



# 11<sup>TH</sup> ESLA CONGRESS OF SPEECH AND LANGUAGE THERAPY

New frontiers in speech and language therapy:  
advancing practice, research and education



**26-28 MAY 2022 | SALZBURG-AUSTRIA**



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## A web-based method for the remote and in-person elicitation of narratives from language impaired and unimpaired individuals

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### Background

The present work is part of the project “PLan-V: A Speech and Language Therapy Platform with Virtual Agent”, a personalized assistive speech and language intervention platform for people with chronic neurogenic communication disorders. Narratives will be used as a tool for the automatic assessment of aphasia severity via a machine learning algorithm. Given the protection measures due to the COVID-19 pandemic, a web-based application has been developed to facilitate the collection of speech data via a number of narrative tasks, both in in-person and in remote administration modes, to promote uniformity and consistency of administration, and to ensure systematic data organization, storage and protection.

### Method

A pilot study has been conducted, aiming to compare narratives elicited remotely to narratives collected in an in-person elicitation mode from ten unimpaired adults, using a within-participants research design. In the remote elicitation setting, each participant performs the narrative elicitation protocol via the web application in their own environment, with the assistance of a speech and language therapist in the context of a virtual meeting (video conferencing). In the in-person elicitation setting, the participant is in the same environment with the investigator. Data are manually transcribed using the CHAT format of AphasiaBank. Transcripts are automatically processed with NLP tools (tokenizer, lemmatizer, POS tagger), while text features regarding specific variables of spoken narrative discourse, such as verbal productivity and fluency, grammatical complexity and informational content, will be automatically computed. Additional measures of task and test duration, as well as degree of participants' interaction with the application and the investigator, such as number of instruction playbacks, number of verbal encouragements and facilitation questions, number of investigator's speech turns, will be calculated in the two settings. In this paper we will present the results of the collected narratives, which are currently being analyzed across the above dimensions.



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## Amyotrophic Lateral Sclerosis (ALS): dysphagia assessment and nutritional aspects management

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**Background:** This research examines a number of patients with Amyotrophic Lateral Sclerosis (ALS), by evaluating the impact of specific dietary protocols in the management of malnutrition. The study aims to verify how correct nutritional management - through diet protocols and dysphagia assessment scales - can improve the nutrition and nutritional status of patients affected by this pathology, reducing the related complications and improving their quality of life.

**Materials and Methods:** 11 patients diagnosed with ALS were examined and subjected to two different eating attitude screening tests (Eating Attitude Test 10; Northwestern Dysphagia Patient Check Sheet), which were repeated six months apart.

**Results:** The carried out evaluations showed an improvement (36% of the cases) in the history of recurrent pneumonia and in the frequency of feverish peaks. As regards the behavioural variables, improvements (36% of cases) in awareness of dysphagia and in the management of salivary secretions were observed. In 91% of cases there was a marked improvement in the delay of the pharyngeal swallow reflex.

**Discussion:** The results of the research, according to the scientific evidence of the sector, point out the importance of taking care of the nutritional status of patients in relation to their life expectancy and quality and highlight the value of constant monitoring of swallowing abilities to prevent associated complications (e.g. malnutrition and / or dehydration).

**Conclusions:** Correct multidisciplinary management, which includes a constant assessment of swallowing and the use of specific dietary protocols, improves the nutrition of patients with ALS, reducing the risk of development of complications (e.g. malnutrition, aspiration during the meal) and improving the patients' quality of life.



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## An inclusive integrative review of dysphagia and choking in adults with mental health conditions.

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Risks associated with dysphagia and choking remain under-reported in working age adults with Mental Health conditions. Speech language therapists (SLTs) have a vital role in assessing the swallow and mealtimes and in supporting patients' communication of this. However, the patient and caregiver perspectives are often missing from research on dysphagia in mental health conditions and it is not known how much their views influence policy and practice.

### Aim

To include patients and caregivers in a review of the literature around dysphagia and choking in working age adults with mental health conditions

### Methods

With the first author, patients with mental health conditions co-designed the concepts and search terms for an integrative review of the literature and discussed the inclusion and exclusion criteria. The protocol was published on Prospero. Following the search and data extraction from included papers, accessible resources were used to ask patient groups about the content themes.

### Results

Patient perspectives informed the integrative review which resulted in the inclusion of 31 papers. Patients confirmed three main themes in the studies: an emphasis on medical perspectives, an absence of information regarding mealtime context, and decision-making being led by clinicians. Within these themes, the impact of medication on the swallow, lack of consideration of psychosocial and environmental influences, and behavioural aspects were also identified as important considerations.

### Conclusions

Mental health services aspire to co-production and inclusion in recovery and promote shared decision-making (NHS England, 2017). However, studies exploring dysphagia and choking in adults with mental health conditions do not reflect this aspiration being realised. In most studies, the personal perspectives and lived experiences of patients were not represented and the impact of the dysphagia or choking on the person, family or caregivers was rarely described. Patients commenting on the emergent themes identified this as an important area for further co-designed research.



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## Assessing narrative skills of children with Developmental Language Disorder using automated language analysis

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### Background

Language sampling provides information about spoken language within a naturalistic communication environment. However, the main barrier to clinicians using language sample analysis is the time needed for transcription. The Language Explorer app addresses this barrier in the assessment of children with Developmental Language Disorder (DLD). The app is designed to generate a range of language measures from data sampled through story retell, comprehension and sentence repetition tasks.

### Aims:

Establishing the feasibility of Language Explorer to describe language skills in DLD is a key step in the app's development. This evaluation aims to determine whether Language Explorer can distinguish children with DLD from those with typically developing language and provide accurate measures of language skill.

### Methods:

Data from 600 typically developing children, aged 4;0 to 7;11 years were used to test and improve the sensitivity of Language Explorer measures, and these will be compared with data we are currently collecting from 60 children with DLD. Interviews with SLTs delivering the assessments and parents are used to gauge children's engagement, and clinical acceptability of the app.

### Main results:

Exploratory graph analysis was used to understand the relationship between the different language measures and identify candidate language scores that distinguish children with DLD from typically developing children. This analysis yielded 5 underlying dimensions assessing narrative comprehension, vocabulary, morphosyntax, productivity and intelligibility, which could form composite scores. We will go on to explore how scores could describe distinct language profiles in DLD. Finally, we will use thematic analyses to identify common themes in SLTs and parents/carer perspectives.

