Examining the Quality of Speech and Language Therapy Services for Children with Language Disorders: What Does a Good Service Look like?

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Abstract: Research underpinning evidence-based practice for Speech and Language Therapists and Phoniatrists is undoubtedly improving the impact of therapy. However, research trials tend to include small numbers of subjects with specific criteria or features which makes it difficult to generalize results to the heterogeneous patient groups seeking these services. The ultimate objective of the work presented here is to capture basic information relating to the impact of Speech and Language Therapy on all clients receiving intervention and thus to learn more regarding the variation in impact associated with different processes of care and thus improve the quality of our services.

Method The Therapy Outcome Measure (TOM) based on the WHO ICF was selected from 67 other measures reviewed by the Royal College of Speech and Language Therapists (RCS LT) as being psychometrically robust, appropriate for all client groups and easy-to-use. The TOM allows clinical reflection of the 4 overarching domains (impairment, activity restriction, social participation and well-being). **Results**: Fourteen services from across the UK have collected information on all clients that are receiving speech and language therapy. To date we have information on 11,611 clients covering the whole age range and spectrum of speech and language conditions. This presentation will detail the results of children with language impairments receiving speech and language therapy in UK and examine the influences that affect the effect of treatment. More than a quarter of the individuals improved in all 4 domains and more than three quarters improved in some way.

Introduction

Speech and language therapists have an almost an impossible task! They are not only pivotal in assisting to remediate children with developmental language delays but also have a role to play in developing their independence, social participation and promoting the child's well-being. The success or otherwise of this by different services is hard to measure and whilst educational attainment can be ascertained to some extent by reviewing the usual metrics the broader issues of development can be elusive. This is particularly difficult when considering children with special educational needs requiring the support of a wide range of health and social care professionals to work alongside teachers and their assistants.

Explicitly identifying variation in what is achieved by different services is valuable as it allows one to reflect on good practice and expose weaknesses in the process of service delivery. It helps elucidate the important components that may contribute to effective practice or are missing from it. This is the essence of any quality improvement initiative and surely this is what we are constantly, and sometimes against the odds, trying to ensure.

Identifying and protecting the strengths of a service whilst determining and addressing possible weaknesses is important in quality assurance. It is likely that these strengths and weaknesses will vary over time not only because of our own efforts and skills but because of the context in which we are working. For example, the communication skills of children with speech and language difficulties may not progress if the speech and language therapist goes on maternity leave or the well-being of children with special needs may improve following extra training of staff in strategies for dealing with this.

No one will be surprised to learn that rehabilitation and enablement services commissioned by the United Kingdom's National Health Service (UK NHS) and mostly provided by Allied Health Professionals shows great variation in their staffing (grades and types, general resources, modes of practice, service users catered for (types and ages), care models, and intentions. These variations are particularly evident in the provision of community services to children in schools.

A powerful way of determining the influences on good practice is to conduct benchmarking which compares the outcomes, that is, the impact of different services. Do similar service users improve to a greater extent in some services or with some clinicians than others? And if this is the case can we investigate the processes that are associated with these improvements? The objectives of benchmarking are:

 (1) to determine what and where improvements are called for,

(2) to analyze how other organizations achieve better performance levels,

(3) and to use this information to improve performance.

In order to conduct benchmarking it is necessary to identify important data related to the impact of an intervention i.e. to collect outcome measure information. However, due to the broad number of health and social care professionals as well as the number of different client groups receiving rehabilitation/special education/speech and language therapy there are numerous measures available to choose from. This causes the problem that different services prefer different approaches to outcome measurement making it difficult to compare and contrast services. A generic measure which could be used alongside more specific outcome measures/assessments is essential for comparison of services.

Focusing on outcomes is the essential ingredient in quality improvement but it is necessary to select an outcome measure which is generic and can collect meaningful data in a reliable fashion on the broad range of individuals needing different services.

Therapy Outcome Measure

The Therapy Outcome Measure (TOM)[1] was designed to be a simple, reliable, cross-disciplinary and cross-client group method of gathering information on a broad spectrum of issues associated with goals of enablement/rehabilitation. It has been rigorously tested for reliability and clinical validity.

It aims to be quick and simple to use, taking just a few minutes to complete. It was based on examining the goals used in treating those with special needs whether children or adults. It

has been used for treatment/educational planning, clinical management, audit, benchmarking and research.

The TOM[1] allows therapists, (with the teacher where appropriate) to describe the abilities of a child or young person (CYP) in four domains the first three of which are based on International Classification of Functioning (World Health Organisation) definitions [2]:

Impairment	Dysfunction resulting from pathological changes in system: *this is the medical bit and allows description of the cause of the disability and the severity of such a disability*
Activity restriction/function	Functional performance: *this concentrate on the degree of independence and the amount of assistance that the individual requires.*
Participation	Integration in society: *this considers the individual's ability to relate to others, have friends, autonomy and a role*

The fourth domain of **well-being**, of both the individual and the carer was added to the TOM due to the finding that having an impact on well-being is an objective of most therapy services and thus needs to be separately identified in the outcome measure.

TOM[1] has an 11 point ordinal scale which is a scale on which data is shown simply in order of magnitude since there is no standard measurement of differences. A rating from 0 to 5 is made on each domain, where a score of 0 is profound, 3 is moderate and 5 mild. For example a score of 0 for 'Activity' represents a Child / Young Person (CYP) who is totally dependent/unable to function; a score of 3 for 'Impairment' represents a young person who has a moderate disability resulting from pathological changes; a score of 5 for 'Participation' represents a CYP who is integrated and able to maintain their expected roles in society, is valued by others, and exercises choice and autonomy. A score of 0.5 or ½ a point may be used to indicate if the person is slightly better or worse than a descriptor.

The TOM Core Scale has been adapted into 47 scales reflecting conditions that are familiar to a range of health, social and education professionals involved in rehabilitation /enablement. The manual provides background as to how the tool was developed, how TOMs can be introduced to a team or service, guidance on how to use the tool and guidance on how to analyse data.

Research underpinning the TOM[3-13] indicates that some services focus on and have an effect on improving the underlying condition (impairment) whereas others concentrate on

having an impact upon improving activity (functional independence), social participation or well-being and that services can have significantly different patterns of outcome/impact.

By using a generic outcome measure professionals can work together to identify the severity of the disability or health condition, the aspects reducing independence, the degree of social participation and issues to do with well-being. In this way one can identify who is doing what, monitor change over time and identify the processes that are facilitating improvement.

RCSLT identified the TOM as meeting the criteria agreed by its members. These criteria included psychometric properties, ease of use and ability to collect information on a broad range of client groups [14]..

Data collection

One of the barriers to gathering data was the variability in digitised record-keeping in speech and language therapy services in the UK. Consequently, the RCSLT invested in developing an online data collection tool [15] to support with data collection and reporting.
Twelve services from across the UK have been piloting the tool – known as the RCSLT Online Outcome Tool, or the ROOT – to collect TOM data. They include services for adults and children, and a mixture of both.

Early Results

The services who have been piloting the ROOT were recruited at different stages; therefore, some services were collecting data longer than others. Since June 2016, the 12 services have entered information on 11,610 clients covering a range of ages, speech and language conditions and medical aetiologies, including aphasia (862), dysarthria (527) and learning disability (141) children with language disorders (449).

Table 1 shows overall data from the 12 sites for individuals whose conditions are not progressive in nature. More than 75% of clients improved on at least one TOM domain (impairment, activity, participation and wellbeing), with 27.8% improving in all four domains. Almost 25% of clients did not improve their scores in any of the domains. This may be related to a number of factors; for example, some individuals receive intervention to **maintain** their skills and abilities and others may have been discharged prior to therapy being complete. Being able to identify why clients are not being affected positively is important, and this data will help services to reflect on possible causes.

Table 1. Overall data from 12 sites for individuals with non-progressive conditions

	Positive change in number of domains				
	None	**One**	**Two**	**Three**	**Four**
Number of clients (total = 11,089)	2,864 (23.9%)	1,816 (15.1%)	2,253 (18.8%)	1,629 (13.6%)	3,445 (28.7%)

Data only becomes useful when it can be interrogated and its meaning explored.

Figure 1. Report showing the direction of change in TOM between initial and final ratings across each domain for children with language disorder
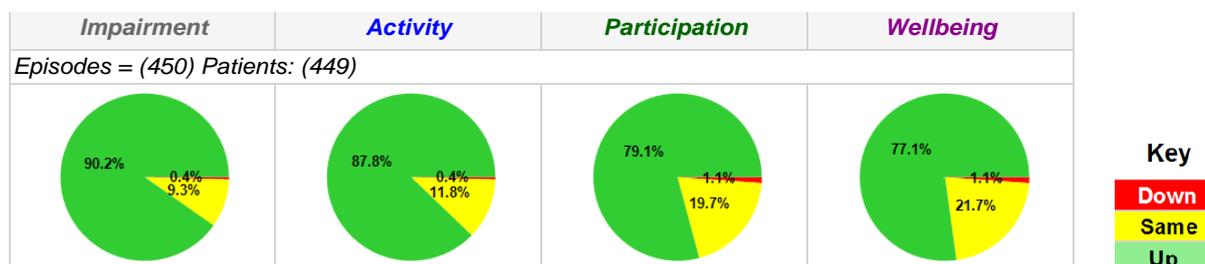

Figure 1 depicts a report on the outcomes of children with language disorder who have received speech and language therapy. It shows that more than 90% improved their language skills (impairment) and 87% improved their ability to communicate (activity), while around 20% did not improve on their social participation or wellbeing.

