

## Day 1

### Presentation 1:

#### **Using the LITMUS language tasks with bilinguals in Sweden: A study of nonword repetition, vocabulary and narrative macrostructure in Arabic/Swedish- and Turkish/Swedish-speaking children with and without a diagnosis of DLD**

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Baseline data concerning the linguistic development of bilingual children in Sweden have hitherto been lacking, as have suitable methods for identifying developmental language disorder (DLD) in bilinguals. We report reference data for 207 bilingual typically-developing (TD) children aged 4;0- 8:1 from mixed socioeconomic (SES) backgrounds whose home language is Turkish (N=108) or Arabic (N=99) and who are schooled in the majority language Swedish. The TD data is compared to 17 age-matched bilinguals with a DLD diagnosis.

The children were tested in both their languages on a range of tasks from the LITMUS battery, developed specifically for the assessment of bilinguals (COST Action IS0804, [www.bi-sli.org](http://www.bi-sli.org)). We included three types of nonword repetition (NWR) tasks (quasi-universal, cross-linguistic, and language-specific NWR, Abou Melhem et al. 2011, Chiat 2015, Radeborg et al. 2006), measures of receptive and expressive vocabulary (Cross-Linguistic Lexical Tasks, CLT, Haman et al. 2015), and narrative macrostructure comprehension and production (Multilingual Assessment Instrument for Narratives, MAIN, Gagarina et al. 2019). We investigated task performance in relation to age, language exposure, SES, and for NWR and narratives - in relation to vocabulary. For the Arabic/Swedish and Turkish/Swedish groups, we found a positive development with age for all tasks, no effects of SES, whilst effects of language exposure and vocabulary differed between tasks. Comparing the bilingual DLD children to their TD peers, there was substantial DLD/TD overlap on every LITMUS task we used, though more so for the production tasks than the comprehension tasks. Surprisingly, diagnostic accuracy was particularly poor for NWR (both language-specific and language-independent tasks). This finding is not in accord with studies that promote NWR as a clinically useful tool for differentiating DLD and TD in bilinguals. For our Turkish/Swedish and Arabic/Swedish children, performance on the comprehension tasks in the minority language (receptive vocabulary, narrative comprehension) turned out to be more informative, but still, diagnostic accuracy was at best suggestive.

Case studies of the DLD children underscore the importance of interpreting language scores in relation to exposure history, and the need for more emphasis on functional language skills as reported by parents and teachers for correctly identifying DLD in bilingual children.

Presentation 2:

**How does language exposure matter in bilingual TD and DLD children?  
A large-scale study with two German LITMUS tools**

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This study examines how exposure interacts with clinical status (TD vs. DLD) in a larger sample by reporting on the LITMUS-QU-NWR (Grimm et al., 2014) and LITMUS-MAIN comprehension (Gagarina et al., 2019) tasks. Previous studies showed good diagnostic usability for the isolated (e.g., Lautenschläger et al., 2021) or paired tests (Hamann et al., 2020; Scherger, 2020). The effects of the Length of Exposure (LoE) could not be clearly verified, because these studies were based on relatively small numbers of children and limited age ranges.

The study serves as preparatory work for a recently funded project, which aims to validate the German versions of the LITMUS-QU-NWR, SRep, CLT, and MAIN for bilingual children aged 4 to 8 years. We predict an effect of exposure in the two tests with the stronger positive impact of the LoE in TD children (Paradis et al., 2021).

**Method.** 254 bilingual children (150 NWR; 104 MAIN comprehension) aged 49 to 107 months (NWR: mean age = 77, SD = 14; MAIN: mean age = 57, SD = 5) with diverse home languages performed either the LITMUS-QU-NWR or the LITMUS-MAIN comprehension task after storytelling. The children were classified as TD or DLD/at risk by experts. DLD/at risk children underwent speech-language intervention as stated in the parental questionnaires.

**Findings.** Bayesian generalized linear mixed models with a logit-link function including the factors LoE (centered around mean LoE) and clinical status/risk status were fitted separately per task by subject and by item. We found a main effect for clinical status in the NWR and an interaction effect of LoE and clinical/risk status in both tasks. In the NWR and MAIN, LoE had only an effect in TD, but not in the DLD group.

**Discussion and outlook.** In line with our predictions, the TD children showed a clear increase in their language abilities with exposure, whereas the DLD children persisted at a lower level of performance. Our results are relevant in two additional ways: They add to existing evidence showing that the tasks are appropriate for the diagnosis of bilingual children. Moreover, the results suggest that the tests are sensitive for bilingual children of a larger age range.

