3, 12, and 3 sessions each). Phonetic transcriptions and audios were aligned in Phon (Hedlund & Rose, 2020). Transcription reliability between two native raters was 92%, and discrepancies were resolved.

Results: All children showed improvement in metric scores during therapy. MLUw increased for child 1 (3.57 to 5.82). Child 3 closed the gap with peers improving whole-word accuracy (70.25 to 83.39). Syllable-accuracy gains were consistent: 72.78 (child 1), 84.03 (child 2), 98.77 (child 3). pMLU increased, especially for child 2 (6.18 to 7.53), due to improved phoneme accuracy. PWP reached 0.69 (child 1), 0.77 (child 2), and 0.72 (child 3). Singletons remained above 93% mastery for all children. Word-medial accuracy improved, especially for challenging phonemes, with notable progress in complex clusters except for child 1.

Conclusion: Compared to pre-intervention findings, the treatment facilitated dynamic progress in singleton/cluster accuracy, enhancing syllable and whole-word accuracy overall. While gains were mostly maintained post-treatment, challenges remained word-finally and in complex clusters. The study tracks phonological skill progress during narrative intervention in the under-investigated SCD context, suggesting ways to improve therapeutic strategies.

Phonological Profiles of Children with Speech Sound Disorder: Preliminary Data

Kathryn Cabbage[1], Kelly Farquharson[2], Chris Schatschneider[2], Megan Brendal[1], Sarah Weber[2], Mary Allison Moody[2]

[1]Washington State University, Spokane, WA, USA. [2]Florida State University, Tallahassee, FL, USA

Abstract

Children with speech sound disorders (SSD) are among the most common population of children in receipt of school-based speech therapy services, as reported by 90% of school-based speech-language pathologists in the United States (ASHA, 2022). Children with SSD exhibit overt errors in speech production, but considerable research suggests that these children commonly have deficits that extend to other areas of phonology (Cabbage et al., 2018; Farquharson, 2019). Despite this, speech sound production as a phonological deficit is often not prioritized in school-based therapy because of an assumption that speech production is primarily, and sometimes solely, a motoric act. This is concerning given that children with SSD are at significant risk for other learning disabilities, including reading and spelling (Tambyraja et al., 2020).

It is highly plausible that children with SSD vary widely with respect to their underlying phonological knowledge and may benefit from a specific combination of therapy variables to support and complement their phonological needs for successful speech production and reading skills. In a case study, we identified unique differences in speech perception and working memory (Cabbage et al., 2015). To date, however, no known research study has deeply examined the breadth of phonological knowledge in a large sample of elementary-aged children with SSD. In this study, we investigated speech perception, phonological working memory, multiple aspects of phonological awareness, word reading, spelling, and speech production in a clinically identified sample (N = 67) of Kindergarten, first, and second graders.

We report on year 1, timepoint 1 data from a new 4-year investigation of phonological profiles for children with SSD. The proposed presentation will provide preliminary data from our first timepoint and will describe the assumed variability in underlying phonological profiles. Future analyses will investigate the stability of a child's phonological profile over the course of an academic year.

"The Effectiveness of Using Grid with a Child with Communication Difficulties"

SPYRIDOULA CHOLI

ELEPAP SPECIAL ELEMENTARY SCHOOL, ATHENS, Greece

Abstract

This qualitative study examines the use of the Grid platform by a child with communication difficulties, aiming to understand how this tool can improve her communication and daily life (Beukelman, D. R., & Mirenda, P., 2020). Grid is an assistive technology program that facilitates communication through images, symbols, and graphics, providing children with disabilities a flexible and adaptable means of communication.

The study involved an 8-year-old girl attending the 1st special primary school of ELEPAP. She participated in Grid usage activities for six months. Data was collected through observations, video recordings, and notes. The data was analyzed to identify changes in the child's communication abilities and to evaluate the effectiveness of the tool.

The results showed significant improvement in the child's communication skills, enabling her to express her needs and desires more clearly and accurately. The use of Grid also contributed to the improvement of her self-confidence and social interaction with her environment.

The discussion of the results includes the challenges and advantages of using Grid, while suggesting directions for future research to expand our knowledge on assistive technology and its applications.

This research concludes that the use of Grid is a valuable addition to the tools supporting children with communication difficulties, providing them with opportunities to improve their communication and quality of life (Light, J., & McNaughton, D., 2015).

Perspectives from speech and language therapists in Switzerland on supporting multilingual children

Emily Stanford[1], Margaret Kehoe[1], Maren Eikerling[2], Olivia Hadjadj[1], Hélène Delage[1]

[1]University of Geneva, Geneva, Switzerland. [2]Paderborn University, Paderborn, Germany

