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SPEECH AND LANGUAGE ASSESSMENT IN BILINGUAL CHILDREN WITH DEVELOPMENTAL LANGUAGE DISORDER

Mgr. Anna Chromá[1]



Anna Chromá

Tento článek si můžete v českém jazyce přečíst zde.

Abstract

The aim of this review article is to introduce the issue of bilingualism and the diagnostic process of developmental language disorder in bilingual children in the context of current scientific knowledge. With regard to the geopolitical situation, it can be stated that the number of bilingual patients of Clinical Speech Therapists is increasing. Understanding the specifics of bilingual development, and knowledge of diagnostic options in the Czech language environment is an important prerequisite for the implementation of evidence-based practice. A Clinical Speech Therapist should be able to apply different approaches to diagnosis, according to the type of bilingualism, and to use dynamic diagnostics and available tools for assessment of both languages. Understanding the differences in bilingual language development, and the impossibility of applying monolingual norms is absolutely crucial.

Keywords

bilingualism, developmental language disorder, speech-language assessment.

Introduction

Understanding the subject of intact language development in bilingual individuals is quite essential for a clinical speech therapist's capability to diagnose and subsequently conduct therapy aimed at bilingual patients with speech communication disorders. Bilingualism or multilingualism is not a cause of speech communication disorder, but it affects both the diagnostic and subsequent therapeutic process (Paradis et al., 2011; Pospíšilová et al., 2021). Misdiagnosis of bilingual individuals, whether towards a false negative or a false positive diagnosis, can in both cases adversely impact the further development of the individual in terms of their self-concept, education and potential opportunities (Paradis et al., 2011). In Czech specialist literature, the issue of language development of bilingual individuals has largely been the concern of linguists and psychologists (Jarůšková et al., 2024; Lachout, 2018; Morgensternová et al., 2011), whilst clinical speech therapy deals with the topic of bilingualism and its relationship to speech communication disorders only marginally (Neubauer et al., 2018).

Bilingualism

There are many definitions of bilingualism, but it is essential for our practice to distinguish between two main subtypes of bilingualism, namely simultaneous bilingualism and sequential/successive bilingualism. Simultaneous bilingualism refers to the acquisition of both languages from birth to early childhood, while successive bilingualism refers to the acquisition of a certain competence in one language first and only then having the contact with the other language (Morgensternová et al., 2011). In foreign language literature, the term second language learners is also used for sequentially bilingual people. These are often individuals coming from families where a minority language is spoken in the household and the child comes into regular contact with the language of the majority only when entering educational institutions. As for a certain age-based milestone for distinguishing between the two types of bilingualism, this is generally considered to be the child's third year of age, when a relatively good foundation of the first language can be assumed in terms of vocabulary and grammar. Also, differences in language skills have been shown if the individual is not exposed to the language from birth or until the third or fourth year of age (Paradis et al., 2011).

[1] Mgr. Anna Chromá, Klinická logopedie PaedDr. Věry Kopicové, Zdislavická 720/2, 142 00 Praha 4, Česká republika. E-mail: annachroma@email.cz.

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Language Development in Simultaneously Bilingual Individuals

It is a widespread myth that simultaneously bilingual children pass milestones in early language development more slowly than their monolingual peers. In terms of early development, bilingual children go through the phase of first words and first two-word phrases at the same age as monolingual children, i.e. the first words can be expected around one year of age and the first two-word phrases before they are two years old. (Muszynska et al., 2025). In comparison with monolingual children, a lower lexical acquisition can be expected, especially because in each of the languages there is a lower level of input than in monolingual children. In this respect, however, we only speak of a lower vocabulary level if we measure each of the languages separately and compare the vocabulary with the monolingual norm. A greater discrepancy between the vocabulary of monolingual and bilingual children is then significantly evident in the less dominant language (Altman et al., 2018). Nevertheless, a lower level of vocabulary was not confirmed when bilingual individuals were tested using their total vocabulary, i.e. a vocabulary that takes into account both languages. The total vocabulary tally scores a point for a term in either of the languages, i.e. if a child has two different expressions for a dog (e.g. dog and pes), then two points are scored. In that case, the vocabulary of three-year-old bilingual children is found to reach the level of monolingual peers (Höhle et al., 2020).