Presentation 3:

**Public and Patient Involvement (PPI) in research study exploring the use of SRep task for language assessment of Polish-English bilingual children growing up in Ireland**

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**Introduction**

Typically, research on language assessments and assessment protocols does not include the voices of the individuals and communities for which the assessments are being designed. However, the service-users have the potential to identify gaps in care and problems with the existing infrastructure. Public and Patient Involvement (PPI) is crucial to develop priorities and make improvements based on PPI identified needs instead of researcher assumptions (Gilfoyle et al., 2022).

**Aim**

To involve a PPI Advisory Panel in a research study focusing on the development of a protocol for using Polish-English LITMUS SRep tools for language assessment of bilingual Polish-English speaking children by English speaking Speech and Language Therapists (SLTs) in Ireland.

**Methods**

Three parent-child dyads who are Polish-English bilinguals living in Ireland constitute the PPI panel. The panel is involved at a consultative level in the research process in line with the Irish Health Research Forum's (IHRF) PPI spectrum of involvement in research (Irish Health Research Forum, 2015). The contribution of the PPI panel in this project has been mapped onto the 'PPI in the research cycle' model outlined by the Health Research Board (2016).

**Results**

The panel has consulted during the co-designing of culturally and linguistically appropriate recruitment material and consent forms and feasibility of clinical use of LITMUS SRep tasks and protocols from a user perspective. The PPI panel will continue to be involved during analysis of data to advice on the importance of data collected, to develop dissemination plans and strategies, to develop user friendly language assessment protocols and at the implementation stage of the research on how their experiences have the potential to influence policy through practice in clinical settings.

**Conclusion**

Culturally responsive research studies need to consult with members of the population that it aims to serve. Including a PPI panel in research related to providing services to multilinguals in a largely English-speaking health service in Ireland is needed to provide the lived experience and crucial insight into what needs to be completed to make research culturally relevant, realistic and appropriate for multilingual individuals accessing SLT services.

Presentation 4:

### **How to assess speech sounds in multilingual children as a non-native speaker?**

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Developmental Language Disorder (DLD) in preschoolers is often characterised by speech production problems. For multilingual children, it is widely acknowledged that speech should be assessed in *all* of their languages. However, in practice this remains to be problematic. One of the reasons is the lack of speech assessment instruments in a wide variety of minority languages that can be used by non-native clinicians. Van der Zijden and Blumenthal addressed this gap by developing *Speakaboo* together with practitioners. *Speakaboo* (2017) is an instrument that playfully elicits speech production of single words in 20 language versions, each with a different choice of words/pictures.

Various studies have been conducted to evaluate the validity of *Speakaboo* in clinical practice. In this presentation, we will share the integrated findings from those studies involving a total of 659 monolingual and multilingual children with and without DLD.

The data were collected between 2018 and 2023. Monolingual and multilingual 3- to 5-year-old children with and without DLD were tested using different language versions of *Speakaboo*, resulting in Percentage of Consonants Correct (PCC) scores. Additionally, Intelligibility in Context Scale (ICS; McLeod et al., 2012) scores were available for 345 children.

For construct validity, positive age–PCC correlations were found for typically developing (TD) children, with stronger relationships for monolinguals than multilinguals. No significant correlations between age and PCC were observed in children with developmental language disorders (DLD), who scored significantly lower on *Speakaboo* and ICS than TD peers. Regarding criterion validity, moderate associations were observed between PCC scores (in both languages) and ICS scores. *Speakaboo* effectively differentiated between TD and DLD children across three age groups, with good to excellent sensitivity and specificity. Furthermore, reliability analysis indicated excellent interrater reliability among native and non-native researchers. In qualitative feasibility analyses, it was found that using *Speakaboo* largely alleviated the challenges of assessing speech development in languages SLTs do not speak.

These results suggest that *Speakaboo* can be a valuable tool for speech assessment in young children, even if carried out by non-native speakers.

Presentation 5:

**The production of word-initial clusters in typically-developing monolingual and bilingual children and bilingual children diagnosed as DLD: Evidence from German and French**

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The LITMUS-QU-NWR varies the nonwords by syllabic complexity (i.e., consonant clusters and word-internal codas (dos Santos & Ferré, 2018; Grimm, 2022). This study aims to shed light on the production patterns of word-initial consonant clusters in order to verify that BiDLD children struggle with phonological complexity (de Almeida et al., 2019). Based on the LITMUS-QU-NWR, we analyzed how German- and French-speaking BiDLD children produced word-initial obstruent+liquid (OL; /fl/, /kl/, /pl/) and s+obstruent clusters (sC; /sk/, /sp/, /spl/, /skl/) compared to their BiTD and MoTD peers. Two questions were addressed: Do the BiDLD children differ from BiTD and MoTD children in overall accuracy of word-initial clusters? Given the construction principles, we expected effects of clinical status (BiTD vs. BiDLD) but no effects of language status (MoTD vs. BiTD). Second, do the groups differ regarding the reduction patterns of consonant clusters? Based on the literature (cf., Gerrits, 2010 for Dutch), we predicted preservation of the less sonorant, i.e. of C1 in OL and of C2 in sC-clusters in all groups.