Abstract

Multilingual caseloads are increasingly the norm for clinicians in Switzerland, a country with four national languages and a large migrant population. We aimed to gather information on the language backgrounds of clinicians in Switzerland, their professional training, the assessment and intervention tools they use, and their perspectives on treating multilingual children within the Swiss context. We also wanted to compare different language regions within Switzerland to examine any potential impacts of regional differences on service delivery to multilingual patients. We hoped to determine if societal multilingualism and high rates of individual multilingualism affect the training and service delivery of speech-language therapists (SLTs) in Switzerland, and to better understand how SLTs in Switzerland gauge various dimensions of their work (e.g., the diagnostic process and treatment outcomes). Seventy SLTs working in Switzerland responded to our survey that was divided into three

parts: preliminary questions about work environment and patient cohort, questions about language background, training on multilingualism and current practices when assessing/treating multilingual patients, and opinion questions about the respondent's training and the suitability, reliability and efficacy of available tools. Results showed that multilingual caseloads are high across Switzerland, with SLTs in the French-speaking region reporting the highest estimates (66% confirmed at least 50% of their caseloads were multilingual). However, SLTs in the German-speaking region reported receiving the most training on multilingualism. Many SLTs (76%) confirmed they are themselves multilingual, but there is often a mismatch between the languages they speak and the heritage languages of their patients. SLTs across Switzerland reported using various assessment tools and methods with multilinguals, but felt therapeutic options are missing. These results highlight a continued need for SLTs in Switzerland to receive more specialized training in working with children with diverse language backgrounds, and reliable assessment and remediation tools for multilinguals are still missing.

Sentence Comprehension in Children with Learning Difficulties: The Case of Greek Non-Canonical Sentences

Eleftheria Geronikou, Evgenia Katseri, Maria Kyriakopoulou, Sofia Tyrologou, Arhonto Terzi

University of Patras, Patras, Greece

Abstract

Comprehending non-canonical sentences, where the Subject-Verb-Object order is not observed, poses challenges for children with learning difficulties (LD), yet its nature remains underexplored in Greek. This study investigated comprehension of such sentences by Greek-speaking children with LD and their typically developing (TD) peers in final year of primary school.

Participants were six children with LD (mean age = 137 months) and 20 age-matched TD controls (mean age = 135 months). A comprehensive battery assessed language production (Renfrew Action Picture Test, Word Finding), phonological processing (nonword reading, nonword repetition, phoneme deletion), sentence-level processing (sentence reading/comprehension with picture choice), and cognitive skills (Raven's). The non-canonical sentences assessed were passives and object relatives (vs. actives and subject relatives). Each sentence was paired with a three-picture set: target, with reversed thematic roles, and distractor.

TD children outperformed children with LD across all tasks. Mann–Whitney U tests revealed significant group differences in word finding ($p = .006$), nonword reading ($p = .003$), nonword repetition ($p < .001$), and total sentence comprehension ($p = .022$). Children with LD showed marked difficulty on phonological processing. They also differed significantly on passives from TD children ($p = .044$), with within-group comparisons (Wilcoxon) showing that they struggled with them, while TD children did not reach ceiling performance on both passives and object relatives.

Findings highlight that comprehension of non-canonical sentences is not yet fully mastered by TD children in the end of primary school, and they remain challenging for children with LD, with passives presenting a major problem.

Language Development in Children with Maltreatment Histories: Insights from Speech and Language Therapy Case Studies

Eleftheria Geronikou, Aggeliki Makrodouli

University of Patras, Patras, Greece

Abstract

Exposure to abuse and neglect during early childhood is closely linked to language delays. Children who experience maltreatment often present with delayed language skills compared to their non-maltreated peers, highlighting the heightened vulnerability of this population and the critical need for early identification and targeted intervention to support language development.

This study aims to examine the effects of maltreatment on language development by presenting individual profiles of children with a history of maltreatment. It also explores the role of speech and language therapy (SLT) in addressing these challenges, focusing on therapy goals, progression, and the importance of individualized intervention strategies.

Two case studies are presented of children residing in the same hospitality facility, both undergoing SLT evaluations. The first case is a 6;9-year-old girl with a history of neglect, who exhibited articulation difficulties, including consonant cluster simplifications and phoneme substitutions. Her expressive vocabulary was in the 60th percentile. She responded positively to therapy, quickly formed a strong therapeutic relationship, and successfully completed her program. The second case is a 6;4-year-old boy with a history of sexual and physical abuse. He demonstrated articulation difficulties, including phoneme substitutions and simplifications, with expressive vocabulary in the 40th percentile. Initially, he showed behavioral challenges, fear, and difficulty establishing trust. Over time, he developed a positive therapeutic relationship and made progress, although therapy is ongoing.

These case studies emphasize the crucial role of SLTs in addressing the speech and language difficulties experienced by children with maltreatment histories. They highlight the need for individualized therapy plans, long-term support, and tailored interventions to effectively meet the specific needs of these vulnerable children

Acoustic Analysis of Voice Onset Time and Vowel Formants in the Productions of Greek-Speaking School-Aged Children with Hearing Loss

Eleftheria Geronikou[1], Grigoria Sidirokastriti[1], Areti Okalidou[2]

[1]University of Patras, Patras, Greece. [2]University of Macedonia, Salonika, Greece

Abstract

The analysis of Voice Onset Time (VOT) in stop consonants and formant frequencies (F1 and F2) in vowels offers valuable insights into the speech production patterns of deaf children. VOT, the interval between the release of a stop consonant and the onset of vocal fold vibration, is a critical acoustic parameter distinguishing voiced (e.g., /b, d, g/) and voiceless (e.g., /p, t, k/) stops. Similarly, vowel formants (F1 and F2) provide information on tongue height and advancement, essential for vowel intelligibility, which may also be affected in deaf speakers. Investigating VOT in stop consonants and vowel formants in deaf children can reveal specific deviations, helping to identify their challenges in achieving accurate speech production.