### Conclusions:

Language Explorer is a novel tool for automated narrative analysis. This could be an important advance in SLT, providing detailed assessment without laborious manual transcription. Establishing the feasibility of Language Explorer to describe language skills in DLD is a key step in the app's development



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## Assessment of Childhood Apraxia of Speech in Estonian: a survey of SLPs' practice

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### Background:

Speech-language pathologists (SLPs) working in most non-English speaking countries, rely on English-based research for diagnosing childhood apraxia of speech (CAS). This practice ignores language specific differences that are relevant in the context of assessing motor speech disorders, including CAS (Wong, Lee & Tong, 2020). Comparative cross-linguistic studies about CAS are important for determining clinically relevant features of CAS in a given language and to characterize the elusive underlying mechanism of apraxia of speech.

### Aim / Objectives:

This study has three aims: (1) to determine the diagnostic features that SLPs consider important when diagnosing CAS in Estonian, (2) to identify differences and similarities between features of CAS in English and in Estonian, and (3) to characterize CAS features that are most commonly reported by Estonian SLPs for individual cases of CAS.

### Methods:

Estonian SLPs, with experience in working with motor speech disorders, completed an online survey about features of CAS in Estonian. In the first part, SLPs were asked to rate the importance of 63 potential features of CAS. In the second part, SLPs were asked to consider one child with CAS they had worked with and choose all the features related to CAS they observed in that child. Relevant background information was also collected. 52 participants have currently completed the survey; data collection is on-going.

### Results:

This presentation will characterize the diagnostic features that are considered important for identifying CAS in the practice of Estonian SLPs. These data serve to inform future studies about the presentation of CAS in Estonian and for the development of standardized assessment tools. Cross-linguistic similarities and differences in Estonian and English are also compared to highlight the importance of language-specific considerations when diagnosing CAS in different languages.

**Keywords:** childhood apraxia of speech, diagnostic features, Estonian, clinical practice, survey





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## Associations between screen time of mothers and child language skills

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**Background and objectives:** Mothers' increased screen time has been associated with reduced parent-child interaction, but no studies have examined the associations of screen time directly with the language skills of children. This study focuses on whether mothers' screen time is associated with the language skills of preschool-aged normally developing children.

**Methods:** Mothers of 159 children aged 2.5 to 4.1 years reported their average amount and quality of screen time (TV, mobile devices, computers, laptops, and game consoles) on a weekday and a day off using the screen time data collection form (Tulviste & Schults). Several validated language measures for different language domains (lexical, phonological, morphological, and general language ability) were used to test the language skills of children. Pearson correlation coefficient and linear regression models were used to analyse the associations between the screen time of mothers and the language skills of children.

**Results:** The daily amount of mother's screen time was on average 5 hours and 34 minutes including working hours. The amount of mothers' screen time was negatively associated with the lexical ( $r=-0.29$ ) and general language ability ( $r=-0.30$ ) of children. Based on the linear regression models (independent factors: the amount of mothers' screen time, children's age, maternal education level, firstborn status), 28,9% of lexical skills and 31,8% of general language skills could be explained. Mothers' screen time and the children's age were the significant predictors of lexical and general language skills.

**Conclusions:** Mothers should pay attention to their screen time, since more screen time may have a negative impact on the lexical and general language ability of children. Further studies are needed to verify the effects of mothers' screen time on the language skills of children.

**Keywords:** screen time, parent-child interaction, vocabulary, general language ability



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## Bodily-Tactile Early Intervention for Mothers and Their 0–2-year-old Children with Visual Impairment and Additional Disabilities

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**Background:** A child's visual impairment and additional disabilities (VIAD) may challenge the interaction between the parents and child. These interactional challenges put both the child's communication development and emotional availability between the child and parents at risk.

**Aim:** The study presented shows the effects of bodily-tactile early intervention for parents and their 0–2-year-old children with VIAD. In the intervention, the bodily-tactile modality is used as a compensatory strategy addressing the lack of visual information in interaction.

**Methods:** The study had five families as participants. A speech and language therapist met with the families 15 times at home (baseline–intervention–follow-up). The data consist of video recordings and questionnaire data. Mixed methods were used in the video analysis. Coding procedures were used to study the mothers' use of the bodily-tactile modality in interaction and the children's expressions. Applied conversation analysis was used to analyze the children's emerging gestural expressions in their interactional context. Emotional Availability Scales were used to evaluate the emotional relationship between the children and their mothers.

**Results:** The results from the first participant family are presented in this abstract. The results show that the mother increased her use of the bodily-tactile modality during the intervention. She used more bodily-tactile nursery rhymes and tactile signs with her son. The participating child started imitating the new signs and developed new gestural expressions based on his bodily-tactile experiences in the play. There was no change in the child's vocalizations during the intervention. Emotional availability between the child and his mother was already high before the intervention, and there were only mild positive changes in it during the intervention.

**Conclusions:** The preliminary findings for the intervention are encouraging. The findings need to be validated with more participants.

**Keywords:** congenital visual impairment, early intervention, bodily-tactile modality, augmentative and alternative communication, emotional availability





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## Computer-based speech/language therapy platform for people with chronic neurogenic communication disorders; design and preliminary implementation.

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### Background

The effective support of people with neurogenic communication disorders requires individualized intervention. Apart from traditional interventions, computer-based therapies have been found to be effective in the treatment of word- and sentence-level deficits (Jokel et al., 2009; Thompson et al., 2010).

### Method

Speech/language Therapy Platform with Virtual Agent (PLan-V) is a novel, technologically assisted, personalized intervention platform, unavailable until now in Greek. It provides impairment-oriented treatment, offering patients the opportunity to work independently, without the physical presence of a clinician, via the assistance of a virtual SLT.

Speech therapy protocols address suprasegmental aspects of speech, targeting: (a) development of optimal breath groups, (b) ability to sustain appropriate speech loudness, (c) modification of speaking rate, (d) use of pitch variation to signal focus, utterance function and the emotional state of the speaker, and (e) lexical stress. Improvements in these areas have a global effect on speech intelligibility and naturalness of patients with any type of dysarthria.

Language therapy protocols are designed to target both comprehension and production and enhance lexical- and sentence-level processes. The software includes word finding, word/sentence comprehension and sentence construction activities, for various types and aphasia severity levels. Naming activities provide different cue types i.e., (a) Phonological, (b) Orthographical, (c) Semantic, and (d) Multiple-cues. Sentence-level deficits are facilitated with activities of linguistically based (Thompson et al., 2010) or verb-centered mapping therapies (Marshall, 1995). Activities for verb inflection/tense marking (Farooqi-Shah, 2013) are also included.