93 French-speaking (age range: 64-107 months) and 147 German-speaking children (age range: 65-95 months) participated in the study. LMM analyses showed significant effects of clinical status but not of bilingualism in German in word-initial OL- and sC-clusters, all  $p < .017$ ), in line with our predictions. This was also the case for sC-clusters in French (all  $p < .001$ ). Bilingualism and clinical status mattered for OL clusters in French (MoTD children produced more OL-clusters than BiTD and BiDLD children, all  $p < .021$ ). Due to the older age, the French BiDLD children performed better than the German BiDLD group with regard to sC-clusters. As predicted, all groups had a preference to maintain C1 in OL and C2 in sC clusters.

The results provide further evidence that the production of word-initial consonant clusters are a valid indicator of DLD in bilingual children (de Almeida et al., 2019). We will discuss how factors like the phonological properties of the target language, the structure of the L1, the child's language exposure, and the severity of the impairment in the DLD group can account for our findings.

Presentation 6:

## **L1–L2 Phonological Skills Predict L2 Early Literacy in Bilingual Children with Developmental Language Disorders**

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Early literacy is essential for the reading success of bilingual children, and delays in these skills can have lasting effects. Because literacy development relies on language, it may be extra challenging for bilingual children with developmental language disorder (DLD). However, there is a lack of research on early literacy and its precursors in bilingual children with DLD, making it difficult to identify those at risk for future literacy difficulties.

Our study aimed to address this gap by investigating differences in early literacy and its precursors (speech, vocabulary, and selective attention) between monolingual and bilingual children with and without DLD. Additionally, we examined how vocabulary and phonological skills in both the first (L1) and second language (L2), along with selective attention, predict L2 early literacy among typically developing (TD) and DLD bilingual children.

Participants ( $n = 157$ ) were tested at preschool ( $M_{AGE} = 3;8$ ) and at kindergarten ( $M_{AGE} = 5;8$ ). At preschool, we evaluated the precursor measures of early literacy, including receptive vocabulary in L1/L2 Dutch and L1 Polish/Turkish using the cross-linguistic lexical tasks. Furthermore, we assessed phonological skills using assessments of L1 and L2 speech production and the cross-linguistic nonword repetition task, and selective attention using a visual search task. At kindergarten, we assessed children's early literacy outcomes in L1/L2 Dutch, including phonological awareness, rapid automatized naming (RAN), and letter knowledge.

The results indicated that at preschool, bilingual children with DLD scored lower than TD bilingual and monolingual peers (both TD and DLD) on L1 vocabulary and overall phonological skills. By kindergarten, both bilingual and DLD children had lower Dutch phonological awareness and RAN scores, but no significant differences in letter knowledge. Finally, combined L1–L2 phonological skills at preschool predicted L2 Dutch phonological awareness and RAN among TD/DLD bilinguals at kindergarten.

In conclusion, the weaker L1–L2 phonological skills observed in bilingual preschoolers with DLD may pose a risk for their L2 early literacy at kindergarten. In our presentation, we will further discuss these findings and their implications for the diagnosis and intervention of potential literacy difficulties in young bilingual children with and without DLD.

Presentation 7:

**What do we know about code-switching by neurodivergent individuals?  
Findings from a scoping review**

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Code-switching or the use of more than one language in an utterance or in conversation is a natural and often quite frequent phenomenon in bilingualism. Work on code-switching in neurotypical population has indicated that code-switching gives a unique insight into the nature of one's linguistic competence (Quin Yow et al., 2018), language representation (Truscott & Sharwood Smith, 2017), and potential cognitive benefits of bilingualism (Hofweber et al., 2016). However, there have often been concerns about bilingualism and code-switching in neurodivergent populations. While recent reviews addressed bilingual development across various neurodevelopmental conditions (e.g., Uljarević et al., 2016; Prévost & Tuller, 2022), no comprehensive overview of code-switching has been done in neurodivergent individuals (children or adults). In this scoping review, we aim to: (i) identify neurodevelopmental conditions in which code-switching has been investigated; (ii) identify approaches used to explore code-switching in this population; (iii) describe the demographic and bilingualism-related characteristics of investigated populations; (iv) outline any comparisons in code-switching practices between neurodivergent and neurotypical bilinguals; (v) outline attitudes towards code-switching in the investigated population.