Eight Greek-speaking children aged 10;5–11 years were assessed using a fast-mapping procedure to elicit productions of three Greek voiced-voiceless stop pairs (/p/-/b/, /t/-/d/, /k/-/g/) placed in the initial position of non-words. Vowels (/a/, /e/, /i/, /o/, /u/) were analyzed both in isolation and within non-words of CVCV structure presented in written form. Acoustic measurements included VOT for stops and formant frequencies (F1 and F2) at the midpoint of vowel duration.

Results varied as a function of hearing loss, with some inter-subject variation observed among participants with similar degrees of impairment. Voiceless stops were more accurately produced compared to voiced ones. Participants with milder hearing loss produced vowels with distinct boundaries, while those with more severe hearing loss showed a central distribution, with less defined boundaries or vowel centralization.

These findings highlight the impact of hearing loss on articulatory timing and vowel intelligibility, emphasizing the need for targeted therapeutic interventions.

Sound Challenges: The Most Affected Phonemes in the Speech of Children with Phonological Disorder in Brazilian Portuguese

Vanessa Giacchini

Federal University of Rio Grande do Norte, Natal, Brazil

Abstract

Speech Sound Disorders are difficulties children may experience during the process of speech acquisition. These difficulties may result from genetic, linguistic, or motor factors. Alterations related to linguistic difficulties are referred to as Phonological Disorder, characterized by challenges in acquiring, mastering, and producing speech sounds in the absence of motor impairments that would explain these difficulties. This study aimed to identify the main phonemes absent in the speech of children diagnosed with SSD of the Phonological Disorder type. The research was conducted with a group of 16 children diagnosed with Phonological Disorder and treated at the teaching clinic of UFRN's Speech-Language Pathology program. All ethical guidelines for conducting the study were followed. An evaluation of the patients' speech was performed prior to therapy, using spontaneous speech and a validated protocol in Brazil. A motor speech assessment was also conducted to rule out motor impairments affecting speech production. During the evaluations, all phonemes that remained absent or in the process of acquisition were identified. Following Bernardth (1992), phonemes produced correctly more than 80% of the time were considered acquired; those produced between 40% and 79% were considered in acquisition; and those produced less than 40% of the time were considered absent. The results showed that the phoneme with the lowest correct production was /R/, with only 26% correct production among the participants. Following this, the most affected phonemes were /ʎ/ and /s/, with correct productions of 47% and 53%, respectively, placing them in the acquisition category. The findings reveal significant difficulty among children in producing and acquiring the non-lateral liquid sound. The phoneme /R/ is one of the most challenging sounds to produce in Brazilian Portuguese, as confirmed by the study.

Phonetic Inventory in Croatian Children (8–25 Months): Insights from Corpus Data

Dora Knežević, Jelena Kuvač Kraljević, Tiffany Antić

University of Zagreb, Faculty of Education and Rehabilitation Sciences, Zagreb, Croatia

Abstract

Studying phonological development in any language can be quite a challenge, especially with children under the age of two. However, there is an excellent source of data that can provide rich information about language development during this period - corpus data. Corpus data studies are central to understanding of phonological development as they provide a basis for qualitative observation of developmental patterns and also for assessing the relative importance of these patterns within and between individual speakers (Rose, 2014). In the past, even sophisticated database systems such as CHILDES lacked much of the support required for phonological research. However, this changed with the advent of technologies that enable powerful applications for the corpus-based study of phonology. As already mentioned, it is extremely difficult to conduct studies of elicited production with children under the age of 2. Therefore, longitudinal spontaneous production corpora provides much needed information about children's language development (Demuth, Culbertson and Alter 2006; Demuth and Tremblay 2007; Fikkert 1994; Levelt, Schiller and Levelt 2000). Considering the fact that little is known about early phonetic inventories in Croatian, the main aim of this study is to provide an overview of the phonetic inventory in Croatian children aged 8–25 months. In order to explore the totality of speech sounds that children make in their spontaneous communication, this study uses the Croatian CHILDES corpora, i.e. the acoustic sound files of two monolingual Croatian children (male and female) in spontaneous conversational interactions. More specifically - Phon, a software programme for transcription and analysis of phonological data, is used to facilitate clinical phonological analyses (Byun & Rose, 2016) conducted by two transcribers. Although the analysis is still ongoing, we aim to uncover developmental patterns in the phonetic inventory and explore possible cross-linguistic comparisons with other languages.