### Discussion

PLan-V allows clinicians to construct remote therapy sessions selecting from activities of different levels of difficulty. A virtual therapist will assist, providing directions and feedback via a natural and friendly interface. Progress will be monitored via recorded tasks, scores and timed responses, enabling clinicians to choose and sequence content and activities, depending on participants' performance. Patients' oral responses will be evaluated through an automated speech recognition algorithm. A comprehensive learning analytics system will provide control, support planning and monitoring for clinicians and patients.



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## Current situation of SLT profession in Europe: 2021 ESLA questionnaire results

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**Background:** The Educational and Materials Task Force group under ESLA aimed to analyze the current situation and development of Speech Language Therapy initial training and post-qualification programmes in the member countries of ESLA. ESLA is comprised of 27 countries (Ukraine is a recognized observer) and 31 associations.

**Purpose:** The purpose is to establish an annual overview of the SLT profession regarding the educational training in Europe which is dynamic and evolving.

**Methods:** The questionnaire was revised and developed by the Educational Materials Taskforce from the previous questionnaire from 2016. The survey consists of 9 sections with 43 questions, (some of which had sub sections and had space for additional comments) pertaining to the type of programmes offered in all countries in initial SLT training, further post-graduate training, Laws and Regulations for SLTs, employment of new graduates and European and international Mobility within SLT. The questionnaire has two parts: Quantitative and qualitative information.

The questionnaire was sent to the delegates of the 31 SLT associations. 27 associations returned the questionnaire. The data was analyzed quantitatively and qualitatively using descriptive techniques.

**Results:** Twenty-seven associations out of the 31 associations responded to the questionnaire. As of 25/4/22 data is missing from Netherlands, Ukraine, one association from Bulgaria and, Norway).

**Conclusions:** It seemed that educational programmes continue to change considerably since 2016 all over Europe. The information gathered from the survey will support ESLA to achieve one of its objectives, in order to promote the harmonisation of standards and quality of initial training and continuing education.

**Keywords:** ESLA, initial, post-graduate SLT education, laws and regulations,



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## Developing Morphological Awareness in Greek-speaking children with DLD: New Intervention Research Evidence

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**Background:** Understanding how language components interrelate in the process of language development is potentially a key factor in developing effective intervention programmes. Morphological awareness is important for the formation of compound novel words and phrases. However, the possible effects of semantic knowledge and phonological awareness upon morphological skills have not been properly verified, especially in languages with complex morphological systems such as Greek.

**Aim:** This study compared the impact of two language intervention programmes (a semantic versus a phonological) on morphological awareness in preschool children with Developmental Language Disorder (DLD).

**Method:** 105 children with DLD aged 4;1-5;10 were assessed on non-verbal intelligence and language skills with a full battery of standardized measures. Participants were randomly assigned into two intervention groups versus a control group. Group A received a language intervention on building semantic knowledge and Group B on developing phonological awareness. Group C did not receive any intervention. Intervention was offered twice a week during two periods of 16 weeks each. There was a provision of 32 sessions for each participant of each intervention group. A pre-post assessment plan was used. An additional follow-up assessment six months afterwards aimed to establish whether the two groups maintained intervention gains. Analysis of variance (ANOVA) was deployed to examine differences within and between groups in morphological skills over time.

**Results:** Results indicate a significant effect of both types of intervention on children's performance in morphological awareness. No significant differences were found between the two groups. Gains were evident in the immediate as well as the delayed assessment.

**Conclusions:** Study findings are discussed in terms of the effectiveness of semantic knowledge and phonological awareness programmes on morphological awareness and provide an insight in the way these language components interrelate in Greek, offering new evidence for clinical practice.



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## Diagnostic differences between childhood apraxia of speech and phonological disorders in children aged 4;6 - 5;11 years

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The distinction between speech sound disorders (SSD) is a constant challenge for speech and language therapists. The correct diagnosis (childhood apraxia of speech (CAS) vs. phonological disorder (PD) has an impact on the selected intervention and on the success of the therapy. Inconsistent sound substitutions are one of the main symptoms of CAS, but further symptoms are controversially discussed. A standardized German diagnostic tool to determine CAS is not yet available. Expert judgment is still the gold standard in the diagnosis of CAS.

The aim of the study was the clinical trial of a series of tests to check the suitability for differential diagnostics of CAS and PD in German speaking children aged 4;6-5;11 years.

Twelve tests were carried out with eight children with CAS and five children with PD aged 4;6-5;11 years. The tests comprised: picture naming and the 25-Word inconsistency test PLAKSS-II (Fox-Boyer, 2014), repetition of single sounds and single words as well as multiple consistent repetitions of sounds and words, oral and speech motor skills.

Six tests can be identified, which are able to significantly differentiate children with CAS from children with PD. Highly significant group differences were found in the inconsistency rate of the 25-Word inconsistency test PLAKSS-II, in repeating single sounds and in repeating words three times consistently. Furthermore, children with CAS had significantly lower percentages of correct consonants (PCC) as well as percent of correct vowels (PCV) in the PLAKSS-II and a significantly lower score in oral motor skills than children with PD.

These results can provide a first indication for differential diagnosis of CAS and PD for German-speaking children aged 4;6-5;11 years. The results regarding inconsistent sound substitutions, lower rates in PCC and PVC are comparable with the results of other English language studies which examined the characteristics of CAS (Murray et al., 2015). To replace expert judgment, the tests must be assessed on a larger sample.



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## Do paternal factors associate differently with early language development in boys and girls?

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Maternal factors have mostly been in focus when studying early language development in children. Fewer studies have focused on the association between paternal factors and vocabulary growth between 1 and 2 years of age.

The aim of the study was to examine associations between paternal factors (education, occupation, paternity/parental leave, time spent with the child, and late onset of speech) and early vocabulary growth in children between ages 13 and 24 months in boys vs girls.

The study is a part of a cohort, the STEPS study, with 1797 participating families. In the present study children with vocabulary data from both 13 and 24 months were included and comprised 719 Finnish children (51.3% boys). Vocabulary data was collected with the MacArthur Communicative Developmental Inventories (CDI) for infants and toddlers and parental data with questionnaires.

Preliminary results show that boys of fathers with high educational level had a larger vocabulary growth compared to boys with fathers with lower education. This was not the case with the girls. Both boys and girls had a larger vocabulary growth if their fathers had a high occupational level compared to children with a father with a low occupational level. Boys, not girls, with fathers who reported late onset of speech as child, had a smaller vocabulary growth compared to boys with fathers without this history. Boys had a larger vocabulary growth if their mothers had a high occupational level.

Early vocabulary development seems to be differently associated with environmental factors relative to the child's sex. Paternal factors, not only maternal, appear to be related to early vocabulary growth, especially in boys.

In using combined language measures for boys and girls these gender differences can be concealed.

