



# Multilingual Children with Special Needs in Early Education

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## Contents

Introduction .....	2
Main Theoretical Concepts .....	4
Language Disorders Among Children with Developmental Disorders .....	4
No Double Deficits for Multilingual Children with Special Needs .....	5
Advantage of Maintaining the Heritage Language: Beyond Language Capacity .....	7
Crosslinguistic Transfer .....	8
Major Contributions: Assessment, Diagnosis, and Intervention .....	10
Assessment of Multilingual Children .....	10
Intervention of Multilingual Children .....	12
New Projects .....	13
Critical Issues and Topics .....	15
The Effect of Therapy in the Societal Language on the Heritage Language .....	15
Therapy in Both Languages Does Not Slow Progress in the Societal Language .....	17
The Value of Treating the Heritage Language .....	20
Directions for Future Research .....	21
Conclusions .....	22
Cross-References .....	23
References .....	23

## Abstract

Today, more than half of the world's children are raised multilingual, which poses diagnostic and interventional dilemmas to providers for children with special needs. This chapter discusses issues related to multilingual language assessment and intervention in early education. According to the best practice guidelines of

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professional bodies, multilingual children with special needs should be diagnosed and receive intervention in all languages the child speaks. Importantly, empirical research consistently demonstrates that multilingualism is not a burden for children with special needs. There is no empirical evidence that children with developmental disorders cannot become multilingual. Multilingual children with developmental disorders can acquire two languages, following their own trajectory of language development. This chapter gives the reader a complete picture of potential ways to implement these approaches in early education for multilingual children with special needs. The chapter ends with suggestions for future directions for research and education, focusing on the relationship between the child's educational needs, the family's needs, and the languages that are part of his/her life.

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**Keywords**

Multilingualism · Special needs · Early education · Developmental language disorder (DLL) · Autism spectrum disorders (ASD) · Hearing impairment · Intellectual developmental disorder · Assessment · Intervention

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**Introduction**

Today, more than half of the world's children are raised in communities where multilingualism is the reality, rather than a choice. These children need two or more languages in order to participate and communicate in society and with the important people in their lives (De Houwer 1999; Grosjean 2010; Marinova-Todd et al. 2016). In most cases, children who are raised in multilingual communities are exposed to their Heritage language (also termed home language, minority language, first language, or mother tongue) at home and to the Societal language, which is the majority language of the community, at the education system and in various daily interactions. Growing up in a multilingual environment may be challenging for young children with typical language development (TLD) and even more so, for young children with special needs, especially those who have language difficulties. This chapter discusses issues related to multilingual language assessment and intervention. For each study reviewed, the languages that were tested and the country (when available) are presented.

It is agreed that multilingualism does not cause language disorders (Kohnert 2007). Yet, multilingual children with TLD might score lower on standardized language tests that are normed for monolingual children (Armon-Lotem and Meir 2016; Anderson 2012; Restrepo 1998). Typically, most bilingual children are unbalanced bilinguals, i.e., they have one language which is dominant (stronger, more preferred) compared to the other (for an overview, see Meir 2018). Differences between monolingual and multilingual children can be manifested in the area of lexicon, with multilinguals scoring consistently lower than their monolingual peers when vocabulary in one language is considered (for an overview, see Haman et al.

2015). This gap is also reported for morpho-syntax, especially when bilinguals are tested in their weaker language. Various external factors have been proposed to account for the lower performance of bilinguals as compared to their monolingual peers. These include quantity and quality of exposure, age of onset of bilingualism, socioeconomic status, the size of the bilingual community speaking the Heritage language, and the availability of schooling in the Heritage language (e.g., Chondrogianni and Marinis 2011; Armon-Lotem and Meir 2019; Paradis 2011). Furthermore, differences between monolinguals and bilinguals might be attributed to crosslinguistic influences, i.e., those from the Heritage language onto the Societal language, and vice versa (Meir et al. 2017). We will return to crosslinguistic influence in more detail in section “[Crosslinguistic Transfer](#)”. The gap in linguistic skills between monolingual and bilingual children might be more pronounced in the preschool years, and this gap might persist throughout the child’s life, depending on exposure to the languages (Armon-Lotem and Meir 2019; Kohnert 2010).