The correlation between vocabulary and predictive language processing in children with Autism Spectrum Disorder and children with Developmental Language Disorder

Georgia Andreou, Vasiliki Lymperopoulou, Vasiliki Aslanoglou

University of Thessaly, Volos, Greece

Abstract

Predictive Language Processing (PLP) is an important component of language comprehension, especially real-time sentence comprehension. It concerns the ability of an individual to "think ahead" during a social interaction and therefore is considered as an aspect of pragmatic language. The ability to predict is likely to be related to the ability of children to parse continuous streams of auditory input into linguistic units corresponding to words. The semantics of a word limits the listeners' predictions and can lead them to process the sentence quickly by making correct predictions during a conversation. A high level of vocabulary and in particular the knowledge of verbs provides both semantic and syntactic information, as verbs contribute to the relationship between events and objects. That leads to the conclusion that the knowledge of verbs is vital for sentence formation. Children with Autism Spectrum Disorder (ASD) and children with Developmental Language Disorder

(DLD) exhibit difficulties in both structural and pragmatic language, leading to challenges during social interaction. The aim of the current study is to investigate the correlation between vocabulary and PLP in children with ASD and DLD. Twenty-five children with ASD aged 6-8 years old (mean age 84.09) and twenty-five children with DLD (mean age 84.19) matched for gender and chronological age were recruited. The Verbal Comprehension Scale from WISC-V was used in order to assess the participants' vocabulary, while a non-standardized test was constructed to assess the ability for PLP in Greek. The results indicated high correlation between vocabulary and PLP in both populations. The findings are discussed in the light of improving PLP in children with pragmatic difficulties through interventions to develop vocabulary level. Vocabulary development is likely to reinforce pragmatic language, resulting in improved social interaction.

Educational Kitchen: A Pilot Program for Developing Communication and Social Skills through Training in Activities of Daily Living in a Special Primary School Context

VARVARA MANTI[1,2], THEODORA BONTSIOU[2], PAVLOS KAPSALAKIS[2,3]

[1]University of Patras, PATRA, Greece. [2]6th Special Primary School, Athens, Greece. [3]National and Kapodistrian u=University, Athens, Greece

Abstract

Introduction:

Cooking is a fundamental daily activity that provides a rich context for experiential learning and skill development. This program leverages cooking to enhance students' communication and social interaction skills while familiarizing them with the demands of various environments (e.g., noise, crowds in markets). Additionally, students are trained to use tools (e.g., peelers) and acquire vital cognitive, behavioral, and motor skills to participate actively and autonomously in school and personal life.

Methodology:

Forty-two students aged 6–13 years with language disorder, attending a Special Education Primary School in the Attica region, participated in this pilot program, implemented under the scientific supervision of the school administration.The program was carried out by four teams, each comprising an occupational therapist and a speech therapist, ensuing action research methodology. Initially, parent questionnaires were used to assess the students' communication, social, and daily living skills to define individualized goals. During the first intervention cycle, all school classes participated once, and teachers qualitatively evaluated the students' communication and engagement. Reflecting on teacher feedback and observations by the Specialized Educational Staff, the second intervention cycle was redesigned to further target communication skills. After the second phase, the program was evaluated through semi-structured parent interviews to explore the generalization and establishment of communication and social skills acquired by the students.

Results:

Students demonstrated notable improvements in communication skills, including verbal and non-verbal interactions, as well as in broader social, cognitive, and motor domains. These skills showed signs of generalization beyond the school context, enhancing their functionality in real-life settings.

Conclusions:

The pilot program *"Educational Kitchen"* demonstrates potential as an innovative and impactful approach to fostering communication and social inclusion. It provides a structured yet flexible framework for developing essential communication skills alongside autonomy in daily living activities, contributing to the holistic development of students with developmental disorders.

Applying automatic speech recognition technology in screening preschool children with speech sound disorder: A pilot study

Cymie Wing-Yee Ng[1], Herman Si-Ioi Ng[2], Kathy Yuet-Sheung Lee[3], Tan Lee[3], Michael Chi-Fai Tong[3]

[1]The Hong Kong Polytechnic University, Hong Kong, Hong Kong. [2]Arizona State University, Tempe, Arizona, USA. [3]The Chinese University of Hong Kong, Hong Kong, Hong Kong

Abstract

Background:

Artificial Intelligence (AI) and Automatic Speech Recognition (ASR) technology are rapidly developing in the recent decades, and the use has been widely applied in our daily life. The use of technology which brings cost-effectiveness can be one possible way in primary screening of Speech Sound Disorder (SSD). Their applicability to detect SSD and the multidisciplinary collaborative research in recognizing disordered speech have been one of major focuses in this area. In this research study, we aim to implement an algorithm with a user interface and ASR analysers on screening speech sound disorder (SSD) in preschool children from local kindergartens in Hong Kong. The effectiveness, accuracy, challenges and limitation will be discussed.

Method:

The previous formed large-scale corpus CUCHILD (Ng & Ng et al., 2020) and the results from ASR lab studies (Ng et al., 2024; 2023) will be used to formulate an instant screening tool for the speech sound disorder (SSD) in Cantonese. A single word articulation test will be developed and used through a user-interface; instant recording will be sent to backend analyzers for analysis. The captured speech samples will be analyzed, and a screening result will be generated. The prototype of this screening tool will be implemented in screening around 150 preschoolers of Hong Kong local kindergartens.

Results:

The results obtained from the analyzer will be used to compare with the results obtained from the onsite speech therapist. The accuracy, effectiveness, challenges and limitation will be studied.

Conclusions:

The possibility of applying advanced technology in speech therapy, especially in diagnosing speech sound disorder will be investigated. Its effectiveness, challenges and limitations will give insight into future research. [271 words]

An electropalatographic study of consonantal sequence production in Down Syndrome: a case study for Greek

Katerina Nicolaidis

Aristotle University of Thessaloniki, Thessaloniki, Greece

Abstract

Background: The speech of individuals with Down Syndrome (DS) is frequently characterized by large variability (Hamilton 1993, Cleland et al 2009) due to, among others, difficulties in gestural coordination and planning, anatomical/physiological differences and possible presence of phonological delay/disorder. To date, little is known about articulation and gestural coordination in individuals with DS from different linguistic backgrounds for the investigation of the contribution of language specific constraints to the variability observed.