Keywords:

vocabulary, child's sex, paternal factors, CDI



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## Implementation of the Calgary Cambridge Guides in a section of Logopedics-Phoniatics-Audiology at the university of applied sciences

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### Background:

As in all health professions, communication plays a central role in speech and language therapy. Up to now, the students have received communication lessons in theory and practice with peer-based role-playing games. The application of conversational skills with patients takes place outside the university of applied sciences during the internship under supervision by experienced speech therapists. In order to harmonize the transition between theory and practice, targeted communication training with patient-actors is now going to be offered to both students and mentors of internships. This serves the intention to implement the training and application of the Calgary Cambridge Guides in the education of speech and language therapists.

### Methods:

Training of the students: In workshops, the students are introduced to negotiation in the clinical setting using the Calgary Cambridge Guides. This is conducted in small groups with students of all three levels. The student-centered instruction includes a theoretical introduction and focuses on the possibility of reflection and repeated practice with patient-actors. Training of the mentors of internships: Workshops are also offered for the mentors of internships. The focus here is specifically on their role as a role model for communication and the ability to provide structured feedback.

Results: Both groups see the application of this communication model as very helpful, regardless of the profession and depending on the point in time in the course.

Take home message: The implementation of the Calgary Cambridge Guides seems to be an effective approach to close the gap between theory and practice in the training of social and communicative skills in the education of speech and language therapists.

Keywords: education, social and communicative skills, Calgary Cambridge Guides, simulation with actor-patients





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## Let's talk together: a parent training telepractice project

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**BACKGROUND:** Evidence shows that early intervention administered by trained parents is effective for developmental language difficulties and disorders. We ordinarily use the Hanen program for Parent Training "It Takes Two to Talk" in a face-to-face modality, but the restrictions due to the Covid19 pandemic obliged us to look for new modalities to prevent children waiting too long for intervention.

**OBJECTIVES:** The objective was the development of a format to enrich the ITTT program with a validated evaluation protocol and then the experimentation of this format in a telepractice modality.

**METHODS:** The ITTT program is a model of early intervention on language, given to groups of parents who learn strategies to transform the moments of daily life into opportunities of language acquisition for their children. We added a standardized evaluation of communicative behavior, the ASCB (Abilità Socio-Conversazionali del Bambino, 2013) and a standardized tool for lexical analysis, the CDI (MacArthur-Bates Communicative Development Inventory, Italian, 1995), at the beginning and end of the intervention that, for the rest, followed the new Hanen format for online intervention. 8 children aged 25-30 months old were recruited, after having assessed the possibility of an online participation; 5 families were followed in 1 group while 3 of them were followed on an individual basis; the sessions were 1 per week over 2 months.

**RESULTS:** The evaluation protocols showed satisfactory results for all the 8 recruited children, with 2 of them completely recovering the gap with the standard percentiles. The parents appreciated very much the possibility of working with their children despite the lockdown and the comfort of being in their own homes. Compliance with the program was total. The SLTs appreciated the possibility to work with families in their true environment and to avoid long waiting lists, though in this modality more work was required on the therapists' side.

**CONCLUSIONS:** We will consider the online modality even out of the COVID-19 pandemic, because of its efficacy and efficiency. Special consideration will be put on the selection of participating families.



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## Lexical and Syntactic Features of Infant-Directed Narratives: A Longitudinal Study

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Infant-directed speech (IDS) is distinguished by specific acoustic properties and lexical/syntactical simplification from adult-directed speech (ADS). Few studies describe the lexical and morphosyntactic characteristics of IDS in languages other than English and the developmental changes in IDS. Previous studies have conflicting conclusions about how the complexity of IDS grows in parallel with the development of the child. Some researchers claim that the adaptation of the mothers' speech to the children's age is linear while others argue for a non-linear advancement.

Our objectives were to grasp the differentiating features between IDS and ADS in lexical and morphosyntactic terms in the Hungarian language and to explore the developmental curve of linguistic adaptation from birth to 18 months.

22 dyads of mothers and their firstborn infants participated in three sessions after birth, at 6 months and 18 months of age. We recorded both IDS and ADS storytelling by the mothers based on standard picture stimuli of the same fairy tale in each session. We analyzed speech quantity (number of utterances, number of words), lexical features (type-token ratio, verb-noun ratio, number of different words) and morphosyntactic features (mean length of utterance, number of clauses) in maternal language samples.

Statistical analyses revealed the effect of both the children's age (0-6-18 months) and the storytelling setting (IDS-ADS) on each measure. Linguistic simplification of mothers' IDS only emerges at 6 months and reaches the highest level of lexical and morphosyntactical simplification compared to ADS in samples told to the 18-month-olds. Mothers' IDS samples consisted of significantly more utterances, limited vocabulary with more repetitions and significantly lower mean length of utterances.

Overall, maternal IDS is characterized by greater verbosity in smaller syntactic units. Our results support the non-linear advancement of maternal IDS parallel to the child's age and inform environmental enhancement strategies in parent-implemented interventions for language delay.



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## Making of a language test: challenges of a small language

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**Background:** Developing reliable and valid language assessment tests can be challenging for small languages. All children, regardless of the number of language users, have the right to be assessed fairly and therefore, SLPs should always strive at using assessment tests that possess strong psychometric properties. With proper planning, implementation, and analysis it is possible to develop rigorous standardized, norm-referenced assessments for languages with a small number of speakers. This presentation describes the development of a new comprehensive language test for Icelandic-speaking children: Málfærni eldri leikskólabarna – MELB [Language ability of preschool children] and demonstrates both opportunities and challenges on that path.

**Method:** After rigorous planning and three pilot studies involving 297 children and 10 language development specialists (SLTs) who rated the appropriateness of test items (content validity), 879 children aged 4;0-5;11 participated in the MELB standardization study. The children were monolingual, had normal hearing, and no apparent developmental difficulties. MELB has 9 core and one supplementary subtest. Subtests assess syntax, morphology, semantics and phonology. MELB was compared with six different tests assessing similar constructs to determine construct validity.

**Results:** Content validity was appropriate with mean of 3.53 (maximum 4.0). Comparisons with construct validity measures were positive and significant when total scores of assessments were compared (correlation coefficient range 0.52-0.84). Similar tests were significantly correlated while dissimilar tests did not show significant correlation, highlighting the appropriateness of test items and showing convergent and discriminative validity with MELB.

**Conclusion:** Content and construct validity measures were used to ensure that MELB is a standardized and rigorous test with appropriate psychometric properties. Further studies will focus on test-retest reliability as well as sensitivity and specificity measures. Overall, the making of MELB demonstrated that psychometrically reliable and valid tests can and should be created for small languages.