Language skills of multilingual children are distributed unevenly across and within the languages spoken by the child (Kohnert 2010). These varying levels of language skills across the two languages make language assessment challenging. Thus, a multilingual child should be diagnosed and receive interventions in all the languages he/she speaks. However, the reality is far from ideal. Assessment tools are predominantly available in Societal languages and are normed for monolingual children. Furthermore, most multilingual children with special needs do not receive professional support in their Heritage language, rather solely in the Societal language (de Valenzuela et al. 2016; Jordaan 2008; Pesco et al. 2016). A review by Pesco et al. (2016) on special education and language education policies in four countries (Canada, the United States, the United Kingdom, and the Netherlands) demonstrated that the Societal language is the sole or predominant language of instruction in special education settings in these countries. Even for children with TLD, limited or no support is provided for the Heritage language. In countries that provide support for Heritage languages, it is relatively small-scale and does not apply to many minority speakers. In several countries, Heritage language support is provided in the form of supplementary schools run by volunteers (ibid.).

As noted above, Pesco et al. (2016) reported that multilingual children with developmental disorders receive special language services. However, their Heritage language is not supported, due to limited resources. One of the main barriers to multilingual language support among children with developmental disorders is shortage of qualified multilingual staff, such as teachers and speech and language therapists. Time and scheduling conflicts are also enumerated among the obstacles to providing services in the different languages the child speaks. Finally, in many cases, parents are advised by professionals to refrain from an additional language and to focus on a monolingual environment for children with developmental disorders, although this advice is not supported by empirical research (Bird et al. 2016; Marinova-Todd et al. 2016; Yu 2013).

This chapter focuses on early language education of children with various developmental disorders, who have language and communication difficulties as part of their phenotype. The populations discussed in this chapter are children with

developmental language disorder (DLD), previously referred to as specific language impairment (Bishop et al. 2016; Novogrodsky and Kreiser 2019), as well as those with autism spectrum disorders (ASD), hearing impairment, or intellectual development disorder. Despite different etiologies and specific needs for each population, language difficulties are at core of deficits in these disorders.

The term “multilingual” refers to a child who uses more than one language and is the default term in the chapter. However, when discussing studies that explored specific pairs of languages, the term “bilingual” is used. The chapter discusses available evidence regarding the benefits of supporting the Heritage language alongside the Societal language among children with special needs. It examines the benefits of maintaining the Heritage language to assist with the acquisition of the Societal language and for socio-emotional and cognitive development of multilingual children with special needs. Current literature supporting the position that multilingualism does not cause additional difficulties for children with developmental disorders is presented. In addition, methods for diagnosing language abilities of multilingual children and examples of multilingual interventions are presented. The chapter ends with discussing advantages for language outcomes of multilingual children with special needs and future directions for research and practice.

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## Main Theoretical Concepts

### Language Disorders Among Children with Developmental Disorders

Children with special needs in early education are diagnosed with various developmental disorders. A short description of each clinical population discussed is provided in this section. The first population is children with DLD. This is a primary disorder in language development, in the absence of documented neurological damage, hearing deficits, severe environmental deprivation, or intellectual developmental disorder (Leonard 2014). The disorder is manifested by a gap in language scores compared to the child’s chronological age, in comprehension, production or both, and is shown in one or a combination of different language domains, e.g., lexicon, morpho-syntax, and pragmatics (Novogrodsky 2015). DLD affects 5–7% of children (DSM-5, American Psychiatric Association 2013; Leonard 2014).

The second population is children with ASD. ASD is diagnosed based on two symptom clusters: (a) pervasive deficiencies in social communication and social interaction and (b) restrictive and repetitive patterns of behavior, interests, or activities (DSM-5, American Psychiatric Association 2013). It is estimated that 15–20% of children with ASD fail to learn even single words for communicative purposes, while approximately half obtain complex expressive skills and achieve fluent and functional speech (Dromi et al. 2018). Importantly, the children who acquire functional speech show language difficulties in the domain of pragmatics (e.g., Novogrodsky and Edelson 2016; Lang et al. 2011).

The third population is children with congenital hearing impairment, which is diagnosed based on behavioral and objective measures of hearing loss. As a group,

these children are reported to have difficulties in language abilities compared to children with typical hearing. This is evident in both preschool and school years and is apparent regardless of the hearing devices used by the child: hearing aids or cochlear implant (e.g., Boons et al. 2013; Friedmann et al. 2008; Novogrodsky et al. 2018).