In addition to common factors affecting the development of monolingual children, the increase in vocabulary is strongly influenced by the degree and quality of input that an individual receives (Hoff & Core, 2013; Kohnert, 2013), as well as the dominance of one of the languages, with the increase in vocabulary being more pronounced in the dominant language (Höhle et al., 2020).

Bilingualism is a dynamic process, and in most cases, at some point in life, one language gets more dominant than the other. Language dominance refers to an individual's relative abilities in each of their languages, where dominance may correlate with higher language proficiency, but not exclusively so. Measurement of dominance can be subject to both objective and subjective criteria. Objective criteria include, among other things, measuring vocabulary, morphological-syntactic skills or the average length of a statement. Subjective criteria include questionnaire surveys that measure, for example, frequency of use, history of use or attitude towards language (Olson, 2023). For the adult population, the scoring system frequently used abroad is The Bilingual Language Profile (Birdsong et al., 2012). For children, the Language Exposure Assessment Tool (Deanda et al., 2016) is used whereas a Czech version of the questionnaire survey remains unavailable at this time.

Within development, simultaneous bilingualism is characterized by the influence of one language over another, across language levels (Paradis et al., 2011). The most researched aspect of this influence is its role within the morphological-syntactic level, showing excessive use or excessive acceptance of the morphological-syntactic rules of one language within the other language, and this influence does not change significantly in childhood. In the case of simultaneously bilingual children, a stronger influence by the majority language on the minority language is observed (Van Dijk et al., 2021). This influence does not always result in dysgrammatical production in one language, but it can cause an overuse of some particular grammatical phenomenon typical for one language but not for the other (e.g. the excessive use of the subject in a sentence), which manifests as a discrepancy in the pragmatic use of the language (Paradis & Navarro, 2003).

The development of grammar in each of the languages is strongly influenced by the degree of language experience that the child has acquired in the given language. Thordardottir (2014) shows that if children are exposed to both languages to a sufficiently strong extent, their morphological acquisition does not necessarily have to differ from the monolingual norm. On the other hand, where such input is significantly low, a negative effect on the development of the morphological-syntactic level was found. A specific feature of language development in simultaneously bilingual individuals is code-mixing, where elements from both languages are used during a conversation or a single utterance, either directly within one sentence utterance or between sentence utterances. The extent to which mixing occurs is individual, but almost every bilingual individual has experience with mixing language codes. It should be emphasized that this is not primarily a manifestation of a speech communication disorder, but a specific feature that is typical for simultaneous bilingualism, and in most cases the bilingual individual learns to adapt to the monolingual norm (Paradis et al., 2011).

Second Language Development in Sequentially Bilingual Individuals

We have mentioned above that sequential bilingualism refers to a situation when a child comes into contact with a second language around the age of three, i.e. at a time when the first language is already quite developed. It should be noted that the situation of sequential bilingualism very often occurs in children from cultural and linguistic minorities, where the language of the household is different from the language of the majority, and these may be children from families with a lower socio-economic status (Deanda et al., 2015). In these children, as part of the development of the second language, we can observe a non-verbal period, followed by a period of use of learned phrases, which gradually culminates in a more spontaneous and productive use of the language. This period when the use of the second language is still very different from that of monolingual peers, is referred to as interlanguage. The question of whether and when language skills will be acquired that are comparable across language levels with monolingual peers, depends on many factors. The speed at which children acquire a second language depends on the qualitative and quantitative aspects of language input and output, on cognitive prerequisites for language learning, the age of the child, the linguistic proximity of the two languages and also on the mother's education (Paradis, 2016).