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## Minority Students with (physical) disability in Communication Sciences and Disorders

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The UN Conventions on the Rights of Persons with Disabilities specifically emphasizes inclusion. The profession of Speech Language Therapy (SLT) requires communication techniques and physical skills. Law stipulates the health qualification for SLTs in Germany and Austria.

Speech language therapists who have a physical disability face special challenges in their training and everyday work. Do country-specific professional laws contradict the principles of inclusion? There is a lack of consensus regarding standards for licensure in the SLT profession.

The aim is to go into more detail regarding the legal framework and health eligibility and to critically discuss the role of inclusive leadership in education using a case study. The role of inclusion in higher education will be explored from the perspective of a head of the study program for SLT. Then, the educational, professional, and societal experiences of two speech language therapists - one from Germany and one from Austria, both of whom are impaired in the upper extremities - are explored through guided interviews. In Austria, in contrast to Germany, the degree between acceptance and non-acceptance towards a professional with a physical disability seems to be lower.

Diversity should be taken into account and case-by-case reviews should occur when assessing "health eligibility" in order to adequately implement the principles of the UN Convention on the Rights of Persons with Disabilities. Faculty play a critical role in terms of social inclusion in peer groups and for the academic and psychological development of underrepresented students. The field of Communication Sciences and Disorders should increasingly explore research in inclusive university teaching and didactics in the future for necessary discussion surrounding inclusion. In professional development, it will be necessary that the field also comprises of the disordered populations it purports to serve.



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## Multimodal repairs in conversations using aided communication

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**Background:** Compared with spoken conversations, achieving mutual understanding may be more challenging in interactions where one or more participants use aided communication. Efficient strategies in solving conversational breakdowns are often crucial to support successful meaning construction.

**Aim:** The aim of this study was to investigate how an aided communicator uses repair strategies and attempts to overcome potential problems in conversations with speaking communication partners. The study also explored the causes of breakdowns and partners' influence on repair phenomena.

**Method:** The participants of the study were an 11-year-old boy who used aided communication as his main mode of communication, his mom, teacher and peer. The study examined videotaped conversations, where the aided communicator attempted to describe the content of video events to the partners who had not seen them. Within the framework of data driven qualitative analysis, the focus of the analyses was on the aided communicator's repair strategies and causes of repair.

**Results:** Most of the aided communicator's repairs were self-initiated self-repairs, for which he utilized nonverbal modalities: gaze, gestures and actions. Repairs occurred as responses to the partners' misinterpretations and operational difficulties or followed requests for clarification. The causes of repair emerged mainly from the linguistic limitations of the graphic communication system or were related to the partners' varying experience in using communication aids. In some exchanges, the aided communicator needed to first solve interim repair goals before returning to the initial goal. Successful resolutions seemed to develop the dyad's shared competence, thereby decreasing the need to repair.

**Conclusions:** The study describes the aided communicator's active role and the multimodal strategies he may utilize in overcoming potential communication disrupts. The study also emphasizes the influence of the partners' strategies and skills in recognizing instances of repair as well as the effectiveness of repairs.

**Keywords:** aided communication, repair strategies, multimodality



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## Oral language performance and phonological processing in children with a history of malnutrition at an early age

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**Objectives:** To investigate the performance of children with a history of mild malnutrition at an early age in tasks that evaluate oral language and phonological processing.

**Methods:** Participants included 36 children, 9 of which had a history of malnutrition at an early age (G1), 9 were eutrophic and had a delayed language (G2) and 18 had normal language development (G3). All of them underwent auditory screening, diagnosis of nutritional status, and language tests and phonological processing. The results were statistically analyzed by the Kruskal-Wallis test and the Kruskal-Wallis multiple comparisons test ( $p < 0.05$  or  $\alpha = 5\%$ ). The Equal Proportion Test was used to evaluate the variables described in percentage of altered/adequate performance.

**Results:** There were significant differences between G2 and G3 in expressive language. In the receptive language and total language differences were observed in the performance of G1 and G2 in relation to G3. The performance in tasks of working memory - visuospatial sketch, was significantly different between G1 and G3 and G2 and G3.

**Conclusions/Take Home Message:** Children with a history of mild malnutrition may present language difficulties, especially in the receptive area and restricted performance in work memory tasks - visuospatial sketch. These data are alarming, as they may lead to future deficits in written language learning and school performance.





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## Parental contribution to pragmatic barriers in autistic children

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### Background:

Parental interaction is the first social contact for autistic children and appears to have considerable influence on their pragmatic abilities. Children rely, amongst other developmental preconditions, on their parents' quantitative and qualitative input in order to adequately acquire linguistic and social-communicative skills. Although studies increasingly show that pragmatic barriers between non-autistic and autistic people appear mutual and are always two-sided, problems are mostly attributed to the autistic person's difficulties. This paper, considering the importance of role models in children development, aims to discover parental interactive patterns towards their autistic children that contribute to mutual and further pragmatic barriers.

### Method:

A corpus of three videos of interactions between parents and their autistic children were qualitatively analysed for this study. All children had different language levels (non-verbal, minimally-verbal, verbal). Each pair went through seven play-based tasks, chosen and prepared by the researcher. An approach informed by applied conversation analysis (CA) was used to systematically analyse parental speech patterns, pragmatic behaviour and paralinguistic actions within interaction sequences with the child.

### Results:

Four categories of parental strategies were created. Parents frequently showed unresponsiveness to their children's verbal, non-verbal or paralinguistic (re)action. They further used several haptic cues in order to control their children's (correct) actions, which were defined in the second category. The third category included patterns of non-verbal and paralinguistic repair of their children's (responsive) initiatives that might lead to misunderstandings of the social situation. Utterances that did not match content-related intentions were summarised in the fourth category.

### Conclusion:

This study showed that directive parental practices might play a crucial role in creating pragmatic barriers for their autistic child's interaction skills. Parents used different directive strategies in order to manage their child's behaviour and social language, while often disregarding or resisting the child's interactive cues.



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## Perceptions of Speech and Language Therapy students about motivations, current practices, challenges and the future of the profession

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**Introduction:** Speech and Language Therapy (SLT) has less representation in terms of the number of health professionals, the number of training programmes as well as the candidates to enroll in these programmes.

**Objective(s):** To characterize students' motivations for enrolling in SLT programmes, perceptions regarding current practices such as telepractice and the use of new technologies, perspectives for the future of the profession and suggestions for community actions to promote knowledge about SLT.

**Methods:** This study followed a World Café methodology, in which 21 students from all the training programmes in Portugal participated in a discussion around four topics.