Methods: Acoustic and EPG data were recorded from a Greek adult with Down syndrome. The speech material consisted of real words containing the lingual consonants /t, k, s, l, r/ and the consonantal sequences /kl, lk, kr, rk, kt, tk, sk, ks, ts/.

Results: Articulatory data uncovered differential articulatory patterns during consonant production when singleton vs. in consonantal sequences. For instance, a more retracted and less constricted alveolar gesture for the /l/ in the /kl/ cluster than when singleton suggests influence from the dorsal gesture in the attainment of the alveolar constriction. More variability was evident in /lk/ sequences which also varied as a function of the vocalic context. Depending on the articulatory demands involved in the different consonantal sequences, undershoot of lingual gestures, coarticulatory effects, deletion and substitution patterns were found.

Conclusion: Differential patterns of articulatory coordination during consonantal sequence production are interpreted in line with anatomical constraints present in the individual with Down Syndrome as well as potential difficulties in gestural control. Data on articulatory patterns in DS for Greek, a system with a rich repertoire of consonantal sequences, provide important insights in the contribution of linguistic and articulatory constraints in speech production in DS.

An Investigation of the Spoken Language Skills of Bilingual Children Speaking Turkish and Russian

Buse Özbaş[1], Aylin Başaran[2], Bella Shabalina Gelleş[3]

[1]Professor Dr. Mustafa Kalemli Tavşanlı State Hospital, Kütahya, Turkey. [2]Yankım Special Education and Rehabilitation Center, Kocaeli, Turkey. [3]Istanbul Private Clinic, İstanbul, Turkey

Abstract

Introduction: Bilingualism is a multidimensional concept encompassing psychological, sociocultural, and linguistic dimensions (1). Consequently, there is no consensus on the definition of bilingualism (2). It is estimated that approximately 60-75% of the world population is bilingual (3). While the language development of bilingual children largely parallels that of their monolingual peers, it may exhibit notable differences (4). These differences raise questions about whether bilingual children develop language skills within the normative age range and at the expected pace (5,6). This study

aims to compare the spoken language skills of Turkish-Russian bilingual children with those of their Turkish monolingual peers.

Method: This comparative descriptive study involved 40 children aged 6 to 8;11 years, including 20 Turkish-Russian bilinguals and 20 Turkish monolinguals. The Turkish adaptation of the *Test of Language Development: Primary* (TOLD-P:4), referred to as the *Turkish School-Age Language Development Test* (TODİL), was used for data collection (7). The administered subtests included Picture Vocabulary, Relational Vocabulary, Word Definition, Sentence Comprehension, Sentence Imitation, and Morphosyntactic Completion.

Results: When participants' scores were compared with test norms, it was observed that 10% of bilingual children performed at a weak level, 5% below average, 20% at an average level, 35% above average, 10% at an advanced level, and 20% at a highly advanced level in spoken language performance. No statistically significant differences were found in spoken language skills between bilingual and monolingual children ($p>0.05$).

Conclusion: The spoken language performance of bilingual children with parents from different linguistic backgrounds can vary, ranging from below expected levels to being comparable to that of their monolingual peers (8,9,10,11,12,13). In this study, Turkish-Russian bilingual children demonstrated spoken language skills similar to those of their monolingual peers.

Effectiveness of an individualized teletherapy program for a child with Developmental Language Delay in Greek: a case study.

VASILIKI-KONSTANTINA PAPADOMARKAKI[1], THOMAIS PAPADOPOULOU[1], MARIA DOUMTA[2], KYRIAKI TASIOU[2], DIMITRIOS CHASAPLADAKIS[2], ZOITSA PAPAVRAMOPOULOU[1], IOANNIS PAPAKYRITSIS[1], EMILIA MICHOU[1]

[1]DEPARTMENT OF SPEECH AND LANGUAGE THERAPY, SCHOOL OF HEALTH REHABILITATION SCIENCES, UNIVERSITY OF PATRAS, PATRAS, Greece. [2]PRIMARY EDUCATION OF THE DODECANESE, DEPARTMENT OF KOS/NISYROS, NISYROS, Greece

Abstract

Background

Following the prevalence of the Covid-19 pandemic, the use of teletherapy for speech therapy provision became more common (Lundblom, Cohn, & Covert, 2022). Studies support the effectiveness of this method for treating a variety of communication disorders, including developmental language delay (Snodgrass et al, 2016). The term 'language delay' refers to children who reach language development milestones at a slower rate than their peers, showing deficits in expression and/or language comprehension (Hawa & Spanoudis, 2014). While most of these cases catch up with their peers by preschool age, a proportion of them experience difficulties later in their school years (Matte-Landry et al., 2020).

Method

We present a clinical case study of an 8-year-old child with language delay. An intensive and individualized 13-session intervention program was implemented via teletherapy to target phonological awareness skills and reading. Data collected via standardized tools (e.g. Logometro®,

Antoniou et al., 2022) and informal tests were analyzed to develop the treatment plan. Intervention objectives were set to improve rhyme perception, phonemic awareness, reading accuracy and comprehension. Following the program, a reassessment was conducted to investigate treatment effectiveness.