To address these objectives, we followed the scoping review protocol outlined in Kaščelan and Parafita Couto (2022). Among the scarcely conducted research on the topic, we uncover that code-switching has primarily been explored in individuals with language impairment / Developmental Language Disorder / Specific Language Impairment and autism. We discuss the plethora of methodological approaches used to explore code-switching in neurodivergent populations and their ecological validity. The characteristics of code-switching in neurodivergent individuals are also addressed, as well as the implications of these findings on life quality of bilingual families with neurodivergent family members. This topic remains scarcely investigated in relation to various language combinations, geographic regions, neurodevelopmental conditions, and attitudes towards code-switching. Thus, this scoping review sets a roadmap for future explorations in this field.

Presentation 8:

**Using MAIN to study language mixing by bilingual Turkish-Dutch children with and without Developmental Language Disorder**

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In daily life, multilingual children need to adapt their language choice to the context and their interlocutors. To do this successfully, they need awareness of language norms, sufficient language proficiency, and cognitive control. In addition, language status plays an important role as indicated by research that compared mixing frequency in the majority-societal versus the minority-heritage language. The few studies that investigated simultaneous effects of language status, proficiency and cognitive control on children's mixing in single-language settings are mostly situated in North America. Hardly anything is known about other sociolinguistic settings or about children with low language ability.

For this contribution, we analyzed data from bilingual Turkish-Dutch children in the Netherlands collected with MAIN (Multilingual Assessment Instrument for Narratives), which is part of the LITMUS battery (<https://main.leibniz-zas.de/>). MAIN was administered in the minority-heritage language (Turkish) and the majority-societal language (Dutch) in two separate single-language settings. Our goal was to investigate children's mixing frequency in both settings to examine the role of language status, and study whether language proficiency and cognitive control impact mixing frequency. Inclusion of children diagnosed with a Developmental Language Disorder (n=11) enabled us to explore whether patterns found for children with typical development (n=20) generalize to children with low language ability and, presumably, poor cognitive control. A longitudinal three-wave design allowed for the investigation of the stability of patterns from the age of 5-6 years until 7-8 years.

Results showed that the children mix the majority-societal language (Dutch) into the minority-heritage language (Turkish; 7-16%) but hardly the other way around (<1%), pointing to an effect of language status. Higher proficiency in Dutch, lower proficiency in Turkish, and the presence of DLD relate to more mixing in the Turkish setting. Further, mixing frequency decreased across waves, which could be explained by increasing language proficiency in Turkish as children grow older. Effects of cognitive control on children's language mixing are limited. We conclude that linguistic factors at a child-external (i.e., language status) and child-internal level (i.e., language proficiency, presence of DLD) impact on children's mixing in single-language settings as measured with MAIN, and are more important than domain-general cognitive control.



Presentation 9:

**Exploring semantic-pragmatic challenges in bilingual children with and without DLD using the Action Picture Test**

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**Background:** Additionally to norm-referenced assessment, diverse alternative measures are available to assess bilingual children. The use of Language Sample Analysis has the potential to delineate the semantic-pragmatic language profile of bilingual children. Although MAIN analysis provides a good insight into the narrative skills of children, it allows less to collect information on the ability to take into account the listener's knowledge (i.e. presupposition). The "Action Picture Test" (APT, Renfrew, 1997) is a barrier task in which children are invited to describe actions. As to our knowledge, this instrument has not yet been used to compare semantic-pragmatic skills of bilingual children with and without DLD.

**Methods:** In this pilot-study we explore the use of an analysis protocol based on Grice's paradigms applied to utterances collected by means of the APT. Samples of bilingual Turkish-Dutch children with DLD (n = 2, ages 5 to 9) and without DLD (n = 2, ages: 5 to 9) are matched on chronological age. Matched samples of bilingual French-Dutch children with and without DLD (n = 10, ages 5 to 9) are collected. All samples are analyzed in both the first and second language by native-speaking speech-language therapists. Utterances are scored for information transfer, signal-to-noise ratio, as well as frequency and type of elaborations. Children all underwent multidisciplinary standardized norm-referenced assessments, which allowed a broad collection of data. Information on language profiles and non-verbal intelligence illustrates the heterogeneity in both groups. The study is part of a doctoral research focused on optimizing language assessment for bilingual children with diverse language backgrounds using a comprehensive test battery.