**Results:** It was verified that motivation for choosing the programme and the profession is related to affective factors, influence of significant people and the characteristics of the profession, namely because it covers different levels of intervention and populations. The need to disseminate the profession to the community was expressed, in particular, using social media, information leaflets, open classes, awareness campaigns and actions targeting caregivers and other professionals, such as health and education professionals. Telepractice and the use of new technologies is seen as a positive change and challenge to the future of the profession.

**Conclusions:** Speech and Language Therapy is seen as a profession in which motivation is crucial and new perspectives are opening.



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## Performance patterns in adults with DLD: preliminary findings

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### Background:

Young adults with Developmental Language Disorder (DLD) still experience language deficits (Del Tufo & Earle, 2020; Botting, 2020). Despite these persistent disorders, some adults with DLD manage to attend a university course (McGregor et al., 2013). It suggests the presence of compensation, which might be defined as an improvement of behavioural symptoms, even with the persistence of the pathology core deficits (Livingston & Happ  , 2017).

### Aims:

The first aim of the current study was to investigate a panel of competencies regarding verbal and non-verbal skills (in oral language, literacy, and cognition) in French-speaking young adults with DLD. The second objective was to identify certain skills university students with DLD may have developed to succeed at the university level, which could be considered compensating factors.

### Methods:

We aimed to recruit 40 French-speaking young adults with DLD, half university students, and compare them with age-matched adults with typical development (TD). Experiments were conducted online and included multiple tasks: a range of measures assessing phonological processing, lexicon, comprehension, literacy, and executive functions, as well as a metacognition questionnaire.

### Results:

Preliminary results on 40 participants (14 TD, 26 DLD) reveal that adults with DLD globally maintain poorer performance than adults with TD, notably in phonological processing, vocabulary, non-verbal IQ, comprehension, and literacy. Meanwhile university students with DLD (N=14) outperform adults with DLD without a university background (N=12) in irregular word reading ( $p = .027$ ), phonemic awareness ( $p = .021$ ) and reading comprehension ( $p = .012$ ).

### Conclusion:

Our preliminary results confirm that individuals with DLD persist in experiencing language issues in adulthood. However, some well-developed skills of university students with DLD suggest a compensatory strategy, as it seems to be the case for reading comprehension. The full results of the study will help refine these initial findings.

### Keywords:

DLD, language deficits, compensation, young adults, university students



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## Psychological Symptoms and Cognitive Status in the Context of COVID-19 among the Elderly Population: Implications for Facilitating Communication and Building Resilience in Older Adults

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**Background.** As the COVID-19 pandemic spreads around the world, the first epidemiological data illustrate how this new pandemic influences older adults with disproportionately high rates of health complications and mortality. Nevertheless, only a few studies have evaluated how this pandemic affected elderly population psychologically and mentally.

**Aim/Objectives.** To determine the prevalence of psychological symptoms and cognitive status in elderly individuals during the first lock-down period and to examine how those individuals affected cognitively and psychologically due to lockdown measures. To investigate the resilience and coping skills of the elderly during this acute crisis and to investigate the compliance to recommended precautionary measures (PM).

**Methods.** A total of 120 participants were recruited from the Neurocognitive study of Aging (Neuroage). All the participants completed an extensive neuropsychological assessment within 24 months prior to the COVID-19 outbreak and were healthy with MMSE score  $\geq 24$ . A telephone interview was developed through the REDCap platform. The duration of the interview was up to 30 minutes. Specifically, we used the following instruments: T-MMSE to assess cognitive status; the GAI to assess anxiety; the GDS to assess symptoms of depression; and BRCS (Brief Resilient Coping Scale) to assess coping mechanisms. To assess compliance with PM, we developed 12 questions measuring the key aspects of the prevention guidelines.

**Results.** Showed that most of the participants exhibit high resilience and coping mechanisms and no statistically significant difference was observed on depression symptomatology and cognition pre and during the first lockdown. Adults with higher T-MMSE performance and females were more compliant with PM.

**Conclusions.** The study informs our understanding of older adults and coping and prompt Public Authorities to provide interventions and guidance for the implementation of PM in a more targeted way. Recommendations for communication strategies for older adults and resilience building will be discussed.

**Keywords:** COVID-19, epidemiology, mental health, resilience, cognition, communication



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## Structure and Expression of Evidence-Based Practice in Speech and Language Therapy via treatment decision making for children with phonological disorder: a Survey of Speech and Language Therapists in Lithuania

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**Background.** Evidence-based practice (EBP) is a very common research objective among scientists in different fields. More and more attention is focused on SLTs' treatment decisions for children with speech and language disorders, within a framework of EBP. EBP is typically constructed using the three components (Roddam, 2016; McCurtin, Roddam, 2012; Roddam, Skeat, 2010 etc.): best quality research evidence, experienced clinical judgement and factors relating to the individual patient. There is the fourth component included and described in the latest literature – information from the practice context (Erickson et al, 2018). In other words, there are four pillars of evidence underpinning evidence-based behavioural practice: research evidence, practice evidence, patient evidence and contextual evidence (McCurtin, Clifford, 2015). This renewed theoretical approach to EBP is followed in presenting the results of the PhD study.

**Aim.** The aim of the presentation is to reveal the structure and expression of evidence-based practice in speech and language therapy via treatment selections for children with phonological disorder.

**Methods.** Using a questionnaire survey method and the study of statistical analysis of the quantitative data, the research reveals the structure and expression of EBP. The questionnaire was designed based on analysis of the scientific literature and questionnaire of McCurtin, Clifford (2015). The authors gave permission to use, translate and adapt their questionnaire to the Lithuanian population. The final version of the questionnaire consisted of 72 statements (56 statements were in the original version). Participants completed the online survey ([www.surveymonkey.com](http://www.surveymonkey.com)).

**Results.** 162 speech and language therapists from Lithuania participated in the research. Using exploratory factor analysis, the items were summarized using a 17 factor model (few items were not loaded onto the model). The presentation will include an overview of all these factors. A secondary factor analysis was performed to provide a generalized structure of EBP as well. Finally, 4 factors were identified. Differences and similarities with the theoretical model of EBP will be also discussed in the report.

**Keywords:** evidence-based practice, speech and language therapy, treatment choices, clinical decision making, phonological disorder in children.



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## Telepractice Providing Support for the Children with Speech or/and Language Disorders: Experiences of Lithuanian Speech and Language Therapists'

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**Research objective** - to reveal the views of speech and language therapists (SLT) providing speech and language therapy services for the children with speech or/and language disorders via telepractice in Lithuania.

**Methods.** The research was based on a mixed research methodology. A survey (semi-structured questionnaire) was carried out in 2020 within the context of quarantine due to Covid-19. Lithuanian SLTs (N=90) working mainly in educational settings participated in the research.