It would be possible to explore whether new approaches to working with the education settings in this locality could support better outcomes in social participation and wellbeing, and to compare these results with results following this change.

Benefits of benchmarking

Comparing data from different services is highly valuable. It facilitates investigations into whether individuals are being discharged at a similar point in their recovery and whether therapy has a similar impact on the domains. Furthermore, it is possible to identify whether patients are being referred to the service at the same point and the subsequent impact. For example, in some areas, children may be referred only when they have a severe problem; whereas, in other areas, children are referred with moderate or mild difficulties. It is essential that clinicians and service managers are aware of the impact of their services, know their strengths and weaknesses, and can assure their commissioners/funders that they have this information, and that it informs reviews of their services.

Previous work [5,10,11] has indicated that some services show greater impact on social participation and wellbeing, while others may see more changes in the disorder/ impairment and functional activity. It is possible that such variations are associated with the model of service delivery.

Table 2 shows TOM data for children with phonological disorder at two sites. Both sites show a clinically significant change on two of the domains, but the domains are different. It would be interesting to explore these differences. In addition, this feedback may lead the services to review aspects of their intervention and consider whether partnering with other agencies may increase their impact, particularly in the area of wellbeing. If they make these changes they would be able to review whether reconfiguring the service support has the desired effect or not.

Table 2. A comparison of two services: TOM data for children with phonological disorder receiving speech and language therapy

Pilot site/ service	Number of patients	Average TOM at start, end and amount of change* (mean)											
		Impairment			Activity			Participation			Wellbeing		
		Start	End	Change	Start	End	Change	Start	End	Change	Start	End	Change
1	23	2.28	2.72	0.43	2.5	3.07	0.57	3.15	3.67	0.52	3.46	3.85	0.39
2	20	2.88	3.38	0.5	2.93	3.3	0.38	4	4.23	0.23	4.1	4.4	0.3

A statistical note

TOMs collects ordinal data: data that has a sense of order, but for which we cannot be sure that the distances between the consecutive values are equal. Usually, such data should use nonparametric statistics; however, it is now generally agreed that some ordinal data is less 'qualitative' than other data, and that it is reasonable to treat it as interval data and calculate means and medians, as there is sufficient definition to help people perceive the different points on the scale in the same way.

Data analysis

We are now getting to the position where we have substantial data that can describe the impact of services on clients receiving speech and language therapy. Although the data is overarching, it is reliable and provides us with basic information, allowing us to compare access to services, at what point they are discharged and whether this varies across the country and the impact that this has on outcome. The data will assist practitioners in demonstrating the impact of their services to those who are unfamiliar with our profession and our role. The data will also assist with reflecting on the strengths and weaknesses of each service to drive quality improvement.

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References

1. Enderby P, John A, 2015. Therapy Outcome Measures for Rehabilitation Professionals. 3rd Edition J&R publications. Guildford.
2. International Classification of Functional Disability and Health. 2001. World Health Organisation, Geneva
3. Enderby P, Hughes A, John A, Petheram B. Using Benchmarking data for assessing performance in occupational therapy. Clinical Governance: An International Journal 2003;8(4):290-295..

4. Enderby, P. (1999) For richer for poorer: outcome measurement in speech and language therapy. Advances in speech language pathology volume 1 number one pp. 63–65.

5. Enderby, P. and John, A. (1999) Therapy outcome measures in speech and language therapy: Comparing performance between different providers. International Journal of Language and Communication Disorders, 34, 417–429.

6. Enderby, P., John, A., Hughes, A., and Petheram, B. (2000) Benchmarking in rehabilitation: comparing physiotherapy services. British Journal of Clinical Governance, 5(2), 86–92.

7. Enderby, P. and Kew, E. (1995) Outcome measurements in physiotherapy using the World Health Organisation's classification of impairment, disability and handicap: a pilot study. Physiotherapy. Volume 81 number four pp. 177–183.

8. John, A. (1993) An Outcome Measure for Language Impaired Children Under Six Years: A Study of Reliability and Validity. MSc. Thesis, City University.

9. John, A. and Enderby, P. (2000) Reliability of speech and language therapists using therapy outcome measures. International Journal of Language and Communication Disorders, 35, 287–302.

10. John, A., Enderby, P., and Hughes, A. (2005a) Benchmarking outcomes in dysphasia using the therapy outcome measure. Aphasiology, 19(2), 165–178.

11. John, A., Enderby, P., and Hughes, A. (2005b) Comparing outcomes of voice therapy: A benchmarking study using the therapy outcome measure. Journal of Voice, 19(1), 114–123.

12. John, A., Enderby, P., Hughes, A., and Petheram. B. (2001) Benchmarking can facilitate the sharing of information on outcomes of care. International Journal of Language and Communication Disorders, 36 Suppl. 385–390.

13. Ryan, A. (2003) An Evaluation of Intensity of Community Based Multidisciplinary Therapy Following Stroke or Hip Fracture for People Aged 65 and Over. PhD Thesis, University of Sheffield.

14. Powell G & Lowenthal D. Outcomes and outcome measures. *RCSLT Bulletin* 2014; 749: 22 -24.

15. Gadhok K & Moyse K. The RCSLT Online Outcome Tool. *RCSLT Bulletin* 2017; 778: 5.

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EFFECTIVE PHONOLOGICAL AWARENESS INSTRUCTION FOR CHILDREN WITH SPEECH AND LANGUAGE IMPAIRMENT

Abstract: Preschool children with speech and language difficulties are at heightened risk for persistent literacy challenges. This presentation will focus on evidenced-based practices in phonological awareness implementation to facilitate more successful early reading and spelling experiences in young children at risk. Data from a recent intervention study examining the effectiveness of class phonological awareness instruction for 5- to 6- year old children will be presented. In this study, Grade 1 children across 7 schools (n= 247) in a low socio economic area in Christchurch, New Zealand were assessed on oral language measures. From this cohort, 143 children were identified as having lower oral language ability (71 boys, 72 girls) and 51 of these children also had speech sound disorder. This presentation focuses on these children's responses to class phonological awareness intervention implemented by the children's class teacher and supported by speech-language therapists. Teaching activities that assisted children's ability to integrate newly acquired phonological awareness knowledge into the reading and spelling process will be shared via video demonstration.

Keywords: phonological awareness; reading; spelling; intervention; speech language disorders

Introduction

Children who enter school with strong foundational skills in early literacy (such as good oral vocabulary, phonological awareness and some letter knowledge) and receive evidence based literacy instruction are likely to succeed in their early reading and writing attempts during their first school year [1]. They are also more likely to develop positive concepts of themselves as a learner [2]. These early successful literacy experiences build a spiral from reading success to more advanced oral language development which, in turn, fuels later reading success, stronger educational outcomes and improved health and well-being. Indeed, early literacy success may be seen as a critical stepping stone to children's overall well-being. However, we know that many children who enter school with speech and language impairment do not have these same positive early literacy experiences and subsequently their life course trajectory can be adversely impacted [3]. There is an urgent need, then, to better understand interventions that not only support these children's oral language, but can also facilitate better outcomes in their early literacy development so as to build stronger foundations for later literacy success and improved educational and health outcomes.

In New Zealand, as part of a 10-year National Science Research Programme called " A Better Start" we are researching interventions in the first year of schooling (when children are 5 to 6 years of age) that can accelerate phonological awareness, vocabulary, and early word reading and spelling development in children with lower levels of oral language ability. This presentation provides a summary of the research with a particular focus on phonological awareness aspects of the intervention. Full study details are reported in Gillon et al. [4] and *The Better Start* Website provides a summary http://www.canterbury.ac.nz/education/research/a-better-start-literacy-and-learning-theme/

The *Better Start* intervention involves an integrated approach in which class teachers deliver the first tier of intervention at the class or large group level with the support of speech-language therapists and reading specialists. Children's responses to the intervention are carefully monitored and further small group and individual intervention offered following the class intervention as required. In the first tier of intervention, we chose to focus on developing teachers' expertise to provide more explicit class teaching instruction on phonological awareness and vocabulary knowledge for the following main reasons:

1. Phonological awareness is a cognitive skill that is critical to children's ability to decode print when reading and to encode print when spelling. In turn, efficient and accurate word reading skills contribute to children's reading comprehension ability.(See Gillon, 2018 for a comprehensive review of phonological awareness [5].

2. Phonological awareness is important for early reading development across languages [6]. Of particular interest for this presentation, Petchko [7] found that phonological awareness contributes unique variance to word decoding accuracy and word decoding rate in 5 to 6 year old Russian speaking children, highlighting its importance to early reading success in Russian.

3. Vocabulary knowledge is important for children's reading comprehension ability and depth of vocabulary knowledge may be particularly important for children's ability to make inferences from written text. [8]

4. Many children with speech and language impairment have lower levels of phonological awareness and vocabulary knowledge [9-11]. Intervention needs to help accelerate their learning in these areas to help them "catch up" to their peers.

5. Previous experimental studies provide promising results in being able to improve children's speech production, phonological awareness, reading and spelling skills concurrently [12-15]

6. Within a resource limited funding model for specialist services like speech language therapy, class level intervention may be the only state funded intervention children with less severe speech and language needs receive. It is therefore vitally important to understand how children with speech and language difficulties respond to class intervention and how best we can support teachers in delivering such intervention.

Our preliminary work suggests that, with appropriate support, teachers can successfully implement phonological awareness intervention resulting in significantly more children achieving at, or above, age expected reading levels. Carson, Gillon and Boustead [16] demonstrated that in classrooms where the teacher implemented structured phonological awareness intervention only 6% of children required specialist reading support in their second school year. This compared to 26% of children requiring reading support in their second year in classrooms where the intervention was not implemented. Our current study extends this work through integrating oral vocabulary development and phonological awareness into the same intervention and extending to communities where children have multiple challenges to their learning.