**Results:** The analysis of the child's language in this semi-naturalistic task gives a unique chance to explore semantic-pragmatic profiles in bilingual children. We highlight the differences found between the DLD and non-DLD bilingual groups and similarities and differences across first and second language. We elaborate on potentially influencing factors such as age, duration of language exposure, social-economic status, and cultural influence. Given the samples were collected in a metropolitan multicultural area (Brussels) and in the scope of a multidisciplinary evaluation attention is paid to comorbidity and environmental influences when interpreting the results.

## Day 2

Presentation 1:

### **German LITMUS sentence-repetition task: The role of syntactic complexity and working memory**

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Given the cross-linguistic vulnerability of complex syntax in children with SLI and its relative robustness in bilingual typical language development (BiTD), computationally complex constructions were incorporated into the German LITMUS-sentence-repetition-task (Hamann et al., 2017). Such constructions are challenging for children with SLI given their impaired language faculty associated with weaker/less stable linguistic representations and limited working memory (WM) capacity (Jakubowicz, 2011).

This study investigates how syntactic complexity interacts with repetition accuracy in 106 monolingual and bilingual children with and without SLI (5;6-9;2). The sentences of the German-LITMUS-SRT were grouped into 3 complexity levels depending on the number of syntactic operations involved in their derivation (Jakubowicz, 2011; Rizzi, 2004). The study further investigates whether monolingual and bilingual children with/out SLI demonstrate different patterns of association between performance on complex constructions and linguistic and verbal short-term memory (forward digit span-FDS) and verbal working memory (backward digit span-BDS).

In line with previous studies (Delage & Frauenfelder, 2019, 2020; Friedmann & Reznick, 2021), repetition-accuracy decreased in all groups as a function of cumulative syntactic complexity with more pronounced effects in the SLI groups. No associations with WM emerged for the SLI groups, whose performance was predicted by L2-morphosyntax. This seems at odds with previous studies (Delage & Frauenfelder, 2020; Zebib et al., 2019). However, within-group distributions of FDS and BDS in the SLI data revealed little inter-individual variability, explaining the lack of association with performance. As to the children with typical language development, performance of the MoTDs on Level-1 structures was predicted only by vocabulary, whereas BiTDs' performance was predicted by FDS and L2-vocabulary. BiTDs relying more on WM than MoTDs might result from poor L2 vocabulary, a notoriously vulnerable domain for bilinguals. While MoTDs can rely on their language knowledge in long-term memory, BiTDs compensate for weaker (L2-)language abilities by resorting to their intact WM capacities. Interestingly, performance on the most complex structures was only predicted by FDS in both TD groups, confirming that processing of such structures necessitates more WM capacities (Arosio et al., 2011). The latter findings are relevant not only for theories of SLI but also for shortening and ameliorating the task to ensure maximal diagnostic accuracy in bilingual populations.

Presentation 2:

**Having, accessing, and uptaking syntactic representation: Priming as a learning index in various child populations**

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In child language development research, the syntactic priming paradigm has been used to assess abstract syntactic representations and the automaticity in accessing particular structures. In heritage language (HL) bilingualism, child heritage speakers (CHSs) are often shown to have different surface performance patterns in the HL relative to monolingual children. Priming constitutes a good candidate to inform whether such differences reflect representational and/or accessing differences.

Recent studies with neurotypical/typically-developing monolingual children (L1-TD) show that priming may increase as a function of more trials and/or maintain for a prolonged period of time, suggesting (cumulative) priming taps into implicit learning/uptaking of grammatical representations. Meanwhile, this cumulative effect is absent in children with Developmental Language Disorder (DLD), including L1-DLD. This particular application of priming, however, has been restricted to primarily monolingual and clinical populations with mixed results. As there is no reason to assume that neurotypical/typically-developing CHSs (CHS-TD) have reduced uptake abilities, in the present study, we adopt priming to assess implicit learning in CHS-TD, and to scrutinise its validity across diverse learner groups.

We tested Mandarin non-canonical structures (BA, BEI and OSV) in 22 L1-DLD, 32 Mandarin-English CHS-TDs and 35 L1-TD (5-to-9-y.d.; age-, SES-, and non-verbal IQ-matched). Results show that, while immediate (after each trial) priming is observed in all groups, L1-DLD and CHS-TD have similar priming magnitude, yet smaller than L1-TD. This suggests that while having the syntactic representations of these Mandarin non-canonical structures, L1-DLD and CHS-TD are less automatic in accessing them relative to L1-TD. Cumulative priming is observed in the two neurotypical groups (L1-TD, CHS-TD) but not in L1-DLD, supporting the validity of the task as a clinical marker. Additionally, CHS-TD showed larger cumulative priming compared to L1-TD, which is not unexpected given recent finding that bilingualism may lead to enhanced implicit learning.