**Results.** Experiences of SLTs shows that synchronous therapy was the most common type of telepractice. SLTs mainly worked directly with children individually and consulted their parents. Asynchronous or hybrid telepractice were used at least. Use of telepractice varied across different age and disorders in children. According to SLT opinion, telepractice was mainly not a possible way of service delivery for the early age children, but success was expected working with pre-school and primary school age children who have written language, developmental language and fluency disorders. Therapy provided via telepractice for the children who have developmental disabilities or feeding and swallowing disorders were defined as ineffective.

Before Covid-19 telepractice was rarely used in the country, but forced changes of practice disclosed some advantages: accessibility of services for more clients, flexible time schedule of services and individually provided therapy. During this period of practice, the main advantage was increased collaboration with parents including both their motivation to be involved in therapy and raised competence to support their children. Also, SLTs improved competences to use e-resources and ICT in their professional activities. Increased time resources of planning of therapy via telepractice was the main challenge identified by SLTs. According to them, for some groups of clients services delivered via telepractice were not useful, it was difficult to reach all the aims and perform all roles of SLTs, because of the lack of physical contact.

**Conclusions.** SLTs' experience, imposed by the Covid-19 quarantine situation, meaningfully changed their attitudes to the use of telepractice in their professional work.

**Keywords:** telepractice, speech and language disorders in children, speech and language therapists' experiences, Covid-19 quarantine situation





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## The contribution of new technologies and telepractice in speech and language therapy during the COVID-19 Pandemic

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Background: New technologies (NT) and their contribution to preschoolers' learning process as an educational method and as techniques of cooperative learning are well documented.

Aim and Objectives: The purpose of this study was to investigate the use of NT and telepractice as a part of group learning activities in preschoolers with speech and language difficulties and/or disorders.

Methods: In this study 10 children aged from 4;2 to 6;6 years were recruited from the Speech, Language and Hearing Clinic of European University Cyprus. These 10 children identified/diagnosed having language disorders and were divided into two different intervention groups, five in each group. The first group followed individual traditional speech and language therapy approaches with no use of NT, and the second group followed a telepractice therapeutic programme with the use of NT. Both groups received therapy for their perceptual and expressive vocabulary difficulties as well as for developing their narrative skills.

Results: A Mann-Whitney test was used to compare performance on an action picture test and vocabulary of each group. The results relating to narrative skills and storytelling of the group which experienced telepractice showed statistical significance ( $Z = -2,212$ ,  $p = .000$ ). Therefore, it seems that the group which experienced telepractice to support difficulties in the expressive vocabulary recorded better performances.

Conclusion: The findings of the study indicate that telepractice (a program which is built with NT) has positive effects on enriching the vocabulary and improves storytelling abilities. The role of SLP during Covid-19 period is changing and the contribution of NT during therapy is a new necessity. Finally, as we are moving on to a new digital era, the NT are the key to a new style of learning.

Keywords: New Technologies, Speech and Language Therapy, Telepractice, Covid-19



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## The efficiency of the explicit approach to grammar Shape Coding® in French-speaking children with DLD

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**Background:** Children with Developmental Language Disorder (DLD) have persistent language difficulties in complex syntax (Delage & Frauenfelder, 2020; Tuller et al., 2011, 2012). To date, few studies have examined the effectiveness of rehabilitation methods focusing on complex grammar, with no existing studies having been done in French. In English, the Shape Coding® system (Ebbels, 2007, 2011), which combines shapes and colors to identify the nature and function of words and sentence types, has been shown to be effective with children/adolescents with DLD (Calder et al., 2020; Ebbels, 2007, 2014; Ebbels et al., 2007; Kulkarni et al., 2014).

**Aim:** Our study assesses the effectiveness of a French adaptation of the Shape Coding® methodology on the mastery of two syntactically complex structures in DLD: object relatives and accusative clitics (e.g., *il le lave*, 'he's washing him'), a clinical marker of DLD in French (Paradis et al., 2003).

**Methods:** We developed a training protocol, inspired from the Shape Coding® principles, over ten sessions of 30 minutes, and compared the ability of seven children with DLD aged 8 to 10 to produce the target structures before and after syntactic training.

**Results:** Comparison of scores, as measured by dedicated baselines, shows that training resulted in improved performance, in all children, for target structures, whereas no progression was observed on control items (verbal inflexions), which were not trained. More specifically, results show an improvement on sentences directly trained during the protocol, for clitics ( $p = .02$ ) and object relatives ( $p = .02$ ), but also on new sentences that contained the same target structures ( $p = .02$  for clitics,  $p = .04$  for relatives), reflecting the generalization of the production of these structures.

**Conclusions:** Findings confirm the effectiveness of an explicit approach in grammar interventions and they provide new perspectives on language therapy dedicated to children with DLD.



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## The Multi-faceted Role of an Online Speech Therapist with Challenging Communication Disorders

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Have you ever wondered how to see a non-verbal client online as a speech therapist? This is a client who couldn't speak due to severe dyspraxia, severe dysfluency, needed to use an alternative means of communication, severe learning disabilities, poor literacy skills, and no signing system in place. In addition, he was bilingual and as a therapist, I only spoke English. The challenge was that he needed to pass five oral state exams.

As a therapist, with over 30 years of experience in the UK, this was definitely a challenge but one that I was confident that I could overcome and all remotely.

The reasons why I wanted to overcome it were 3-fold:

- 1) His parents, who were international lecturers, wanted to see success.
- 2) The young man was in a mainstream school in Italy and wanted to be like his peers and pass the same exams.
- 3) Finally, the school was willing to support him in this journey.

Working in the UK has allowed me to share my skills with other therapists and clients who can't access this expertise in their local area. I have been privileged to empower them all over the world and I have been able to deliver the results online.

In this presentation, I will show you how I worked with this client and the results that he achieved. In this unprecedented time, I will outline my role as an international teletherapist, and how I have influenced a software company in Romania (Voxiclinic) to incorporate the needs of teletherapists into their platform, through my consultancy. There will be a joint presentation with Ana Onica, CEO of Voxiclinic.