We need to be aware that in the case of sequentially bilingual children, language input is often unevenly divided between two languages and the acquisition of a second language is significantly influenced by the quality of the child's contact with it. It was generally believed that the earlier a child comes into contact with a second language, the faster they will acquire it. This hypothesis was based on comparing individuals who acquired a second language in childhood with individuals who acquired a second language in adulthood. However, if we compare only among sequentially bilingual individuals who acquired a second language in childhood, the research tends to prove the opposite phenomenon, i.e. the older the child, the faster the acquisition of a second language

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occurs (Paradis, 2019). A higher age at the time of the second language exposure also has a positive effect on the development of the household language (Montrul, 2016). Length of exposure to a second language is positively associated with an increase in vocabulary, morphological accuracy, better narrative skills, and greater use of compound sentences. Research suggests that a higher input in the majority language by parents does not have a significant effect on the development of language skills in that language for a school-age child. However, if siblings use the majority language at home, a positive effect on the development of the second language has been proven (Bridges & Hoff, 2014).

We also need to mention the effect of socio-emotional adjustment as in children from refugee families a negative effect of hyperactivity and problematic behaviour has been shown on performance in both the household and majority languages (Soto-Corominas et al., 2020). As far as expressive language use is concerned, research assumes that monolingual norms in terms of vocabulary and literacy are achieved within about 3–7 years, though it can take longer. As for always successfully acquiring morphological skills, this remains open to question (Paradis, 2016). Consequently, during preschool age, sequentially bilingual children usually achieve lower results in understanding and expression in the majority language (Chan, 2023), a finding essential for clinical practice, considering that children often come into the care of a clinical speech therapist at an age when their abilities in the majority language are still undeveloped. It is essential that we do not use the monolingual norm uncritically as a reference point, even for children whose exposure to a second language has already reached three years in pre-school or school education (Paradis, 2016).

Developmental Language Disorder

During 2016 and 2017, the concept of Developmental Language Disorder (DLD) was defined by international and multidisciplinary consensus as difficulties in language development that are not directly associated with other biomedical etiologies and have a significant impact on an individual's life (Bishop et al., 2017). The DLD term was previously known in the Czech context as 'developmental dysphasia'. In the Czech translation of the ICD-11 revision, the DLD term is used, which is characterized by persistent deficits in the acquisition, understanding, production or use of language (spoken or signed).

The disorder originates in early childhood and significantly limits the individual's ability to communicate. The understanding, expression and use of language is lower than corresponds to the physiological age of the individual, and language deficits cannot be explained by another neurodevelopmental disorder, intellectual disorder, sensory impairment or neurological disease including brain injuries or infections. Difficulties in phonological awareness, syntax, morphology, grammar, semantics, narrative skills, conversational discourse, and pragmatics are cited as diagnostic criteria (WHO, 2022).

In addition to language impairment, DLD is also associated with other deficits, e.g. it manifests itself in impairment of executive functions such as Verbal Working Memory (VWM) and Sustained Attention, and disruption in Theory of Mind (Nilsson & De López, 2016; Sanhueza et al., 2024; Niu et al., 2024). Deficits in VWM have been identified as a marker of DLD independent of age or language by the authors of a meta-analysis examining executive functions in children with developmental language disorder (Niu et al., 2024).

Predictors of DLD include delayed use of gestures, low level of receptive and/or expressive vocabulary, impaired understanding of syntax, and absence of two-word phrases by 30 months of age. A positive family history of DLD is considered a significant predictor, while other biological factors such as male gender and prenatal/perinatal factors are especially relevant in the first years of age. A certain, albeit lower, degree of predictivity is also reported for low socio-economic status, language input, and quality of communication interaction (Sansavini et al., 2021). The prevalence of DLD is approximately 7.4% with a more frequent occurrence in boys and often occurs in comorbidity with other neurodevelopmental disorders (Pospíšilová et al., 2021).