Presentation 3:

## **Effectiveness of a serious game for grammatical therapy in mono- and multilingual children with DLD**

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### **Background**

SLTs expressed a need for a motivational therapy programme to enhance morphosyntax for children with DLD aged 7-10 years. Therefore, we developed a serious game in co-design with researchers, SLTs, game designers, and children with DLD. The game is based on a metalinguistic approach and uses game mechanics to keep children motivated. Children love to play games, however, SLTs feel uncertain whether a serious game for morphosyntax can be effective.

### **Method**

To study the effectiveness of the game, we compared 8 weeks of regular grammatical therapy with 8 weeks of serious game therapy. Participants were 24 children with DLD (8;4 years), 6 children were monolingual Dutch, 18 children were multilingual. All children visited mainstream schools and had SLT. A quasi-experimental single subject repeated baseline design was used, where children act as their own controls. The children received 15-20 minutes weekly sessions, with home assignments in both conditions. We monitored gains in morphosyntax using the MAIN narrative tasks and a split-half CELF-5-NL sentence repetition task. Measures derived from the MAIN tasks were MLUw, grammatical accuracy, and grammatical complexity. Treatment compliance was monitored with logbooks for parents and SLTs.

### **Results**

The mono- and multilingual groups did not differ on age, NV-IQ, CELF-5-NL scores at the start of the study. Also, no group differences were found for all measures during all 5 measurement points. In the usual care condition, no significant growth was found for all measures during the 3 monthly baseline measurements. After the serious game intervention, significant gains were only found for grammatical accuracy. This was maintained at retention measurement after 6 weeks of summer holidays. No significant growth was found in grammatical complexity over the whole 16-week treatment period, except for the CELF-5-NL sentence repetition task between first and last measurements. Within the participant group considerable variation was observed.

### **Discussion**

Grammatical deficits in children with DLD are known to be persistent. Mono- and multilingual children performed similarly in the gaming condition. Surprisingly, positive results were only found for grammatical accuracy. Perhaps improvements in the game and/or a longer or more intensive treatment period is needed to improve grammatical complexity.

Presentation 4:

**Was grandpa demolishing an old house or did he demolish an old house?  
Comprehension of grammatical aspect by multilinguals with and without DLD.**

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Research suggests that bilingual children with and without DLD have foreign language learning advantages (e.g., Hopp et al., 2019; Tribushinina & Mackaaij, 2023). These may be generic, but they may also be tied to specific linguistic domains, like grammatical aspect, due to crosslinguistic transfer (Lorenz & Siemund, 2019). For children with DLD, however, both transfer (e.g., Blom & Paradis, 2015) and grammatical aspect (e.g., Leonard, 2015) appear to be problematic. In addition, little research has directly compared English as a foreign language (EFL) learning in learners with and without DLD. This study aims to discover whether bilingual advantages are visible in generic or specific measures of EFL proficiency in learners with and without DLD.

Participants were 111 7th-graders (54 with DLD). Fifty-three participants (12 with DLD) only spoke Dutch (a non-aspectual language), whereas 55 participants (41 with DLD) also spoke an aspectual heritage language. Dutch was the majority/school language for all participants. We tested English receptive grammar skills as a proxy of general proficiency with the TROG (Bishop, 2003). The comprehension of grammatical aspect was tested in Dutch and English with a picture-selection task (Minor et al., 2023). Sentences in English contained simple past and past progressive verb forms. Sentences in Dutch contained simple past, present perfect, and periphrastic past progressive (*aan het*) verb forms. One picture depicted an ongoing action whereas the other depicted a completed action. The different languages were tested with an interval of two weeks.

There were no significant effects of DLD and bilingualism on the English receptive grammar test. In Dutch, we found a negative effect of DLD on past simple and progressive forms, and a positive effect of bilingual status on the present perfect for both children with and without DLD. In English, bilinguals' interpretations exhibited stronger differences between the past simple and progressive verb forms. This was the case for children with and without DLD. These findings suggest that both learners with and without DLD may benefit from bilingualism and are able to make use of crosslinguistic transfer in specific linguistic domains.