Results

Findings indicated improvement in phonological awareness, particularly in rhyme perception/production and phoneme segmentation, however, no corresponding improvement was found in reading accuracy and comprehension. Additionally, there was evidence to indicate improvement of oral comprehension which was not a direct goal in this study and thus it should be interpreted with caution.

Conclusion

The implementation of web-based treatment protocols for a child client, was overall a challenging process. However, the intervention program was generally carried out with minor issues and promising results. It is recommended that teletreatment programs integrating different reading tasks and treatment approaches should be researched as together with the effect of treatment duration as a parameter of effectiveness.

Low Socioeconomic Status and Language use in School-aged children in a rural area in Greece: a cohort study

Filia Sarrou[1], Zoitsa Papavramopoulou[1], Areti Okalidou[2], Michaela Nerantzini[3], Ioannis Papakyritsis[1], Emilia Michou[1]

[1]Department of Speech and Language Therapy, School of Health Rehabilitation Sciences, University of Patras, Greece., Rion, Patras, Greece. [2]Dept. of Educational & Social Policy, University of Macedonia, Salonika, Greece. [3]Department of Speech and Language Therapy, University of Ioannina, Greece., Ioannina, Greece

Abstract

Introduction: Low Socioeconomic Status (SES) has been correlated with lower educational achievement in later school years[1,2]. Children from low-SES households and communities have been found to develop academic skills slower than their peers, yet there is still a research gap with regards to the language domains that are mostly affected or are modifiable through school years.

Purpose: Here we aim to investigate any potential effects of low SES in primary school-aged children across the different grades.

Methodology: The sample consisted of 21 children aged 6-12 years from lower and higher SE status, who underwent speech and language assessment (Action Picture test, DVIQ, DeLV test etc) and picture description tasks. Comparison of the tests' results were performed against the normative data. Further comparisons were made between low and high SES group.

Results: Percentage of correct utterances in terms of syntactic and morphological completeness appeared lower in the low SES group compared to high SES, yet no difference was found in the domain of pragmatics between groups. Heterogeneity appeared within the low SES group in terms of

language perception in the lower school grades. Interestingly, descriptive language was at the same level across the 2 groups within each school grade.

Conclusion: Preliminary results indicated that specific domains of language perception and production may be affected in the school age period in low SES, yet these differences might not be pronounced as the children's language develop through the school years. Our results are of interest especially for language development in low SES through primary school and may inform the appropriate areas to intervene timely for these children.

1. Morgan, PL, Farkas, G., Hillemeier, M.M & Maczuga, S (2009) J of Abnormal Child Psychology, 37: 401-413

2. Jacobson PF, Thompson Miller S. (2019) Int J Speech Lang Pathol, 21(2):143-152.

Acoustic analysis of temporal speech characteristics in Greek speakers with Schizophrenia: A pilot study

Vasiliki Iliopoulou, Emilia Michou, Ioannis Papakyritsis

Department of Speech and Language Therapy, School of Health Rehabilitation Sciences, University of Patras, Greece., Rion, Patras, Greece

Abstract

Background

Atypical suprasegmental patterns in the speech output of patients with schizophrenia have been well documented, with most studies focusing on emotional prosody (e.g. Lucarini, Grice, Cangemi, Zimmermann, Marchesi, Vogeley & Tonna, 2020). A few studies have also attempted to document non-emotional, temporal features of connected speech in this population in an effort to identify relevant clinical markers (e.g. Parola, Simonsen, Bliksted & Fusaroli, 2018). However, acoustic studies of connected speech in schizophrenia in the Greek population are lacking.

Method

This study constitutes a first attempt to acoustically quantify atypical temporal patterns in Greek schizophrenia across different connected speech tasks. Data were collected from 8 Greek speakers (4 males and 4 females) with a diagnosis of schizophrenia (mean: 49,75 years, range: 45-58 years) and an age-matched control group. A convenience sampling procedure was followed. Participants carried out a) a semi-structured interview, b) picture description tasks and c) a reading task. The latter involved ten simple and ten phonologically complex sentences that had to be read in three speak ing rate conditions: normal, slow and fast. Temporal metrics based on breath group and pause duration were devised. Absolute and relative rate change for each individual speaker was measured and compared to the just noticeable difference for rate of speech (Quené, 2007).

Results

Temporal speech patterns of patients with schizophrenia were characterized by high heterogeneity; however acoustic measures tended to be in line with perceptual clinical features. Additionally, differences emerged compared to the control data, in terms of the temporal organization of connected speech. The ability to successfully adjust speaking rate on command was relatively spared.

Conclusions

These finding of the connected speech patterns of Greek patients with schizophrenia supports the clinical utility of temporal speech analysis.