According to the consensus made within CATALISE, the diagnosis of DLD should include both the results of standardized tests and other diagnostic methods that will help to capture the basic criterion of DLD, i.e. whether the language disorder affects the ability of social interaction and/or the educational process of the individual (Bishop et al., 2017). Diagnosis should be made early to initiate appropriate therapy to develop language skills and to reduce the risk of other consequences of the disorder, such as learning, behavioural, psychiatric, emotional and socio-adaptation difficulties. The optimal age of diagnosis has not yet been determined, mainly due to difficulties in distinguishing between delay and disorder, the natural variability of language development and communication between the ages of 3 and 5, and the different age period in which individual language skills can be reliably measured (Sansavini et al., 2021). As part of the DLD diagnosis process, the Association of Clinical Speech Therapists of the Czech Republic has published a standard of care for patients with DLD, which includes diagnostic procedures and minimum mandatory as well as other additional examinations that a clinical speech therapist should use in their practice (Pospíšilová, 2022).

Developmental Language Disorder and Bilingualism

According to Paradis (2016), simultaneously bilingual children with developmental language disorder can achieve comparable language skills as their monolingual peers with DLD, while research shows the same for people with Down syndrome and Autism Spectrum Disorder. Simultaneous bilingualism is not the cause of a developmental language disorder, and at the same time, a developmental language disorder does not prevent an individual from becoming simultaneously bilingual. According to Kohnert (2013), the crucial implication for clinical practice is that elimination of one of the languages will not improve or cure the developmental disorder of the other language and recommending elimination tears the language out of its social context. Simultaneously bilingual children with developmental language disorder have difficulties of both a verbal and a non-verbal nature, the same as their monolingual peers with DLD. Bedore and Peña (2008) report a lower level of expressive and receptive vocabulary, difficulties in naming and recalling words, and difficulties on morphological-syntactic level, which are observable in both languages. Disruption of executive functions, especially the short-term Working Memory, has been demonstrated in both monolingual and bilingual children with developmental language disorder (Boerma & Blom, 2020). Paradis (2016) reports that sequentially bilingual children with DLD for whom

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English was a second language do not use the same resources as their typically developing sequentially bilingual peers. Children with DLD, unlike their typically developing peers, experience improvement in morphology with age, not with higher levels of language exposure. These children do not benefit from the transfer between languages and show worse results in the repetition of pseudowords.

Diagnosis of Developmental Language Disorder in Bilingual Children

According to the IALP, it is recommended to examine both languages of the child (Scharff Rethfeldt, 2022). According to Paradis et al. (2011) this recommendation meets several problems in practice, such as the lack of knowledge among speech therapists about the second language development, the lack of test batteries, the inability of speech therapists to administer test batteries in both languages, or the shortage of interpreters and cultural workers. Another problem may be that the current language skills of a sequentially bilingual child are weak in a minority language because of being at that moment in a phase where the minority language is slowly losing to the majority language. The authors mention, as an essential part of the diagnosis of bilingual children, the need to get information about both languages, the level of exposure to these languages and the cultural background. They also recommend the use of a bilingual or local norm (if available) and the use of dynamic diagnostics.

Where it is not possible to examine the first language of a sequentially bilingual child, Paradis (2016) recommends supplementing the use of available tests with a questionnaire for the parents. Often used abroad for such surveys are the *MacArthur-Bates Communicative Development Inventories*, whose Czech version is titled DOVYKO II (Smolík et al., 2017). Also used in English-speaking countries are ALDeQ, the *Alberta Language and Development Questionnaire*, which was developed to map the domestic language, and the follow-up ALEQ, *Alberta Language Environment Questionnaire*, which was developed to obtain information about language experience and demographic environment (Abutbul-Oz & Armon-Lotem, 2022). Based on these questionnaires, authors Abutbul-Oz and Armon-Lotem created the *Bilingual Parent Questionnaire*, BIPAQ. Another version of the questionnaire is the PaBIQ, which has a Slovak version (Kapalková, 2020). There is also a Slovak version of *Beirut-Tours Questionnaire*, which is also based on ALEQ and ALDeO (Kapalková, 2017). A Czech version of the questionnaires based on ALEQ and ALDeO is still missing.