The last population is children with intellectual developmental disorder (e.g., Down syndrome, William syndrome). Down syndrome is a genetic syndrome resulting from trisomy 21, and William syndrome is a genetic syndrome, which results from deletions of certain genes). Intellectual developmental disorders affect various cognitive abilities, such as reasoning, planning, judgment, and abstract thinking (Bird et al. 2005; Perovic and Lochet 2015).

Children with special needs in early education are usually diagnosed with one of the above disorders. Sometimes the child is diagnosed with more than one development disorder (e.g., hearing impairment and ASD). The populations described here present different etiologies and each child has a unique profile of strengths and weaknesses within the disorder; however, all these children demonstrate language difficulties, and for multilingual children, the domain of language is even more complex in terms of assessment and intervention.

## **No Double Deficits for Multilingual Children with Special Needs**

One important finding across studies is that multilingual children with special needs do not have double deficits. This means that the severity of their language disorder is not a sum of the limitations from the multilingual status and the disorder (e.g., ASD, DLD). Compared to monolingual children, multilinguals receive less input in each of their languages because their waking hours are divided between the two languages (for a review, see Armon-Lotem and Meir 2019). Reduced exposure to each language has been hypothesized to cause difficulties in linguistic uptake in multilingual children with developmental disorders. This gave rise to testing the cumulative effects hypothesis (Paradis 2010; Paradis et al. 2017), which suggests that multilingual children with special needs might have an additional disadvantage related to their linguistic development, as compared to their monolingual peers with developmental disorders. The hypothesis predicts that the gap in language performance between monolingual and multilingual children with developmental disorders is larger than the gap between monolingual and multilingual peers with TLD, indicating an extra burden of multilingualism among children with special needs.

However, empirical research does not support the cumulative effects hypothesis (Armon-Lotem et al. 2015; Degani et al. 2019; Paradis 2010; Paradis et al. 2017). Multilingualism does not impede language and cognitive development among children with special needs. Numerous studies on bilingual children with DLD do not confirm the cumulative effects hypothesis in the domain of morpho-syntax (Blom and Boerma 2017; Gutiérrez-Ciellen et al. 2008; Meir 2017; Meir et al. 2016; Paradis et al. 2003; Thordardottir et al. 1997; Tsimpli et al. 2017). Orgassa and Weerman (2008) reported that Dutch-Turkish bilinguals and Dutch

monolinguals with and without DLD, ages 4–8 years, demonstrated similar accuracy on adjectival inflections in Dutch, whereas bilinguals with DLD were less accurate in their use of determiners, as compared to their monolingual peers. However, the important finding was that bilingual children with TLD were also less accurate than monolingual children with TLD in adjectival inflections. These findings suggest that bilingualism affects children with DLD and TLD similarly, and is not an extra burden for children with special needs in the domain of morpho-syntax. Furthermore, in a study conducted in Canada, bilingual and monolingual children with DLD (mean age 6;11 years) performed worse than their peers with TLD did on language tests that measured different language capacities. Yet, no cumulative effects of bilingualism and DLD were observed in the use of verbal inflections (Paradis et al. 2003). Similarly, in a study conducted in Israel, bilingual Russian-Hebrew children with DLD did not show a cumulative effect on a variety of morpho-syntactic structures, as compared to their monolingual Hebrew-speaking peers with DLD. The gap in performance between bilingual and monolingual children with DLD was similar to that of their monolingual and bilingual peers with TLD (Meir 2017). To summarize, studies of multilingual children with DLD show that multilingualism does not aggravate the morpho-syntax disorder caused by the DLD.

This pattern of no cumulative effect is shown in other language domains, such as lexical knowledge (Degani et al. 2019). In a picture-naming task with four groups of participants, monolingual and bilingual school-age children (Hebrew-English) with TLD or with DLD, bilingual children with DLD scored lower than all the other groups did on the naming task in Hebrew. The authors suggested that the scores of bilingual children with DLD must consider the basic performance gap between monolingual and bilingual children with TLD in the language that is tested.

Similar to studies on DLD, no cumulative effect was observed in developmental disorders, such as ASD. Bilingual and monolingual children with ASD showed the same patterns and impairment (Drysdale et al. 2015; Gonzalez-Barrero and Nadig 2017). For example, recent studies investigating syntactic abilities of bilingual children with ASD confirmed the lack of cumulative effects (Meir and Novogrodsky 2019a, b). These studies compared four groups of children: monolingual Hebrew-speaking children with TLD and with ASD ages 5–8 years, and bilingual Russian-Hebrew-speaking children with TLD and ASD, ages 4–9, residing in Israel. Children were tested in Hebrew (the Societal language) for most tasks and in Russian (the Heritage language) for vocabulary and morpho-syntax. The results showed that there was a negative effect of clinical status and a negative effect of bilingualism; however, no interaction between ASD and bilingualism was found, suggesting that bilingualism affects children with TLD and ASD similarly.