# 11<sup>TH</sup> ESLA CONGRESS OF SPEECH AND LANGUAGE THERAPY

26-28 MAY 2022 | SALZBURG-AUSTRIA

New frontiers in speech and language therapy: advancing practice, research and education

## The resolution of communication breakdown by children with developmental communication disorders: Evidence from Greek

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Communication breakdowns during everyday interactions are usually handled and repaired promptly and effectively. There is a strong preference for self-initiated and self-completed repair in natural conversation (Schegloff, Jefferson, & Sacks, 1977). Especially for children with developmental communication disorders, the ability to recognize the need for repair becomes particularly important and challenging given their limited verbal resources. A few studies have investigated conversational repair in English speaking children with Autism Spectrum Disorders (ASD) (e.g. Volden, 2004). However, there is little information available regarding the process of conversational repair in typically and atypically developing Greek children. This study investigates whether and how school-aged children with developmental communication disorders resolve communication breakdowns during talk-in-interactions. Participants were five Greek children with ASD and five children with intellectual developmental disabilities aged 8-14 years. Preliminary normative data on the repair abilities of preschool children were also collected. Two sessions were scheduled with each child. The first session involved the administration of formal language assessments including tests of morphosyntactic abilities, vocabulary and pragmatic skills. During the second session, each participant was engaged in mundane conversation and every few turns the examiner engineered communication breakdowns by pretending not to understand the child's message. Each child had to complete a total of 30 repair sequences. Conversations were recorded and orthographically transcribed and the children's repair completions were coded in terms of the amount and quality of the provided information. Overall, children were more successful with specific rather than non-specific repair initiations. Children with intellectual developmental disabilities had major difficulties with non-specific initiations; compared to the ASD group they made more unsuccessful repair completions and their successful attempts were almost exclusively repetitions of their initial turns without provision of any additional information. The findings are discussed in relation to the children's performance on the baseline measures and their underlying pathologies.



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## The use of Behaviour Change Techniques in interventions for children with speech sound disorders

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### Background

Speech sound disorders (SSD) are the most common communication difficulties among preschool children. Yet, little is known about the key ingredients of SSD intervention. A behaviour change technique (=BCT) is the smallest component that can bring about change in an intervention. Currently direct and indirect methods are described in SSD interventions, whereas a separation between content and effective techniques used to bring behaviour change is hardly being made.

### Aim/Objectives

The study explores a specific framework named Behaviour Change Technique Taxonomy Version 1 (BCTTv1) including BCTs and aims to identify the most used BCTs in evidence-based German SSD intervention manuals, intervention approaches and SSD video sequences. Resulting BCTs get analysed addressing the type of BCT and frequency of use and occurrence.

### Method

Twenty-one practitioners (11 practising SLTs and 10 SLT students) were trained, using video analysis of SSD therapy sessions, to identify the 17 different BCTs found in a review of the relevant intervention literature. The participants were also asked about their response to using BCTs.

### Results

One hundred and twenty-nine occurrences of BCTS occurred with a ten-minute video. Of these 54% were identified by students and 53% by practitioners. The uncertain reliability between the two and a gold standard rating by experienced BCT practitioners gets explored in a further phase. Respondents indicated that the use of BCTs serves as “common language” to speak more explicitly about what SLTs are doing and to have a structured plan of techniques used in interventions.

### Conclusion

The results indicate that the application of BCTs is a theoretically sound, acceptable and practical way of identifying the key ingredients of an SSD intervention. The effectiveness of manipulating BCTs in an intervention still needs to be tested.

### Keywords

Behaviour Change Techniques (BCTs), Behaviour Change Techniques Taxonomy Version 1 (BCTTv1), Speech Sound Disorder, Intervention



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## Validation and Standardization of the Slovenian Translation of The SWAL-QOL Questionnaire

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**Background:** The Quality of Life in Swallowing Disorders (SWAL-QOL) questionnaire is one of the most widely used questionnaires for measuring the QOL of people with dysphagia. It is validated in 14 languages, but was not yet validated on the Slovenian population and thus far, normative data are not available.

**Objectives:** To investigate reliability and construct validity of the Slovenian version of the SWAL-QOL questionnaire in dysphagic and non-dysphagic populations and to generate normative data.

**Methods:** A sample of 160 people (74 % women) with a mean age (SD) of 44,05 (18,23) represented a general population group. The group of people with dysphagia consisted of 161 people (56 % women), with a mean age (SD) of 52,89 (19,94). The SWAL-QOL-SI included the 44 items, answered on a 5-point Likert scale, followed by questions related to the way of feeding, diet, general state of health and demographic characteristics. The questionnaire was carried out in printed or electronic version.

**Results:** The estimated Cronbach alpha values for the entire questionnaire were 0.94 for the non-dysphagic and 0,96 for the dysphagic group, thus indicating excellent internal-consistency reliability. Construct validity was verified by means of exploratory factor analysis, which grouped the items in a meaningful way into six factors. All the correlations between the subscales were positive and statistically significant. Coefficient of variation (10 %) and Ferguson delta (0.99) indicated high discrimination power of the questionnaire. Gender and age were not statistically significantly associated with the scores.

**Conclusion:** Evidence supports reliability and validity of the SWAL-QOL-SI as a measure of quality of life in swallowing disorders in the Slovenian speaking population. The normative data can be used to compare a subject's SWAL-QOL score with those determined from reference groups and to help plan further clinical treatment.

**Keywords:** SWAL-QOL questionnaire, dysphagia, quality of life, metric characteristics, validation studies





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## Voice of choral conductors – an ergonomic aspect

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Choral conductors are professional voice users and charismatic leaders at the same time. So they need a good voice to inspire choir singers and knowledge of voice ergonomics to educate singers to use healthy voices.

This study aimed to investigate conductors' vocal load and determine ergonomic factors in rehearsal rooms.

**Methods.** One hundred fifty-five conductors completed the online survey about workload and ergonomic factors in the rehearsal room. The study sample of 18 conductors was created, and a field experiment including vocal loading tasks and acoustic measurements of rehearsal rooms was carried out.

**Results.** The analysis of responses highlighted the associations between voice ergonomic factors and vocal symptoms. The indoor air quality in rehearsal rooms and body posture had a significant correlation with vocal symptoms. Vocal load expressed in distance dose was higher during singing than loud reading ( $Z = -3.18$ ,  $p = .001$ ). Distance dose did not differ in singing and vocal warm-up ( $Z = -.943$ ,  $p = .345$ ). The voice parameters did not have statistically significant changes between pre-load and post-load measurements. Sixty-two per cent of conductors responded that their knowledge of voice ergonomics was very or almost good, whereas only 45% of them used voice ergonomics knowledge in everyday life. The study showed that environmental factors in rehearsal rooms such as noise, reverberation, air quality, body posture and stress might impact conductors' voice quality.

**Conclusions.** Choir conductors should be able to assess the risks of the work environment and choose a healthy way to use the voice. It is necessary because the knowledge of voice ergonomics should be transferred from conductors to singers. The current study provides a set of unique data related to the work conditions of Latvian choir conductors.