In his research, Ebert (2020) deals with the use of language sample analysis using available tests to examine narrative abilities, positively evaluating the use of the MAIN test (Gagarina et al., 2016), which provides for examining the child in both languages. Andreou and Lemoni (2020) state in a systematic review that the macrostructure of narration is relatively independent of knowledge of a particular language, while the microstructure is more dependent on the degree of input and experience with a given language. Bilingual individuals with DLD show the most noticeable differences in the microstructure of narration compared to typically developing bilingual peers. The results of research dealing with differences in the macrostructure of narration in bilingual individuals are inconsistent. Clinical speech therapists have at their disposal a Czech adaptation of MAIN (Nováková Schöffelová, 2020).

Another diagnostic tool being discussed is the repetition of pseudowords, which is a commonly used tool in diagnosing monolingual individuals with developmental language disorder. Research on the use of pseudoword repetition in bilinguals is still inconclusive (Thordardottir & Reid, 2022). Farabolini and colleagues (2021) state that it is diagnostically important to distinguish between the use of pseudowords that resemble language and cross-linguistic pseudowords; and if we use pseudowords resembling language, we must keep in mind that performance can be affected by lexical skills in the given language. Boerma and colleagues (2015) tested quasi-universal pseudowords (words that resemble most world languages in structure) and concluded that they have a higher accuracy for diagnosing developmental language disorders in sequentially bilingual children than language-specific pseudowords. The diagnostic accuracy of pseudoword repetition tests is higher in preschool or younger school-age children, but the test is not very informative at school age (Schwob et al., 2021).

In the Czech environment, there is a test of repetition of pseudowords from the BTFS, *Baterie testů fonologických schopností* [Battery of Tests of Phonological Abilities] (Seidlová Málková & Smolík, 2014). Also worth mentioning in the Czech context is Stiborská's (2024) master's thesis, bringing a translation of the GAPS – the Grammar and Phonology Screen test, which the author verified on a sample of 50 typically developing children. At the same time, we must take into account the limitations of this study, especially the low number of children tested. As part of early literacy testing, we can use the MABEL multi-lingual battery, which currently enables the evaluation of reading and writing acquisition with norms up to the second grade of primary school, and the mapping of literacy predictors from the last year of pre-school education. The test battery currently exists in nine languages and has a Czech version (Caravolas et al., 2019).

Conclusion

Children with developmental language disorder can become bilingual, and bilingualism is not the cause of speech communication disorder, so the elimination of one of the languages is not recommended for these children, with due regard to the social context. The diagnosis of bilingual children should take place in both languages, which places high demands on clinical speech therapists, especially if they have to test a language they do not speak themselves and if they do not have diagnostic tools in this language and the possible help of interpreters or intercultural workers. As part of the diagnostic process we must distinguish between sequential and simultaneous bilingualism, obtain sufficient information about the level of language exposure and the quality of input, use dynamic diagnostics, and avoid uncritical reliance on monolingual norms. It has been proven that questionnaires for parents can serve as a good source of information. These already exist in a linguistically close Slovak version, but unfortunately there is no Czech translation available at this time. In Czech practice, to examine narrative skills, we have at our disposal the use of MAIN, the DOVYKO II questionnaire, a test of pseudoword repetition (albeit conclusions need to take into account the nature of the pseudowords) and an examination of early literacy using the MABEL test battery. The creation of other diagnostic materials, especially the translation of the questionnaire mentioned above, would be of significant benefit to Czech clinical practice.

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