A unique bilingual condition is the case of children who speak diglossic languages. In these cases, the language includes two linguistic varieties. In a study that examined narrative abilities of children with hearing impairment compared with their hearing peers in both Colloquial Arabic and Standard Arabic, children with hearing impairment scored significantly lower than children with typical hearing. However, when comparing the two linguistic varieties, no differences were found (Novogrodsky and Maalouf-Zraik [accepted for publication](#)). Palestinian-Arabic-

speaking children, ages 10–15 years, were tested on two different picture-story books with similar narrative components, one in Standard Arabic and one in Colloquial Arabic. The children with typical hearing scored significantly higher compared to the children with hearing impairment, in measures of lexical diversity and morpho-syntax. However, comparisons between Colloquial Arabic and Standard Arabic revealed no differences in these measures for children with hearing impairment. The authors suggested that the difficulties expressed by children with Hearing Impairment are because of their hearing loss, not because of language learning deficits. They emphasized the importance of both languages in intervention for children with hearing impairment.

Studies of children with intellectual developmental disorder agree with the picture presented above. Bilingual and monolingual children with Down syndrome showed similar performance (Bird et al. 2005). The authors compared language performance of 8 bilingual children and 14 monolingual children with Down syndrome ages 2;7–10;2 years. The bilingual children spoke English and another language (French, Cree, Lebanese, Portuguese or Italian) and were either balanced bilinguals or English-dominant. Language tests in English included standardized tests and productive vocabulary using the MacArthur Communicative Development Inventories. The results showed similar profiles of language abilities across the two groups, suggesting no negative effect of bilingualism.

The studies discussed in this section showed that multilingualism does not aggravate the language disorder beyond the developmental disorder itself. This is seen across different populations of children with special needs: DLD, ASD, hearing impairment, and intellectual developmental disorder. The implications for education are the importance of keeping the languages that children with special needs use, to maximize their ability to communicate, which will result in enhancement of their language and cognitive abilities. Educators should be aware of the different languages a child with special needs speaks and should make the maximum effort to support these languages, as will be described in the next sections.

## **Advantage of Maintaining the Heritage Language: Beyond Language Capacity**

Some recent studies have suggested that multilingualism might have a facilitative effect and can serve as a protective mechanism, providing a cognitive and linguistic advantage for multilingual children with special needs (Armon-Lotem 2010; Blom and Boerma 2017; Engel de Abreu et al. (2014); Kohnert 2010; Roeper 2012). For example, Engel de Abreu et al. (2014) found that bilingual children with DLD outperformed monolingual peers with DLD on a Selective Attention task. Selective Attention represents the ability to direct our attention to relevant stimuli while ignoring irrelevant stimuli in the environment. This is an important cognitive process, as there is a limit to how much information one can process at a given time, and Selective Attention allows the child to focus on what is important in a specific situation. In the domain of cognitive flexibility (i.e., set shifting), a recent

study found that bilingual children with ASD scored higher than their monolingual peers with ASD did (Gonzalez-Barrero and Nadig 2017). Another example is Theory of Mind, which represents social cognition, i.e., the ability to attribute mental states (e.g., beliefs, knowledge) to oneself and others, and to understand that others' perspectives can differ from that of the child (Baron-Cohen et al. 1985). Tsimpli et al. (2017) found that bilingual children with DLD showed enhanced Theory of Mind skills, as compared with monolingual children with DLD.

The facilitative effect of multilingualism can be viewed from a different angle, emphasizing the effect of communication experience beyond specific linguistic input. Romeo et al. (2018) tested the effect of conversational-turns on brain activity using Functional Magnetic Resonance Imaging, which measures brain activity by detecting changes associated with blood flow. The findings suggested that communication experience (e.g., conversational turns) affects neural language processing beyond environmental factors and the quantity of words heard by the child (Romeo et al. 2018). The study showed that monolingual children who experienced more conversational-turns exhibited greater activation in left inferior frontal regions (Broca's area) during language processing. Conversational-turns, rather than the absolute number of words heard by the child, explained nearly half the relationship between children's language exposure and verbal abilities. In relation to the discussion on multilingual children with developmental disorders, these results suggest that the communication with caregivers matters, regardless of whether it is in the Heritage language or in the Societal language, meaning that the impact is beyond the number of specific words or utterances the child perceives.