Stops and rhotics in complex onset: Acoustic cues to phonological acquisition in European Portuguese

Susana Rodrigues[1,2], Liliana Gomes[3], Susana Silva[4,5], Luis M. T. Jesus[6,7,8], Brígida Patrício[9,10]

[1]University of Algarve, Faro, Portugal. [2]Center of Linguistics of the University of Lisbon, Lisboa, Portugal. [3]Health School of the Polytechnic Institute of Porto (E2S-P.Porto), Porto, Portugal. [4]Center for Psychology, University of Porto, Faculty of Psychology, Porto, Portugal. [5]Educational Sciences, Psychology Department, University of Porto, Porto, Portugal. [6]School of Health Sciences (ESSUA), Aveiro, Portugal. [7]Institute of Electronics and Informatics Engineering of Aveiro (IEETA), Aveiro, Portugal. [8]Intelligent Systems Associate Laboratory (LASI), University of Aveiro, Aveiro, Portugal. [9]Scientific area of Speech Therapy at the Health School of the Polytechnic Institute of Porto (E2S-P.Porto), Porto, Portugal. [10]Center for Rehabilitation Research (CIR), Porto, Portugal

Abstract

Background: The complex onsets are typically considered a late-acquired structure in European Portuguese – EP (Amorim, 2014; Freitas, 1997; Lousada, 2012; Ramalho & Freitas, 2018). Factors contributing to this include the gradual mastery of articulatory gestures, the acoustic and articulatory properties of the involved segments (/l/ and /ɾ/ as the second consonant in the complex onset), and the structural complexity of these syllables (Ramalho & Freitas, 2018). Studies on the acquisition of complex onsets in EP children show inconsistent findings: Some suggest that consonant + lateral (Cl) is acquired before consonant + rhotic (Cr) (Amorim, 2014; Mendes et al., 2013), while others report the opposite (Cr then Cl) (Almeida, 2011; Ramalho & Freitas, 2018). In this study, we describe the characteristics of the acoustic event in complex onset (stop + rhotic), as reported by Rodrigues (2015), thus contributing to better understanding of phonological acquisition in EP.

Method: Acoustic data were collected from ten EP adult speakers, producing trisyllabic words with paroxytone stress pattern, with the rhotic consonant at the middle of the word in complex onset position. First (F_1) and second (F_2) formant frequencies and duration were analysed to characterise the acoustic event. Statistical analysis was conducted using R.

Results: The results reveal a significant effect of the nuclear vowel on the duration of the acoustic event. Regarding the quality of the event, the nuclear vowel also influences the formant frequency values, with a tendency to centralise these frequencies. The phonetic realisation of the rhotic has no significant effect on the frequency values.

Conclusions: The acoustic characteristics observed help explain how children process complex onsets (stop + rhotic) in EP. These findings highlight the importance of understanding adult speech patterns to better interpret children's phonetic-phonological development.

Statistical Learning of Multiple Structures in Autistic Individuals

Zixuan Wu, Cheuk Ying Cheryl Cheung, Carol K. S. To

the University of Hong Kong, Hong Kong, China

Abstract

Background: Statistical learning plays a role in language acquisition. Given the language impairment in autistic individuals, it is possible that statistical learning may account for their language difficulties. The co-occurrence of multiple structures, like adjacent (AD) and nonadjacent dependencies (NAD) within a sentence is prevalent in natural language (e.g., in “She is dancing”, “she” and “is” form AD, while “is” and “-ing” form NAD). Therefore, studying the learning of both dependencies is more analogous to natural learning environment than studying AD or NAD alone in this population.

Methods: Fifteen Cantonese-speaking autistic adults (the ASD group) and 15 age-matched neurotypical (NT) controls were exposed to sequences of eight linguistic elements, where two of the elements formed AD, while the other two constitute NAD. Eye-movements were recorded. If learning was successful, the reaction time (RT) or gaze latencies for AD or NAD elements were expected to be shorter than those for the remaining four non-dependent elements. After exposure, participants were asked to recognize whether the AD and NAD patterns were learned or unlearned in the exposure phase.

Results: During exposure, the decrease of RT and gaze latency for AD and NAD elements relative to the non-dependent elements were found in both groups. The magnitude of decrease in both groups was also similar. The post-exposure recognition task showed that only the NT group but not the ASD group was able to recognize the learned and unlearned AD and NAD patterns.

Conclusion: The ability to incidentally bind adjacent and nonadjacent elements was intact in the ASD group. However, the weaker explicit recognition of AD and NAD patterns in this population may suggest reduced memory storage or retrieval of newly learned linguistic regularities.

When, how and what’s for Speech and Language Therapy in literacy difficulties in Greece: web-based questionnaire and a case study.

AGGELIKI SOUKA[1], EMILIA MICHOU[2], IOANNIS PAPAKYRITSIS[2], ZOITSA PAPAVRAMOPOULOU[2]

[1]Department of Speech Therapy, School of Health Rehabilitation Sciences,University of Patras, PATRAS, Greece. [2]Department of Speech Therapy, School of Health Rehabilitation Sciences, University of Patras, PATRAS, Greece

Abstract

Purpose: Literacy difficulties, affecting 10-20% of the population, involve challenges in reading, writing, and mathematics, often linked to broader cognitive and behavioral issues. This study aims to examine the techniques and factors influencing SLT interventions for literacy difficulties in Greece.

Method: A mixed methods approach was used, using a 40-item online questionnaire that included open and closed questions and a case study. Data, collected from 72 Greek SLTs through random sampling, were analysed using descriptive and statistical methods, including Pearson correlation.