Presentation 5:

## **Subordination in Turkish Heritage Children with and without Developmental Language Disorder (DLD)**

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Recent research (Arosio et al., 2011; Hamann et al., 2007; Friedmann&Novogrodsky, 2011; Scheidnes & Tuller, 2019) has shown that complex structures, such as subordinate constructions, are vulnerable in bilingual DLD children but robust in bilingual children with typical language development. Therefore, they constitute promising clinical markers for identifying DLD in multilingual contexts, especially when the majority language is assessed. It is however unclear whether complex constructions can serve as a clinical marker in the heritage (weaker) language under the influence of L2-contact-induced phenomena as in the case of heritage Turkish in Germany (Chilla, 2022).

This study compares subordination data of 13 Turkish heritage children with and without DLD (5;1–11;6) to 10 late-successive typically-developing bilinguals (IL2-BiTD: 7;2–12;2) and 10 Turkish adult heritage bilinguals (control groups). The data were elicited using the sentence-repetition task from the TODİL (Topbaş&Güven, 2017) test and the MAIN narrative task (Gagarina et al., 2012). Specifically, we asked whether the performance of heritage-BiTD children on subordinate clauses improves when a more lenient scoring method that considers features characteristic for the Heritage Turkish variety spoken in Germany is employed (Chilla, 2022), i.e., when heritage Turkish is taken as a reference variety instead of Standard Turkish.

Systematic comparisons revealed that the rate of successful subordination cannot distinguish between heritage-BiTDs and BiDLDs if Standard Turkish is taken as a reference variety. However, the groups can be differentiated if heritage children are not penalized for Heritage Turkish features, such as case marking substitutions (Fig. 1). Unlike their heritage-BiTD peers, heritage-BiDLDs did not profit from the alternative scoring method as they demonstrated significantly higher rates of sentential fragments or null responses (avoidance of complexity) than heritage BiTDs. Although heritage BiTDs outperformed BiDLDs, common error patterns between the two groups emerged, such as producing simple monoclausal paratactic constructions, which particularly concerned adverbial clauses of time, object relative clauses, and noun clauses constructed with the factive nominalizer *-DIK*. The latter findings imply that certain structures should be avoided in tasks designed to identify DLD in heritage contexts and stresses the importance of taking Heritage Turkish features into account when assessing child heritage bilinguals.

Presentation 6:

## **Dynamic Assessment of Narratives: Identification of Developmental Language Disorders in Bilingual Dutch-speaking Children in Flanders**

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**Introduction/Purpose.** In bilingual children, misdiagnosis of developmental language disorders (DLD) may occur in the diagnostic process of language disorders as test instruments are often not adapted to their unique cultural and linguistic backgrounds. Evaluation of learning ability and modifiability during dynamic assessment might improve the diagnostic procedure for bilingual children since children with DLD tend to have a more limited learning ability for language. This study aimed to investigate whether there are differences between typically developing bilingual children and bilingual children with DLD on gain scores (i.e., difference between post and pre measurement) and modifiability using a dynamic assessment protocol focusing on narrative abilities.

**Methods.** Ten typically developing, bilingual children and six bilingual children with a diagnosis of DLD (6.0 – 10.1 years) participated in this study. A test-teach-retest protocol with two intervention sessions of 30 minutes was administered. Before and after the intervention phase, the narrative abilities of the participants were measured using a telling and a retelling task from the Multilingual Assessment Instrument for Narratives (MAIN). The narrative intervention focused on teaching story structure elements to improve the children's story grammar. After each session, the modifiability of the children's learning abilities was rated by two investigators using a standardized questionnaire. Gain scores and modifiability were compared between groups.

**Results.** After the intervention sessions, both groups differed significantly in scores on the modifiability questionnaire with the typically developing children being more responsive to the intervention compared to the children with DLD. No difference in gain scores could be detected between the two groups.

**Conclusions & Implications.** Dynamic assessment of narratives and more specifically the evaluation of modifiability, is a valid method to differentiate between bilingual children with DLD and bilingual children with language differences due to a decreased language exposure and could therefore be employed more during diagnostic procedures in clinical practice. In further research, the classification accuracy and cutoff scores for this protocol could be determined.

Presentation 7:

**Dynamic assessment in bilingual and monolingual children with and without developmental language disorder**

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The language development of bilingual children is influenced by many environmental, linguistic, and cognitive factors (e.g., Paradis, 2019). Therefore, it is difficult to distinguish developmental language disorders (DLD) from insufficient exposure in bilingual children (e.g., Hasson et al., 2013), and alternatives beyond traditional static standardized language tests are needed. Dynamic assessment (DA) procedures, designed to measure the learning process rather than its final product, are a promising solution (e.g., Camilieri & Law, 2007).