Overview of Current Study

Participants: Grade 1 children across 7 schools in low socio economic areas in Christchurch, New Zealand participated in the study (n= 247). Following initial assessment, 143 were identified as having lower language ability (71 boys, 72 girls Mean Age = 64.6 months SD =3.3) and 51 of these children also had speech sound disorders in addition to lower oral language ability.

Method: A stepped wedge research design was utilized to examine the intervention effects for children with lower levels of oral language where the intervention was rolled out sequentially in

Group A (72 children across 4 schools) and then Group B (71 children across 3 schools) following a baseline monitoring phase.

Intervention: *The Better Start* Intervention Programme was designed to support children's phonological awareness, letter-sound knowledge and vocabulary growth within a culturally responsive paradigm in children's first year of school. Children were introduced to a quality story book each week of the intervention and the phonological awareness, letter knowledge, vocabulary and cultural competency components were built around that story book. Some key components of the intervention included:

Developing teachers' knowledge. The class teachers participated in professional learning workshops prior to the intervention and engaged in online learning modules in phonological awareness developed by the research team. The teachers helped co construct the intervention framework with the research team through workshop activities and feedback on activity tasks.

Length of intervention. Agreement was reached between the researchers and teachers that the teachers would implement the intervention for 30 minutes, 4 times weekly for a ten week period (one school term in New Zealand) to ensure a total of 20 hours of intervention was delivered.

Intervention structure. For the first 8 weeks of the intervention, three of the four sessions each week were pre-prepared by the research team in consultation with the teachers. The teachers received a resource pack with the story book and game activities to implement each session. The teacher was required to prepare the 4th session each week, creating resources or repeating activities from sessions 1-3 that suited the children's needs. The teachers were required to choose their own books and design the intervention activities for the last two weeks of the programme (Weeks 9 and 10). Speech-language therapists supported teachers during the intervention programme and modelled sessions in using phonological awareness activities.

Phonological Awareness Activities

The phonological awareness activities were adapted from activities in the Gillon series of studies that proved effective in developing phonological awareness skills in children with spoken language impairment [12]. Activities focused at the phoneme level and included game activities to actively engage the children. Examples are provided below.

Phoneme identity games: For example, playing phoneme identity bingo where the teacher calls out a word and the children have to find whether they have a word that starts (or ends) with the same sound on their picture bingo board. *Phoneme segmentation and phoneme blending games*: For example, the teacher says "I'm thinking of a word on this page of the story book and I'm going to say it very

slowly. See who can guess the word: s..t...ar = star." The children take turns at segmenting words slowly for other children to guess the word by blending the sounds together. *Phoneme manipulation activities:* For example, the teacher encourages children to track sound changes in words by substituting, adding or deleting sounds (e.g., cat-hat-ham-him) using letter blocks or on a white board.

Letter sound knowledge was integrated into the phoneme awareness games and at least one activity in each session was designed to help children use phoneme awareness and letter knowledge in word reading and spelling activities.

Vocabulary Activities

The vocabulary intervention activities were adapted from Justice et al [17]. The storybook for the week was used as a context to increase vocabulary knowledge through repeated storybook readings and elaboration of target words. A sticker that provided an elaboration of each target word (for the teacher to read verbatim) was placed at the appropriate pages in the story book.

Session Outline Example (30 minute session). In Week 1, A story book was chosen about colours "Colour the Stars"

Pre Story book reading activities (10 minutes). The teacher introduced phonological awareness activities related to the theme of the story. For example: "This story is about teaching a boy to understand colours. The word "colour" starts with a /k/ sound. This letter C can make the /k/ sound (holding up a large card with the letter C). Let's think of other words that start with a /k/ sound." The teacher asked the class to segment and blend single syllable "colour words" together by clapping out each phoneme in the word (r-e-d; g-r-ee-n; b-l-ue; b-r-ow-n).

Story reading (10 minutes). The teacher read the story and elaborated target vocabulary words. The teacher brought children's attention to initial sounds in words for the target words (10 minutes).

Post story book reading activities (10 minutes). The teacher introduced activities to focus children's attention on using phonological awareness in reading and spelling games. For example, in a phoneme manipulation activity: If this word says "red" and I change the first letter to "b" that make a /b/ sound- it now says….(bed) . The teacher selected children to read simple sentences with phonetically regular words related to the storybook theme. "The cup is red." The class played games that required children to work in pairs to find a written word that was hidden in the room, sound the word out using word decoding strategies, read the word together and make up a sentence using the word, or for less able children, to find a written word and identify the first phoneme in the word.

Other examples of phonological awareness activities suitable for children with speech and language impairment can be found at Gillon's Phonological Awareness Resource site http://www.canterbury.ac.nz/education/research/phonological-awareness-resources/

Study Results

Preliminary findings indicate that the intervention was effective in accelerating the children's phonological awareness, target vocabulary word knowledge, word decoding and spelling skills of children with lower levels of oral language development over and above their regular classroom instruction. Children who had both speech and language difficulties required additional support to use their newly acquired phonological awareness skills in the reading and spelling process. The findings suggest that the intervention was effective in significantly increasing the number of children with lower levels of oral language ability who succeed in their early literacy instruction during their first school year. Details of the intervention findings are reported in Gillon et al, [4].

References

1. Hulme, C. and M.J. Snowling, *Learning to Read: What We Know and What We Need to Understand Better.* Child Development Perspectives, 2013. **7**(1): p. 1-5.
2. Chapman, J.W., W.E. Tunmer, and J.E. Prochnow, *Early reading-related skills and performance, reading self-concept, and the development of academic self-concept: A longitudinal study.* Journal of Educational Psychology, 2000. **92**(4): p. 703-708.
3. Law, J., et al., *Modeling Developmental Language Difficulties From School Entry Into Adulthood: Literacy, Mental Health, and Employment Outcomes.* Journal of Speech Language and Hearing Research, 2009. **52**(6): p. 1401-1416.
4. Gillon, G., et al., *A better start to early literacy learning: Findings from a teacher-implemented intervention in children's first year at school.* Paper Submitted, 2018.
5. Gillon, G., *Phonological Awareness: From Research to Practice.* 2nd ed. 2018, New York: The Guilford Press.

6.   Gillon, G., A. Sadeghi, and J. Everatt, *Phonological awareness development in speakers of languages other than English*, in *Phonological Awareness: From Research to Practice*, G. Gillon, Editor. 2018, The Guilford Press: New York. p. 57-73.

7.   Petchko, K., *THE ROLE OF COGNITIVE, PHONOLOGICAL, AND LINGUISTIC ABILITIES IN EARLY READING DEVELOPMENT IN THE RUSSIAN LANGUAGE*. Inted2011: 5th International Technology, Education and Development Conference, ed. L.G. Chova, I.C. Torres, and A.L. Martinez. 2011, Valenica: Iated-Int Assoc Technology Education a& Development. 2328-2337.

8.   Cain, K. and J. Oakhill, *Reading comprehension and vocabulary: Is vocabulary more important for some aspects of comprehension?* Annee Psychologique, 2014. **114**(4): p. 647-662.

9.   Preston, J.L., M. Hull, and M.L. Edwards, *Preschool Speech Error Patterns Predict Articulation and Phonological Awareness Outcomes in Children With Histories of Speech Sound Disorders.* American Journal of Speech-Language Pathology, 2013. **22**(2): p. 173-184.

10.   Sices, L., et al., *Relationship between speech-sound disorders and early literacy skills in preschool-age children: Impact of comorbid language impairment.* Journal of Developmental and Behavioral Pediatrics, 2007. **28**(6): p. 438-447.

11.   Gillon, G. and B. McNeill, *Phonological Awareness Development in Children with Spoken Language Impairment*, in *Phonological Awareness: From Research to Practice*, G. Gillon, Editor. 2018, The Guilford Press: New York. p. 95-117.

12.   Gillon, G.T., *The efficacy of phonological awareness intervention for children with spoken language impairment.* Language, Speech & Hearing Services in Schools, 2000. **31**(2): p. 126.

13.   Gillon, G.T., *Follow-up study investigating the benefits of phonological awareness intervention for children with spoken language impairment.* International Journal of Language & Communication Disorders, 2002. **37**(4): p. 381-400.

14.   Gillon, G.T., et al., *Phonological awareness treatment effects for children from low socioeconomic backgrounds.* Asia Pacific Journal of Speech Language and Hearing 2007. **10**(2): p. 123-140.

15.   McNeill, B.C., G.T. Gillon, and B. Dodd, *Phonological awareness and early reading development in childhood apraxia of speech (CAS).* International Journal of Language & Communication Disorders, 2009. **44**(2): p. 175-192.

16.   Carson, K.L., G.T. Gillon, and T.M. Boustead, *Classroom Phonological Awareness Instruction and Literacy Outcomes in the First Year of School.* Language Speech and Hearing Services in Schools, 2013. **44**(2): p. 147-160.

17.   Justice, L.M., J. Meier, and S. Walpole, *Learning new words from storybooks: An efficacy study with at-risk kindergartners.* Language Speech and Hearing Services in Schools, 2005. **36**(1): p. 17-32.

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BILINGUAL CHILDREN WITH SPECIFIC LANGUAGE IMPAIRMENT (SLI):
IDENTIFICATION AND TREATMENT CHALLENGES

Abstract: Myths around bilingualism abound. The ongoing debate on 'how to handle two languages in one brain' contributes to the difficulty in defining who is a bilingual. Bilingualism is discouraged in children with SLI due to notions of their *limited language capacity*. Identification of SLI in bilingual children is onerous. Here we define who is a bilingual, highlight the difficulty inherent in identifying SLI in bilingual children and those with comorbid disorders, and promote evidence based treatment and education options that address their language and literacy long-term needs to make them *society ready*.