Results: Participants predominantly delivered individualized interventions beginning in early grades, with sessions typically lasting 30-45 minutes and conducted twice weekly. Techniques varied, adapting to individual needs without reference on standardized methods. For reading difficulties, assisted text reading and comprehension strategies were preferred. Writing interventions emphasized mnemonic techniques and morphosyntax improvement, often incorporating pictorial methods. Mathematical interventions focused on visual aids and working memory strategies. Correlational analyses revealed significant relationships between SLTs' levels of education and experience ($p=0.015$, $r=0.286$), years of experience in relation to the number of children they managed annually ($p=0.032$, $r=0.253$), and the format of sessions depending on the work context ($p=0.007$, $r=- 0.315$). On the other hand, the number of children managed by SLTs did not appear to influence the frequency ($p=0.105$, $r=-0.193$) or the duration ($p=0.121$, $r=-0.184$) of the sessions

Conclusions: SLTs play a critical role in addressing literacy difficulties through individualized, multifaceted approaches. While intervention practices align with international standards, reliance on seminar-based resources highlights a need for increased access to scientific literature. The findings support the development of standardized protocols to optimize intervention efficiency and encourage further research into SLT practices across diverse contexts. Finally, empirical management and ongoing training are essential to facilitate the management of this heterogeneous population.

Application of a Top-Down Morphosyntactic Intervention and the ReST Program in a Preschooler with Speech Dyspraxia: A Case Study

Panagiotis Ioannis Topalis[1], Ioannis Papakyritsis[1], Zoitsa Papavramopoulou[1], Emilia Michou[1,2]

[1]Department of Speech and Language Therapy, School of Health Rehabilitation Sciences, University of Patras, Patras, Greece. [2]Medical School, University of Manchester, Manchester, United Kingdom

Abstract

Background

The Rapid Syllable Transition Training (ReST) has shown beneficial results in CAS (Childhood Apraxia of Speech; Thomas, McCabe, Ballard & Lincoln, 2016; McCabe, Thomas & Murray, 2020) in English but it has not been formally applied in the Greek population. Furthermore, there exists no specific intensive intervention program for morphosyntax in Greek; protocols based on direct imitation have been found effective (Eisenberg, 2013; Ebbels, 2014).

Method

The aim of this case study is to demonstrate the applicability and effectiveness of a combined individualized speech (ReST) and morphosyntax intervention program. Participant is a preschool boy (5;1 years-of-age) with dyspraxic speech patterns and morphosyntactic difficulties. The individualized morphosyntax intervention program consisted of picture description activities and direct imitation. Speech and language samples were obtained before and after the 9-week program intervention and at each treatment session. Outcome measures collected in each therapy session included: (1) overall sentence accuracy, number of repetitions, article-noun agreement and correct use of function words

for the morphosyntactic program, (2) overall accuracy on word production and accuracy on sounds and beat for the ReST.

Results

While there was an increase in the child's correct response rates during sessions, no difference was observed in dyspraxic items at reassessment. Concerning the effects of the intervention on morphosyntax, there was an increase in the correct use of articles and a trend showing overall improvement in functional word production. However, a need for more repetitions to produce the correct utterance was observed, as the average utterance length increased in each session.

Conclusions

The ReST program as applied in Greek, generated promising results. Similarly, the framework of top-down activities facilitated by direct imitation seems to support learning of functional words in hybrid treatment conditions. However, both intervention programs need to be further investigated in a larger scale.

Comparing ChatGPT-Generated and SLT-Created Intervention Plans: An Exploratory Study

Sofia Balasi, Eleftheria Geronikou, Voula Georgopoulos

University of Patras, Patras, Greece

Abstract

This study explores the ability of OpenAI's ChatGPT to generate intervention plans for speech and language therapy (SLT), comparing two versions—ChatGPT-4 Legacy and Best models—with plans created by recent SLT graduates. The investigation used three case scenarios addressing phonological disorders, speech fluency challenges, and aphasia, developed based on existing literature. Three recent SLT graduates were instructed to create intervention plans for each scenario, adhering to detailed guidelines on structuring long-term and short-term goals, specifying intervention components (materials, activities, and success criteria), and including evidence-based documentation. The same guidelines were applied to both AI models to assess their ability to replicate professional expectations.

The findings revealed distinct differences between the two AI versions. While ChatGPT-4 Legacy followed the basic intervention plan structure, its responses were general and often incomplete, lacking depth in addressing complex goals. In contrast, the subscription-based Best ChatGPT demonstrated better performance, providing more detailed responses and effectively breaking down short-term goals into actionable steps. However, despite this improvement, its outputs were not fully aligned with clinical needs and bibliographic references were found to lack grounding in current, evidence based research.

Compared to the AI-generated plans, the graduate's plans were more comprehensive, providing detailed outlines of clinical activities, materials, and evidence-based strategies. Graduates' responses demonstrated greater depth and accuracy, particularly in addressing intervention goals and strategies. While Best ChatGPT showed promise in meeting some clinical requirements, it fell short in providing the level of rigor and evidence-based justification expected in SLT practice.

In conclusion, in this exploratory study, the subscription-based Best ChatGPT outperformed the free Legacy version, but is best utilized as a complementary tool to human expertise. As the model continues to evolve, it shows potential for greater utility in clinical settings, though the detailed and evidence-based approach of trained professionals remains essential for optimal outcomes.