We developed an interactive story reading situation with graduated cues (see Campione et al., 1987): Invented language materials (novel nouns, verbs, and inflections) was inserted into simple stories in French, followed by different assessment tasks (reception – word picture matching and acceptability judgment, production – free recall and picture naming). So far, data from 80 monolingual and bilingual French-learning children aged 5-9 years, with or without DLD, were gathered. Approximately half of the bilinguals were also exposed to Portuguese, the others to a variety of other languages. For part of our sample, the experimenter completed a subjective modifiability scale at the end of the situation (like in Petersen et al., 2017).

Generalized linear models revealed many significant differences (with medium to large effect sizes) between children with and without DLD, but few and small effects of language status. Furthermore, there were differences in cue use, improvement through cues and modifiability between the children with and without DLD. Using logistic regression, we sought to determine which variables best explain the presence of a disorder and retained a combination of all item types and predominantly receptive tasks with very high classification accuracy. We will discuss our results from a theoretical perspective and comment on practical implications, arguing for DA as an ideal complement to other promising language-fair measures (e.g., nonword repetition and narration) in the bilingual speech and language therapy clinic.



Presentation 8:

## **Development of a language assessment protocol for bilingual children with DLD**

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The number of children speaking more than one language and the number of languages spoken in Flanders (Belgium) has increased significantly (Kind & Gezin, 2023). The diversity in language experiences makes the detection of a developmental language disorder (DLD) in bilingual children challenging (Grech & Dodd, 2007). Over-reliance on language measurements designed for monolingual children results in many misdiagnoses and consequently, bilingual children with DLD do not receive optimal and timely language support. Existing literature demonstrates the success of combining diverse language measurements to distinguish between bilingual children with and without DLD (e.g., Boerma & Blom, 2017; Bonifacci et al., 2019; Paradis, Duncan, & Schneider, 2013; Lazewnik et. al., 2019; Li'el, Williams, & Kane, 2019). In this study, we investigate the diagnostic accuracy of a unique and comprehensive combination of language tests, ranging from domain-specific to domain-wide measures.

The study includes 50 children with typical language development (TD) and 50 children with DLD aged between 5;00 and 8;11. The extensive test battery consists of background measurements, including hearing screening, intelligence screening, language exposure, and socio-economic status. Alongside language measurements, such as standardized language tests, narrative abilities, parent questionnaire on home language development and a non-word repetition task, also cognitive inhibition is included.

Preliminary results reveal promising findings with a significant group difference in language measures (i.e., standardized language tests, narrative abilities, home language development, and non-word repetition task). Moreover, the combination of these language tasks reaches an average diagnostic accuracy of 91%. These results suggest that this unique and comprehensive combination of language tests holds promise as a language assessment protocol for DLD in bilingual children.

Presentation 9:

## Using Q-BEx as a Triage Tool

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The LITMUS tools, including the parental questionnaire (PaBiQ), were created to serve as screeners for language impairment in children growing up in bilingual settings. However, very few studies thus far have included testing of all-comer children to determine which ones should be flagged for possible/probable language impairment, in contexts in which bilingual testing and/or bilingually normed tests are not options, likely the most frequent situation worldwide. We report results from the Q-BEx project (<https://www.q-bex.org/>), whose goal was development of a free, online, modular, customizable, multilingual questionnaire about language experience, stemming from an extensive questionnaire review and a Delphi consensus study, informed by experience with the PaBiQ, and designed to be used not only by researchers, but also by SLTs and educators.

Participants were 303 children aged 5;0-8;11 growing up in the UK, France or Netherlands with either two ( $n=136$ ), three ( $n=38$ ) or one ( $n=126$ ) language(s). Some of these children were independently known to be at risk, or not, for language impairment. For most, no such information was available. Multilingual children were acquiring a range of home languages (HL) alongside the societal language (SL) of English, French or Dutch. Parents completed the Q-BEx questionnaire and children were tested with a variety of language tasks, notably LITMUS-QU-NWR and LITMUS-SR, and cognitive tasks. Identification of risk for language impairment is incorporated into Q-BEx in a dedicated module, containing just three short questions: age of first word, age of first sentence, and any parental concerns about early language development. An additional module includes questions asking parents to estimate their child's ability in the home language.

Parents' answers to these questions were used to derive scores which were translated into red flag and green flag to indicate children likely to be at risk for language impairment, or not. The usefulness of these risk factor indices is demonstrated both by how well they flagged independently-known-to-be-at-risk children and how well they predicted all children's performance on LITMUS-QU-NWR and LITMUS-SR tested in the SL. Among important questions raised and discussed is that of the optimal balance between sensitivity and specificity when setting the red flag threshold.