Key words: bilingual specific language impairment; identification; treatment; long term needs

Who is a bilingual (BiL)? Bilingualism and the neurodevelopmental disorder, SLI, are complex constructs. Each raises substantial issues, but when combined in the same child, the challenges for Speech Language Clinicians (SLC) are significant in terms of identification, treatment, parent counseling, and appropriate educational support to ultimately gain economic independence. Defining a BiL is an issue. Researchers mostly agree on a functional definition: BiLs are those who use two or more languages (or dialects) in their everyday lives [2; 12]. They do not need to be equally competent in all of their languages as they usually acquire and use their languages for different purposes, in different domains of life, and with different people [12]. A BiL is not a person with two (or more) monolinguals (MonLs) in their head but rather BiLs are unique from the start. Infant *face gazing* studies [29] with MonLs, and BiLs with significantly more exposure to one of their languages, showed that BiL infants exploited audiovisual speech cues earlier and more than MonLs. Moreover, BiL brains change to accommodate two languages. Neuroimaging of early-simultaneous BiLs and MonLs showed BiLs process language in both hemispheres, and develop specialized language *sub-networks* to cope with the two languages while MonLs' language is lateralized in the left hemisphere [11]. Studies with late-second-language-onset sequential BiLs [28] confirmed these structural changes induced by bilingualism. While the debate whether bilingualism is a 'friend or foe' continues, Bialystok and Feng [12 p.121] note that BiL children present "… *a complex portrait of interactions between bilingualism and skill acquisition…there are sometimes benefits for BiL children, sometimes deficits, and sometimes no consequence at all*." Still, Bialystok [3] reported on bilingual advantages through the life-span: children, young adults, and elders clearly demonstrated cognitive benefits, increased efficiency in Executive Functions (EFs), and a four-year delay in the onset of dementia and Alzheimer

compared to MonLs, confirming the protective effect resulting from a life-time of *juggling two languages*.

Why are neurodevelopmental disorders (NDs) complex? NDs include the largest subpopulation of children with disabilities [25]. They are notorious for within group variations, between group risk, and symptom sharing: factors that pose dilemmas in defining phenotypes, identifying underlying genetic factors, diagnosing accurately, performing follow-up research, and even in naming the disorder [5; 30]. NDs share genetics and language problems [31]. However, SLI is a non-syndrome ND with no known etiology whose defining feature is language impairment with a strong genetic component and family history. In fact, varied SLI genotypes implicating different chromosomes were found to underlie two phenotypes: SLI 1 on chromosome 16q was linked to nonword repetition affecting reading and spelling disorders or literacy phenotypes, and SLI 2 on chromosome 19q implicated nonword repetition, tense marker, and expressive and receptive language phenotypes but not literacy phenotypes [33]. This explains the comorbidity of dyslexia in some but not all children with SLI [8]. Identification is further hampered by the considerable heterogeneity in skill profiles [9]. SLI identification involves inclusionary and exclusionary criteria: children who perform below age expectations on language measures resulting in functional limitations that interfere with everyday life despite intellectual and sensory skills adequate for typical development and no severe speech deficits [34; 16; 27]. Minimum level language impairment needed for identification include one year or one Standard Deviation below chronological age, and normal nonverbal IQ [27]. These are not universally accepted as they depend on whether used for research or clinical purposes [31], the language studied [21], and the diagnostic power of the tools employed due to the lack of a 'Gold Standard' test as for Autism [36].

Why is BiL SLI a difficult construct? Bilingualism differentially influences morphosyntactic competence and vocabulary size depending on whether acquisition is simultaneous or sequential, length of exposure, socio-economic status, and societal attitude to the minority home language, all impacting child outcomes in oral and literacy development [17; 27; 37]. Bilingualism is routinely discouraged in children with SLI because of a 'limited capacity notion', i.e., the view that they cannot manage two languages. However, children from migrant and immigrant families, for example, are expected to acquire new school languages. Differentiation between typically developing BiL (TD BiL) children from their SLI BiL peers is exacerbated as TD BiLs exhibit similar morphosyntactic errors as SLI MonLs, leading to false diagnosis of TD BiLs as language impaired [14; 27; 26]. Yet, after two years of exposure, TD BiLs are similar to TD MonLs [27], and when comparing BiLs to each other, the difference between TD BiLs and SLI BiLs is similar to the difference between TD MonLs and SLI MonLs [13]. Bilingualism, whether simultaneous or sequential, does not exacerbate SLI outcomes [20]. However, SLI children with ADHD, Dyslexia, and EF dysfunction comorbidities, often a majority in SLCs caseloads [19], do have profound negative outcomes. ADHD impacts these children behaviourally, emotionally, and

socially [38]; Dyslexia affects the entire academic trajectory including writing acquisition [18; 32] while EF dysfunctions predict persistent academic distress in reading, math, writing, and social competence in adolescence [1; 4; 35]. Sequential SLI BiLs are further penalized as reading and writing competencies hinge on school language proficiency, a mandatory development for successful academic achievement in middle and high school years [39). Studies show that identifying comorbid disorders in SLI is more effective with ecologically valid tools as functional characteristics of NDs are more powerful in determining health outcomes in children than diagnosis-specific factors [25].

What assessment alternatives and treatments are available? In addition to identifying comorbidities, personal and family history of impairments increase diagnostic accuracy [10; 5], as does examination of the child's language pairs [2], often impractical for SLCs as clinical tools do not yet exist for all language combinations. As an alternative solution, researchers [15] employed dynamic assessment with DAPPLE, a Vygotskian [40] protocol-based tool. It successfully differentiated language impaired BiLs on the SLCs caseload from their TD BiL peers with no SLC service history, thus discriminating core language deficits from difference due to a BiL language learning context. A modified DAPPLE similarly successfully differentiated clinical and non-clinical BiL migrant children [22]. Ideally, treatments for affected children encompass immediate educational and concomitant needs, and on-going supports for ultimate vocational education and employment. For example, a classic sign of difficulty with EFs is the gap between knowing the rules and being able to act on that knowledge [42]. To address this gap, instruction in writing, a holarchically organized process [24], aids in managing both domains, while also applying Bloom's cognitive taxonomy [7], an approach that utilizes EFs and a *self-questioning* strategy to increase text comprehension. SLI BiLs require preparation for content area mastery as demonstrated in *HELP*, a math mastery digital program [41] designed for BiL students with and without disabilities, based on scaffolding techniques to increase simultaneously students' understanding of content and develop their language proficiency. Finally, SLI BiLs' struggles with literacy and numeracy necessitates early identification of preferred career paths in secondary school. For these students, the optimal literacy instruction is one that addresses the unique language and terminology of the selected vocation as it promotes successful apprenticeship, and ultimately connects students to future employment and employers [23].

References

1. Altemeier, L., Jones, J. Abbott, R.D., & Berninger, V.W. (2010). Executive Functions in Becoming Writing Readers and Reading Writers: Note Taking and Report Writing in Third and Fifth Graders. *Dev Neuropsychol*, 29:1, 161-173.

2. Armon-Lotem, S., de Jong, J., & Meir, N. (Eds.). (2015). *Assessing multilingual children: disentangling bilingualism from language impairment*. Bristol, United Kingdom: Multilingual Matters: *Communication Disorders Across Languages* series.

3.   Bialystok, E. (2011). Reshaping the Mind: The benefits of bilingualism. *Can J Exp Psychol*, 65(4): 229–235.

4.   Biederman, J. Monuteaux, M.C., Doyle, A.E., Seidman, L.J., Wilens, T.E., Ferrero, F, Morgan, C.L., & Faraone, S.V. (2004). Impact of executive function deficits and attention-deficit/hyperactivity disorder (ADHD) on academic outcomes in children. *J. Consult. Clin. Psychol.*, 72(5):757-66.

5.   Bishop, D.V.M. (2006). What Causes Specific Language Impairment in Children? *Curr Dir Psychol Sci.*, 15(5): 217–221.

6.   Botting, N., Bean-Ellawadi, A., Williams, D. (2016). Language impairments in childhood– range of profiles, a variety of reasons. *Autism & Developmental Language Impairments*, 1:1-2.

7.   Buehl, D. (2007). Bloom Taxonomy Self-Questioning Chart. In D. Buehl (Ed). *From Classroom Strategies for Interactive Learning*, Third Edition, 2009, PP. 157-161. Newark, DE: International Reading Association.

8.   Catts, H.W., Adlof, S.M., & Weismer, S.E. (2005). Are Specific Language Impairment and Dyslexia Distinct Disorders? *JSLHR,* 48(6): 1378–1396.

9.   Conti-Ramsden, G. (2008). Heterogeneity of specific language impairment in adolescent outcomes. In C. F. Norbury, J. B. Tomblin, & D. V. M. Bishop (Eds.), *Understanding developmental language disorders*: *From theory to practice* (pp. 117–130). Hove: Psychological Press.

10.   Conti-Ramsden, G., Botting, N. & Faragher, B. (2001). Psycholinguistic markers for Specific Language Impairment (SLI). *J. Child Psychol. Psychiatry*, 42(6): 741-748.

11.   García-Pentón, L., Pérez Fernández, A., Iturria-Medina, Y., Gillon-Dowens, M., & Carreiras, M. (2014). Anatomical connectivity changes in the BiL brain. NeuroImage, 84: 495–504.

12.   Grosjean, F. (2015). What are the effects of bilingualism seen in studies over time. *Psychology Today blog, Life as a BiL*. Retrieved from: www.francoisgrosjean.ch/blog_en.html

13.   Gross, M., Buac, M., & Kaushanskaya, M. (2014). Conceptual scoring of expressive and receptive vocabulary measures in simultaneous and sequential bilinguals. *Am J Speech Lang Pathol*, 23: 574-586.

14.   Grüter, T. (2005). Comprehension and production of French object clitics by child second language learners and children with specific language impairment. *Applied linguistics*, 26, 3653-391.

15.   Hasson, N., Camilleri, B., Jones, C., Smith, J., & Dodd, B. (2013). Discriminating disorder from difference using dynamic assessment with BiL children. *Child Lang. Teach. Ther*, 29(1): 57–75.

16.   Hill, D.E., & King, C. (2013). A walk through the DSM 5 Communication Disorders. *Indian Health Services*. ww.ihs.gov/telebehavioral/includes/themes/.../comm disordersfasd0421.pdf

17.   Hoff, E. (2013). Interpreting the early language trajectories of children from Low SES and language minority Homes: Implications for closing achievement gaps. *Dev Psychol,* 49(1), 4–14.

18.   Hooper, S.R., Swartz, C.W., Wakely, M.B., deKruif, R.E.L., Montgomery, J. W. (2002). Executive functions in elementary school children with and without problems in written language. *J. Learn. Disabil*, 35(1), 58-68.

19.   Hus, Y. (2014). Executive Dysfunctions, Reading Disabilities, and Speech-Language Pathology Evaluation. *Folia Phoniatr Logop.*, 66(1-2), 37-47.

20.   Kohnert, K. (2010). Bilingual Children with Primary Language Impairment: Issues, Evidence and implications for Clinical Actions. *J Commun Disord*, 43(6): 456–473.

21.   Leonard, L.B. (2014). Specific language impairment across languages. *Child Dev Perspect*, 8(1): 1-5.

22.   Maragkaki, I., & Hessels, M.G.P. (2017). A Pilot Study of Dynamic Assessment of Vocabulary in German for BiL Preschoolers in Switzerland. *J. Stud. Int. Educ*, 7(1): 32-49.

23.   Metro Toronto Movement for Literacy (2016 March). *Literacy, Apprenticeship and Vocational Training*. Sixth Volume in an Occasional Series. Retrieved from mtml.ca/wp-content/uploads/2015/11/Research-Document-6-FINAL.

24.   McCloskey, G. (2013). The Role of Executive Functions in Classroom Learning and Behavior: Strategies for Assessment and Intervention. Workshop: *Harvard Learning and the Brain 27th International Conference*, November 19-21, Cambridge, MA.

25.   Miller, AR, Shen J, & Mâsse, LC. (2016 June). Child functional characteristics explain child and family outcomes better than diagnosis: Population-based study of children with autism or other neurodevelopmental disorders/disabilities. Statistics Canada, Catalogue no. 82-003-X: *Health Reports*, 27(6): 9-18.

26.   Pankratz, M.E., Plante, E., Vance, R., & Insalaco, D.M. (2007). The Diagnostic and predictive validity of the Renfrew Bus Story. *Lang Speech Hear Serv Sch*, 38: 390-399.

27.   Paradis, J. (2010). The interface between BiL development and specific language impairment. *Appl Psycholinguist.*, 31: 3–28.

28.   Pliatsikasa, C., Moschopoulouc, E., & Saddy, J.D. (2015). The effects of bilingualism on the white matter structure of the brain. *Proc Natl Acad Sci*, *PNAS*, 112(5): 1334–1337.

29.   Pons, F., Bosch, L., & Lewkowicz, D. (2015). Bilingualism Modulates Infants' Selective Attention to the Mouth of a Talking Face. *Psychol. Sci*, 26(4): 490–498.

30.   Reilly, S., Bishop, D.V.M., & Tomblin, B. (2014). Terminological debate over language impairment in children: forward movement and sticking points. *Int J Lang Commun Disord*, 49(4): 452–462.

31.   Reilly, S., Tomblin, B., Law, J., McKean, C., Mensah, F.K., Morgan, A., Goldfeld, S., Nicholson, J.M., and Wake, M. (2014 July-Aug). Specific language impairment: a convenient label for whom? *Int J Lang Commun Disord*, 49(4): 416–451.

32.   Reiter, A., Tucha, O., & Lange K.W. (2005). Executive functions in children with dyslexia. *Dyslexia,* 11(2):116-31.

33. Rice, M.L., Smith, S.D. & Gayán, J. (2009 Aug). Convergent genetic linkage and associations to language, speech and reading measures in families of probands with Specific Language Impairment. *J. Neurodev. Disord*, 1:264–282.

34. Rice, M.L., Warren, S. F., & Betz, S.K. (2005). Language symptoms of developmental language disorders: An overview of Autism, Down syndrome, Fragile X, Specific Language Impairment, and Williams Syndrome. *Appl. Psycholinguist*, 26: 7–27.

35. Seidman, L.J., Biederman, J.M., Monuteaux, M.C. & Faraone, S.V. (2001). Learning disabilities and executive dysfunction in boys with attention-deficit/hyperactivity disorder. *Neuropsychology* 15(4):544-56.

36. Shahmahmood, T. M., Jalaie, S., Soleymani, Z., Haresabadi, F., & Nemati, P. (2016). A systematic review on diagnostic procedures for specific language impairment: the sensitivity and specificity issues. *J Res Med Sci.,* 21, 67.

37. Snowling, M.J., & Hayiou-Thomas, M.E. (2006). The dyslexia spectrum: continuities between reading, speech, and language impairments. *Topics in Language Disorders*, 26(2), 110-126.

38. St Clair, M.C., Pickles, A.B., Durkin, K., & Conti-Ramsden, G. (2011). A longitudinal study of behavioral, emotional and social difficulties in individuals with a history of specific language impairment (SLI). *Clin Commun Disord.,* 44: 186–199.

39. Uccelli, P., Barr, C.D., Dobbs, C.L., Phillips Galloway, E., Meneses, A., & Sanchez, E. (2015). Core Academic Language Skills (CALS): An expanded operational construct and a novel instrument to chart school-relevant language proficiency in per-adolescent and adolescent learners. *Appl. Psycholinguist*, 36(5): 1077-1109.

40. Vygotsky, L. (1978). *Mind in Society: The Development of Higher Psychological Processes.* Cambridge, MA: Harvard University Press.

41. Willis, M. (2013 Dec). The Importance of Academic Language in Achieving Content Area Mastery. *South East Education Network*, HELP Math Digital Directions International. Retrieved from www.helpprogram.net.

42. Zelazo, P.D. (2015). Executive function: Reflection, iterative reprocessing, complexity, and the developing brain. *Dev. Rev*, 38, 55–68.

Title: Pragmatics abilities in Greek speaking children with Language Impairment (LI)

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Abstract: Pragmatics as part of language influences language development and vice versa. The detail of pragmatic difficulties in children with Language Impairment (LI) differs from pragmatic difficulties in children with autism or social communication disorders. For this research purposes, the Assessment of Pragmatic Language and Social Communication (APLSC) Hyter & Applegate (2012) Greek Version, was used. There were significant differences between the two groups of children regarding their ability to be understandable from others, in respond to communication intent, in conversation, in talking about emotions of others and in explaining their own actions. Information gained from this research project will be helpful for better understanding of pragmatic difficulties' nature in children with LI and the appropriate methods for intervention.

Key words: Pragmatics, Language Impairment, Typical Development

Introduction

Pragmatics is typically defined as the study of language meaning in context. Other definitions of this linguistic discipline include notions, such as 'speaker meaning', 'inferred meaning' and 'non-literal meaning'.

The term 'Language Impairment' (LI) refers to a developmental language disorder that is diagnosed on the basis of delays and deficits in language development. Clinically, LI defined, as a failure to develop typical language at an appropriate age in a condition associated with poorer academic achievement and verbal working memory, executive functioning difficulties and variable linguistic deficits. Children with LI have a typical non-verbal intelligence and do not present any hearing or articulation impairment, or oral-motor abnormality, or emotional adjustment, or neurological deficits (Leonard, 1998).

LI children often exhibit pragmatic difficulties. They are, often, challenged in using language appropriately to get their needs met and interact with others. They have difficulties with processing the incoming information. They tend to focus on details, instead of extracting the central meaning. They may exhibit a range of communicative deficits, such as conversational inadequacies, poor turn taking, atypical word choices, literal interpretation of figurative language and poor topic maintenance, in addition to fundamental deficits in social cognition, such as appreciating the thoughts and feelings of others (Kateelars et al 2009). Most of children, also, exhibit semantic processing difficulties. They have difficulties on understanding the meaning of words and sentences, especially abstract ones. In addition, they have difficulties with idioms, sayings and slang expressions, taking them often literally or interpreting them oddly (Dewart & Summers 1995).
These difficulties are linked with problems in using contextual information to solve lexical ambiguities and figurative language comprehension (Norbury, 2005a, 2005b), pragmatic inferences (Katsos et al., 2011), narrative discourse (Norbury, Gemmell, & Paul, 2014) and poor turn taking (Bishop, 2000).

This study aims to identify and clarify nature of pragmatic difficulties in a group of Greek

speaking children with Language Impairment (LI) by comparing their pragmatic skills with those of a group of children with Language Normal (LN).

Methodology

Participants

43 children participate in the project. 30 of them are LN and 13 with LI. LI group has 4 female and 9 male. On the other hand, children with LN were 15 male and 15 female. The mean age of LI and LN groups was 65.97 months old and 63.46 months old respectively.

Instruments

1. Assessment of Pragmatic Language and Social Communication (APLSC).
Parent and teacher pragmatic language and social communication questionnaires are part of a larger assessment battery developed by Hyter and Applegate (2012). These questionnaires are designed to be used by various responders (e.g., parents, teachers, SLTs) in natural contexts (e.g., at home, preschool classroom) to observe the child interacting with multiple partners (adults and peers) in a variety of contexts. The questionnaires use a 5-point Likert scale (1 = hardly ever; 5 = almost always) and contain 30 (parent) and 35 (teacher) questions that address domains focused on child engagement (e.g., whether the child exhibits intersubjective awareness of others in his/her environment), communication style (e.g., whether the child communicates with primarily words or gestures), communication functions (e.g., whether the child uses a range of speech acts), conversational discourse (e.g., whether the child engages in reciprocal conversations with others), executive functions (e.g., whether the child exhibits the ability to inhibit responses or to be flexible, social cognition (e.g., whether the child comments about others' feelings, thoughts or perspectives), and perceptions (e.g., whether the child comments about others' experiential states).

2. Action Picture Test –Greek Version (Vogindroukas, Stavrakaki, Protopapas 2009).
The test has been designed to fulfill the need for a standardized test that, in a short and simple form, would stimulate children to give samples of spoken language that could be evaluated in terms of information given and the grammatical structures used, Words used to convey information, i.e. nouns, verbs, prepositions; present, past and future tenses; irregular forms of plural and past tenses; simple and complex sentence construction; and passive voice.

3. Word Finding Vocabulary Test – Greek Version (Vogindroukas, Protopapas, Sideridis 2009).
In this specific assessment tets in which pictures showing objects, arranged in order of difficulty, can be named correctly is assessed using this test. Most of the objects illustrated have no alternative name, so the responses of children can be quickly measured.

Statistical analysis

To find out if there are differences in the social communication skills among the children with LN and children with LI, non-parametric test Mann – Whitney was used (U).

Results

Parent's questionnaire results shows that there is no big differences between the two groups. There was only one question, which was statistically significant different between groups with moderate effect size (> 0.5). More specifically, it's question 5 and it's content is: " When my child interacts with another person, he/she gets his/her message across the first time". On this question, the children with LN (M = 4,60, SD= 0,67) scored higher than the children with LI (M= 4,08 SD= 0.66), (U=181,5, p=0.016).

Teacher's answers are differentiating between the two groups.. There were significant differences between groups with moderate effect sizes on 31% of the items on the questionnaires. The questions 5, 8, 12, 14 , 19 and 27 show statistically significant differences between groups (p. ≤ 0.01). Question 5 is in common with parent's questionnaire. This means, that the children with LN were more likely to be understandable across the first by another person (M= 4.53 SD= 0.68), rather than the children with LI (M= 3.38 SD= 1.44), (U=102, p=0.007).

As for the question 8, where it's content is " When someone says something to my child, he/she responds'', children with LI were less likely to respond (M= 3.69 SD= 1.10) than children with LN (M= 4.70 SD= 0.65), (U=91,5, p=0.001).

Regarding the questions 12 and 14, where discourse skills are assessed (starting a conversation with peers and making comments fitting the situation or conversational topic respectively), the children with LI performed less well, than the children with LN in both of them.(U=107, p=0.016, U=93,5, p=0.005).

Question 19 is about to be able to talk about people's emotions. Children with LN (M = 3.96, SD=0.99) scored significantly higher than the children with LI (M = 2.76, SD = 1.53), U = 106, p =0.014. Question 27 is about the ability of children to explain their actions. Children with LN were more likely to explain their actions (M= 4.53 SD= 0.81) than children with LI (M= 2.92 SD= 1.75), (U=75, p=0.001).

Discussion

The aim of the present study is the comparison of pragmatic abilities in Greek speaking children with and without language impairments at age of 64 months. The assessment tool used is consisted of two separate questionnaires for parents and teachers (Hytter, Applegate 2012). The first important finding is the difference between the questionnaires' answers of parents and teachers. It seems like parents are not able to recognize the language delay in their own children as well as the pragmatic aspect of difficulty caused by the delay. A possible explanation for this, could be the age of their children (preschool) and the low learning- academic requirements. The only answer that discriminates children with LI from those with LN from the parents view is the question 5 (" When my child interacts with another person, he/she gets his/her message across the first time"). This is the only behavior, which gained the attention of parents in the everyday communication conciliations with others. Poor parent–teacher agreement is a common finding in the field of psychiatric diagnosis, with parent–teacher correlations for ratings of behavioral/emotional problems typically met around the level of 0.2 to 0.4 (Verhulst &Akkerhuis 1989). The reasons for this have been much discussed (Bishop, Baird 2001). Question 5 is the only question with agreement between parents and teachers. This means that the children with LN were more likely to be understandable across the LI by another person. This finding could be lie in expression difficulties that exist in children with LI (Bishop 2000) or in difficulties of

phonology which could affect the clearness of oral speech of children with LI (Leonard 1998). Also, because of expression difficulties maybe we could explain the inability of children with LI to explain their actions.

Another finding, from teachers results, related to the responding to the other initiation for communication. According to the results, children with LI were less likely to respond than children with LN and may be this is related with emotional difficulties that children with LI faced (Helland at all 2017). Related with the above finding is also the difficulty of children with LI to talk about the emotion of others, result which is in agreement with findings of Kateelars et. all (2009).

Our findings about the conversation abilities of children with LI are in agreement also with the findings of Nurbury (2005) and Katsos et.all (2011). In our sample, the children with LI performed less well, than the children being LN in starting a conversation with peers and in making comments fitting the situation or conversational topic.

References

1. Bishop, D. V. (2000). Pragmatic language impairment: A correlate of SLI, a distinct subgroup, or part of the autistic continuum? In D. V. Bishop & L. B. Leonard (Eds.), Speech and language impairments in children: Causes, characteristics, intervention and outcome (pp. 99–113). Hove: Psychology Press.
2. Bishop, D.V. ,Baird, G. (2001). Parent and teacher report of pragmatic aspects of communication: use of the Children's Communication Checklist in a clinical setting. Developmental Medicine & Child Neurology 2001, 43: 809–818
3. Dewart, H., Summers, S., (1995). The Pragmatic Profile of Communication Skills in Childhood, NFER-Nelson, Windsor.
4. Helland, W.A., Helland, T., (2014). Emotional and behavioral needs in children with specific language impairment and in children with autism spectrum disorder: The importance of pragmatic language impairment. Research in Developmental Disabilities 70 (2017) 33–39
5. Hyter, Y. D., & Applegate, E B. (2012). Assessment of Pragmatic Language and Social Communication (APLSC, 2012). Beta research version. Unpublished document, Western Michigan University, Kalamazoo.
6. Katsos, N., Roqueta, C. A., Estevan, R. A., & Cummins, C. (2011). Are children with specific language impairment competent with the pragmatics and logic of quantification? Cognition, 119, 43–57
7. Ketelaars, P. Cuperus, M., Van Daal, J., Jansonius, K., Verhoeven, L., (2009) Screening forpragmatic language impairment: the potential of the children's communicationchecklist, Research in Developmental Disabilities 30 (5) 952–960.
8. Leonard, L. (1998). Children with specific language impairment. Cambridge, MA:MIT Press.
9. Norbury, C. F. (2005a). Barking up the wrong tree? Lexical ambiguity resolution in children with language impairments and autistic spectrum disorders. Journal of Experimental Child Psychology, 90, 142–171.
10. Norbury, C. F. (2005b). The relationship between theory of mind and metaphor: evidence from children with language impairment and autistic spectrum disorder. British Journal of Developmental Psychology, 23, 383–399.
11. Norbury, C. F. (2014). Practitioner review: social (pragmatic) communication disorder conceptualization, evidence and clinical implications. Journal of Child Psychology and Psychiatry, 55, 204–216.
12. Verhulst FC, Akkerhuis GW. (1989) Agreement between parents and teachers ratings of behavioral/emotional problems of children aged 4-12. Journal of Child Psychology and Psychiatry 30: 123–36.
13. Vogindroukas, I. Protopapas, A,. Sideridis, K. (2009).Word Finding Vocabulary Test – Greek Version, Glafki, Greece
14. Vogindroukas,I.,Stavrakaki, S.,Protopapas, A.(2009).Action Picture Test –Greek Version, Glafki, Greece

Beyond the Words: Making Inferences in Oral and Written Discourse
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Inference Deficits in Children with Communication Disorders

Making inferences is the cornerstone of social discourse and reading competence. It involves the abstraction of information that is not explicitly presented. Students with a wide variety of language impairments exhibit difficulties making inferences in oral and written discourse. Even when students with histories of specific language impairment (SLI) appear to have resolved their obvious language difficulties, they continue to exhibit deficits that influence their social and academic performance. Students with histories of SLI exhibit deficits in making inferences (Adams, Clarke, & Haynes, 2009; Botting & Adams, 2005; Ford & Milosky, 2003; Karasinski & Weismer, 2010; Norbury & Bishop, 2002; Vendeville et al, 2015). Students with reading comprehension problems (despite fluent decoding) exhibit significant difficulty in making inferences (Laing & Kamhi, 2002; McGee & Johnson, 2003; Oakhill & Yuill, 1996; Winne, Graham & Prock, 1993). It should be noted that deficits in making inferences by students identified only as poor reading comprehenders are associated with language impairments that have not been previously been identified (Hulme &, Snowling, 2014; Norbury & Nation, 2011; Spencer, Quinn, & Wagner, 2014).

To develop students' abilities to make inferences, speech-language pathologists (SLPs) must understand: (1) the types of inferences students must make, (2) the cognitive and linguistic skills required to make inferences; and (3) evidence-based strategies that promote students' abilities to make inferences.

Types of Inferences

Researchers have categorized inferences in a variety of ways. One approach classifies inferences in terms of how they make the text coherent or when they are done (Kispal, 2008), e.g.,

- Text-connecting/intersentence inferences
- Gap-filling inferences that enrich the mental representation of the text
- Local inferences that create a coherent representation at the level of sentences and paragraphs.
- Global inferences that create a coherent representation covering the whole text.
- On-line inferences drawn automatically during reading.
- Off-line inferences drawn strategically after reading.

This coding system, however, does not provide guidelines for teaching students to make inferences. Snow (2002) proposed a coding system that indicates what a person is doing to construct the inference. This coding systems provides SLPs with better guidance developing intervention strategies to promote students' ability to make inferences:

- Anaphoric: a pronoun or noun-phrase that refers to a previous text entity.
- Bridging/relational: readers integrate semantically or conceptually related information across sentences.
- Explanation-based/causal: readers infer the antecedent or consequences of an action.
- Predictive: forecasting what events will unfold, e.g., predicting that pigs in stories will get away from wolves.
- Goal: inferring intentions of an agent.
- Elaborative: considering properties/associations that cannot be explained by causal relationships.

Skills Necessary for Making Inferences

The types of inferences necessary for comprehending academic texts are also needed in social interactions. Students must want to make sense of the discourse or text; they must be actively monitoring there comprehension. They must have adequate linguistic skills and an understanding of the physical and psychological temporal and cause-effect relations between people, objects, and events (Cain & Oakhill, 2007; Tapiero, 2007). Kintsch (1988) produced a model of inference generation that involves comprehension of linguistic input, general world knowledge, and working memory. Using this model, Karasinski and Weismer (2010) explored the inferencing abilities of typically developing children, children with specific language impairment (SLI), students with low nonverbal IQ scores (but language skills within an average range), and students with nonspecific language impairment (NLI, low nonverbal IQ and low language scores). Students with SLI and NLI had the greatest difficulties on working memory and inferencing tasks. Children with SLI reportedly perform worse than same-age controls on both premise (literal) and inference questions. Even when they correctly answer premise questions, they do not generate as many correct inferences as neurotypical children. Norbury and Bishop (2002) found that children with communication impairments could make inferences, but not all their inferences were relevant to the story.

Depth as well as breadth of vocabulary is essential for making inferences, particularly global inferences. (Oakhill, Cain, & McCarthy, 2015). Vocabulary depth can be defined as a learner's richness of knowledge about individual words. Furthermore, students must have theory of mind abilities. They must be able to recognize emotional cues of persons in their environments, interpret these cues correctly, and understand what triggered the emotions and what might result from the emotions (Ford & Milosky, 2003).

Facilitating Inference Making

Research on ways to facilitate students' abilities to make inferences points to the importance of (Hall & Barnes, 2017; Kispel, 2008; McGee & Johnson, (2003), e.g.,

- Teacher modeling of inference making by using "think alouds".

- Word level work involving building vocabulary building and lexical training in local cohesive devices (such as pronouns and connectives) (Lucas & Norbury, 2015).
- Text level work: making explicit the structure of stories or expository texts.
- Asking questions: asking *'How do you know?'* whenever an inference is generated in discussion of a text, asking questions about relationships between characters, goals, and training pupils to ask themselves *Why*-questions.
- Building students' background knowledge related to the topic of the text
- Activating prior knowledge

References

Adams, C., Clarke, E., & Haynes, R. (2009). Inference and sentence comprehension in children with specific or pragmatic language impairments. *International Journal of Language and Communication Disorders, 44*, 301-318.

Botting, N., & Adams, C. (2005). Semantic and inferencing abilities in children with communication disorders. *International Journal of Language and Communication Disorders, 40,* 49-66.

Cain, K & Oakhill, J 2007, Reading comprehension difficulties: correlates, causes, and consequence. In K Cain & J Oakhill (Eds.), *Children's comprehension problems in oral and written text: a cognitive perspective*. Guilford Press, New York, pp. 41-75.

Ford, J.A., & Milosky, L.M. (2003). Inferring emotional reactions in social situations: Differences in children with language impairment. *Journal of Speech, Language, and Hearing Research, 46*, 21-30.

Hall, C., & Barnes, M.A. (2017). Inference instruction to support reading comprehension for elementary students with learning disabilities. *Intervention in School and Clinic, 52,* 279-286.

Hulme, C., Snowling, M.J. (2014). The interface between spoken and written language: developmental disorders. *Phil. Trans. R. Soc. B 369*: 20120395.

Karasinski, C., & Weismer, S.E. (2010). Comprehension of inferences in discourse processing by adolescents with and without language impairment. *Journal of Speech, Language, and Hearing Research, 53,* 1268-1279.

Kintsch, E. (1990). Macroprocesses and microprocesses in the development of summarization skill. *Cognition and instruction, 7,* 161-195.

Kispel, A. (2008). Effective teaching of inference skills for reading: Literature review. United Kingdom: National Foundation for Educational Research.

Kyle, F., E., & Cain, K. (2015). A comparison of deaf and hearing children's reading

comprehension profiles. *Topics in Language Disorders, 35*, 144-157.

Laing, S.P., & Kamhi, A.G. (2002). The use of think-aloud protocols to compare inferencing abilities in average and below-average readers. *Journal of Learning Disabilities, 35*, 436-447.

McGee, A. and Johnson, H. (2003). 'The effect of inference training on skilled and less skilled comprehenders. *Educational Psychology*, *23*, 49-59.

Norbury, C and Bishop, D. V. M., 2002, Inferential processing and story recall in children with communication problems: A comparison of specific language impairment, pragmatic language impairment and high-functioning autism. *International Journal of Language and Communication Disorders, 11,* 121-251.

Oakhill, J. & Yuill, N. (1996). Higher order factors in comprehension disability: Processes and remediation. In C. Cornoldi & J. Oakhill (Eds.), *Reading comprehension difficulties: Processes and intervention*. (pp. 69-92). Mahwah, NJ: Erlbaum

Snow, C. (2002). *Reading for understanding: Toward an R & D program in reading comprehension*. Rand Corporation.

Spencer, M., Quinn, J.M., & Wagner R.K. (2014). Specific reading comprehension disability: Major problem, myth, or misnomer? *Learning Disabilities Research & Practice, 29*(1), 3–9

Tapiero, I. (2007). *Situation models and levels of coherence: Toward a definition of comprehension.* Mahwah, NJ: Erlbaum.

Norbury, C., & Nation, K. (2011). Understanding variability in reading comprehension in adolescents with autism spectrum disorders: Interactions with language status and decoding skill. *Scientific Studies of Reading, 15*(3), 191-210.

Vendeville, N., Blanc, N., & Brechet, C. (2015). A drawing task to assess emotion inference in language-impaired children. *Journal of Speech, Language, & Hearing Research, 58*, 1563-1569.

Winne, P.H., Graham, L. & Prock, L. (1993). A model of poor readers' text-based inferencing: Effects of explanatory feedback. *Reading Research Quarterly, 28,* 52-66.

Title: Parents' Participation in Language Intervention with Children with Autism Spectrum Disorders – Evidence-based practice

Fernanda Dreux M Fernandes

Abstract: Language intervention with children with Autism Spectrum Disorders (ASD) should be intensive, timely, and focused in each child's specific needs. This way, parents and caregivers can be fundamental partners in this process. Their knowledge about their child and their opportunities for interaction in several different and meaningful contexts are unique and should be embedded in therapeutic proposals. The proposal of parents' participation must consider variables such as their educational level, familiarity with technology and willingness to perform activities at home or to participate in clinical sessions. It must also consider the child's developmental rhythm, linguistic abilities and educational and cognitive performance. This presentation will discuss the results of different alternatives for including parents in language therapy with children with ASD.

Key words: autism spectrum disorder, functional communication, language intervention, parents, family

The issue of communication represents perhaps the most important aspect of the Autism Spectrum Disorders (ASD). With a focus on identifying the best treatment for these children , researchers have determined the effectiveness of various therapeutic approaches (for example: Fernandes, Amato, Molini-Avejonas, 2015; Sun, Andrade, Fernandes, 2017; Varanda, Fernandes, 2017) However, it should also be emphasized that any comparisons of these approaches must consider data regarding the social context of the children and their family. Probably this is one of the reasons for the lack of scientific papers reporting the results of language intervention with children with ASD. It is recommended that interventions must be individualised to best meet the current level of the child's development and to identify the profile of each child's abilities and difficulties.

Factors such as difficulties identifying who to contact to obtain services, lack of financial resources to pay for the services and lack of basic knowledge necessary to make informed decisions regarding treatment options are frequently reported as the reasons for the difficulties faced by the families in obtaining appropriate care for their child with ASD (Levy, Mandell, Merhar et all 2003; Manddell, Novak 2005; Fernandes, Behlau, 2012; Fernandes, et all, 2014; Fernandes, Amato, Molini-Avejonas, 2015; Defense-Netvral, Fernandes, 2016; Guillon at all, 2017).

The family plays a critical role in the life of the child with ASD, as they are the ones who must introduce the child to a world that would otherwise be inaccessible due to the child's communication limitations. Moreover, the parents of children with ASD are

responsible for ensuring their children's safety, motivating them and reducing their challenges as they struggle to adjust to their world. The inclusion of the child with ASD in daily activities and normal routines begins at home by accepting the child's disorder, encouraging improvement and working daily to frame autism in such a way that it minimises stereotypes and prejudices (Vieira, Fernandes, 2012; Sun, Fernandes, 2014). Importantly, the child should be in an environment that stimulates social interaction.

The impact on the family of an individual with autism is significant and persistent; thus, family involvement has been increasingly cited as essential for the best prognosis of children with ASD (Balestro et all, 2016).

Therefore, these families are frequently involved in complex contexts, are susceptible to challenges, and recognize the importance of access to and participation in the treatment process, especially given that a delay in obtaining appropriate services can directly affect the efficacy of the treatment.

Interventions mediated by parents and/or caregivers have been used to promote the use of specific media with children diagnosed with ASD. These interventions train parents and/or caregivers to use natural techniques to promote social communication skills during games and daily routines of the child (Barbosa, Fernandes 2017).

The easy access to communication technologies to a large proportion of the population provide alternatives and increase alternatives to the delivery of services and treatments in situations where face-to-face therapy may not be available for any number of reasons to individuals with other disorders. Telehealth is a mechanism that allows individuals to receive remote support and professional services via technology. With approximately 58% of homes in Brazil having Internet access, telehealth can provide services and support to families of individuals with autism in areas where such opportunities may otherwise be limited or unavailable.

Besides enabling the inclusion of a greater number of patients in frequently overburdened services, interventions conducted at home by the parents and/or caregivers increase the intensity of the therapeutic intervention and improve patient-family interactions.

We will present different proposals regarding the inclusion of families in language intervention processes aiming to improve the access of children with ASD to efficient SLP services.

The aim of this first study was to compare the functional communication performances of children with ASD before and after their participation on a language

intervention program that was conducted at home by the parents and/or caregivers while being remotely monitored by the speech-language therapist. Fifty children between the ages of 3 and 13 years who were diagnosed with ASD were included in the study. The therapists of the children that participated in the proposed language intervention program developed individualized daily instructional plans and activities to be administered by the parents and/or caregivers at home and monitored using the available technology. The hypothesis of the study was that by participating in these activities the children with ASD would show improvement in the functional use of communication and become more interactive. Results indicate that children that received individually-planned speech-language intervention at home, conducted by their parents, with close monitoring by the SLP have shown improvement similar to those who continued to receive weekly speech-language therapy. These results provide important information to the planning of services that aim to reach a large number of children or to outreach those who do not have easy access to SLP services.

On this other study participants were caregivers of 62 children diagnosed with ASD, divided into three groups according to the interventions received. All the interventions involved a program of five pre-established monthly orientations, aiming to provide information on communication development and encourage practical daily activities of communication. One group received group orientation while the children received individual speech-language therapy (SLT). Another group received the same orientation program individually and their children, individual SLT. In the third group, comprised of children who were at a waiting list for SLT, just the caregivers received group orientations. Results indicated that there were no significant differences in the perception of caregivers regarding the communication's interactivity. Parents also reported an increase in the occurrence of gestual and verbal communication. Regarding differences between groups, participants who received individual orientation reported increased use of the vocal mean to express non-interpersonal functions. The results of a satisfaction questionnaire showed high scores regarding the achievement of the program for all groups. It was concluded that a pre-planned set of guidelines regarding communication was able to reduce the perceptions of communicative difficulties by parents of children with ASD and improve their perception about the child's communication functionality.

Another study was carried-out with a similar set of orientations to parents discussed and performed with them along the speech-language intervention weekly sessions during a 3-months period.

The analysis refers to eight encounters with the children and/or their parents in order to assess, followed by technical instruction and practical intervention. The sessions were filmed for qualitative and quantitative analysis and the assessment and reassessment questionnaire were separately tabulated for statistical treatment in order to measure the training program's efficiency. It was possible to verify that there was significant benefit with the parental intervention for the social communication development of those children, as well as an improvement on the parent's perception regarding the communicative difficulties of their children, possibly establishing correlations between these findings. Present results show gains and improvement for all considered aspects.

Considering that identifying effective methods for stimulating language and communication of children with ASD is fundamental to the adequate use of resources, especially in regions with few resources this other study included other areas of the development. It considered the interdependence of the areas of language and cognition and the factors involved in the language therapeutic intervention of children with ASD. This study was designed to verify the impact of a program of stimulation of executive functions (SEF) on the functional aspects of language and communication development, through the assessment of the Functional Communicative Profile and the Social-Cognitive Performance. Two stimulation programs were proposed. In the first one the SEF was conducted at home by the parents, during a 10-week period without therapeutic intervention, with weekly monitoring performed by the SLP. The second proposed the SEF conducted by the therapist during regular speech-language therapy, for a 12-week period. Data were recorded and statistically analyzed. The results show that significant different performances before and after the intervention period were observed in the areas of communication interactivity, proportion of interactivity and in total social-cognitive performance.

These short reports just highlight a few studies conducted with the inclusion of parents in SLP intervention proposals to children with ASD. The main purpose of these studies was to identify the best method of delivering information and proposing actual activities for the parents to perform at home. Every proposal must consider a complex and variable set of characteristics such as educational and social economic characteristics of the family as well as how are they coping with the diagnosis in the specific moment or

the association of other social, emotional or health factors. Again, it seems that the best results are obtained from individually planned proposals.

References

Balestro, Juliana Izidro ; De La Higuera Amato, Cibelle Albuquerque ; Sugawara, Vanessa ; Gibello, Isabela ; Segeren, Letícia ; Fernandes, Fernanda Dreux M. . *Relations between the Perception of Communication Difficulties, Stress Levels and Behavior of Children with Autism Spectrum Disorders*. Psychology (Irvine), v. 07, p. 1391-1396, 2016.

Barbosa, Milene Rossi Pereira ; Fernandes, Fernanda Dreux Miranda . Remote follow-up to speech-*language intervention for children with Autism Spectrum Disorders (ASD): parents? feedback regarding* structured activities. CODAS, v. 29, p. 1-3, 2017.

Defense-Netrval, Danielle Azarias ; Fernandes, Fernanda Dreux Miranda . *A oferta da terapia fonoaudiológica em locais de assistência a indivíduos com Transtornos do Espectro do Autista (TEA)*. CoDAS, v. 2, p. 1-8, 2016.

Fernandes, F. D. M.; Amato, C. A. H. ; Molini-Avejonas, D. R. . *Adherence of ASD Children and Adolescents to language Therapy.* Autism Open Access, v. 5, p. 1, 2015.

Fernandes, F. D. M.; Amato, C. A. H. ; Defense-Netrval, D. A. ; Molini-Avejonas, D. R. . *Speech-Language Intervention for Children With Autism Spectrum Disorder in Brazil. Topics in Language Disorders,* v. 34, p. 155-167, 2014.

Fernandes, Fernanda Dreux M.; Behlau, Mara . *Implications of the World Report on Disability for responding to communication disorders in Brazil*. International Journal of Speech-Language Pathology, v. 15, p. 113-117, 2013.

Fernandes, Fernanda Dreux Miranda; Albuquerque De La Higuera Amato, Cibelle ; Molini-Avejonas, Daniela Regina . Resultados De Terapia De Lenguaje Con Niños Del Espectro Autista. Revista De Logopedia, Foniatría Y Audiología (Ed. Impresa), V. 32, P. E1-E5, 201

Gillon, G. T. ; Hyter, Y. ; Fernandes**,** F. D. M**.** ; Ferman, S. ; Hus, Y. ; Petinou, K. ; Segal, O. ; Tumanova, T. ; Vogindroukas, I. ; Westby, C. ; Westerveld, M. . *International Survey of Speech-language pathologists? practices in working with children with Autism Spectrum Disorder (ASD)*. Folia Phoniatrica Et Logopaedica, v. 69, p. 8-19, 2017.

Sun, Ingrid Ya I ; Varanda, Cristina De Andrade ; Fernandes, F. D. M. . *Stimulation of Executive Functions as part of the language intervention process with children with ASD*. Folia Phoniatrica Et Logopaedica, v. 69, p. 78-83, 2017.

Sun, Ingrid Ya I ; Fernandes, Fernanda Dreux Miranda . *Communication difficulties perceived by parents of children with developmental disorders.* CoDAS, v. 26, p. 270-275, 2014.

Varanda, Cristina De Andrade ; Fernandes, Fernanda Dreux Miranda . *Cognitive flexibility training intervention among children with autism: a longitudinal study*. Psicologia-Reflexao e Critica, v. 30, p. 15, 2017.

Vieira, Camila Bolivar Martins ; Fernandes, Fernanda Dreux Miranda . *Qualidade de vida em irmãos de Crianças Incluídas No Espectro Do Autismo*. Codas, V. 25, P. 120-127, 2013.

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Title: Lexical and morpho-syntactic abilities in High-Functioning children with ASD: Similarities and dissimilarities with DLD

Abstract: It has been suggested that some children with Autism Spectrum Disorder (ASD) may show language difficulties in the lexical and/or morpho-syntactic domains similarly to children with Developmental Language Disorder (DLD). However, most studies have been conducted in English and other Indo-European languages. Little is known on language abilities of ASD children in Semitic languages. One Semitic language is Hebrew that has a rich bound morphology in which grammatical distinctions are made through prefixes, suffixes, and infixes. The present study included 16 ASD children with normal non-verbal intelligence and 16 typically developing (TD) peers matched for age and sex. All participants were assessed on their lexical, morpho-syntactic and theory of mind abilities. The profiles of ASD and TD children will be discussed and compared to previous findings on children with DLD.