To summarize, previous research suggests that multilingualism does not have a negative effect on language outcomes, as shown in section "[No Double Deficits for Multilingual Children with Special Needs](#)", and it might have a positive effect on various cognitive abilities of children with special needs.

## Crosslinguistic Transfer

One important process documented in language development and use by multilingual children is crosslinguistic transfer. The term refers to the interaction between languages (Cummins 1979; Paradis and Genesee 1996; Schwartz and Sprouse 1994, 1996). This view assumes that languages spoken by a multilingual person interact and affect one another. The effect results from "similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired" (Odlin 1989, p. 27). Similarly, the Linguistic Interdependence Hypothesis (Cummins 1979) proposes that the bilingual child's competences achieved in the Heritage language/first language (L1) can be transferred into the Societal language/second language (L2). According to the Linguistic Interdependence Hypothesis, the child's knowledge in L1 can be instrumental for developing corresponding abilities in L2. Crosslinguistic influence in multilingual children may be bidirectional, from the Heritage language to the Societal language and vice versa. Yet, it should be kept in mind that crosslinguistic influence is



interactive in nature (see Chung et al. 2019), meaning that it is modulated by numerous language-general and language-specific factors, i.e., the linguistic proximity of the Heritage and the Societal languages, proficiency in the two languages and the complexity of a certain linguistic phenomena (For a review of crosslinguistic influences that are related to schooling, see Chung et al. 2019). At school age, additional aspects are added to the equation, for example, orthographic distance between languages. Moreover, crosslinguistic influence interacts with external factors such as age of onset of bilingualism, immigration experience, educational settings, and extent of exposure to the languages that the child speaks.

For example, in the Canadian context, Blom et al. (2012) showed that children, whose L1 encodes grammatical categories of person, number, and tense on verbal inflections carry over this knowledge from L1 to the acquisition of verbs in L2-English. The authors reported that children with an L1 that marks verbs for person, number, and tense, like Arabic and Spanish, were more accurate compared to children with an L1 that does not mark these grammatical categories, like Mandarin and Cantonese. Evidence for crosslinguistic influence has also been reported for the acquisition of articles (*a/an, the*) in L2/English (e.g., Zdorenko and Paradis 2008). Multilingual children who speak a language with articles in L1 (e.g., Spanish, Romanian, and Arabic) outperformed children whose L1 lacked articles (e.g., Mandarin, Cantonese, Korean, Japanese, and Russian).

Similarly, there are studies demonstrating the effect of L2 on L1. For example, in the USA context, Anderson (2012) showed that the abilities of sequential Spanish-English bilingual children with TLD show effects on their L1/Spanish morpho-syntactic abilities by their newly acquired L2/English. She reviews previous studies on Spanish-English sequential bilingual children and concludes that, in the context of L2/English, bilingual children made more morphological errors in L1/Spanish than monolingual Spanish-speaking peers. The author attributed the errors to the influence of L2/English. Importantly, these results present the effects of the L2 on the L1 among children with TLD. In the Israeli context, Meir et al. (2017) demonstrated bidirectional, crosslinguistic transfer for Russian-Hebrew-speaking children with TLD. Russian and Hebrew have rich verbal paradigms. In both Russian and Hebrew, bilinguals performed on par with monolinguals on verbal inflections, showing a facilitative effect resulting from the similarities between the two languages. Yet, when the two languages showed differences in the mapping of morpho-syntactic categories, bilingual children were less accurate. This was demonstrated for the acquisition of articles in Hebrew (Russian does not have articles) and for the acquisition of accusative marking in Russian and in Hebrew (both languages mark the accusative case; yet, differently).

To summarize, the languages of a multilingual child interact. The interaction can give rise to a facilitative effect, when the grammatical categories of both languages overlap, or to a negative effect, when the grammatical categories do not overlap or overlap in part. Furthermore, as has been previously stated in the Linguistic Interdependence Hypothesis (Cummins 1979), the child's knowledge in the L1 can be instrumental for developing corresponding abilities in the L2. More examples on facilitative effects are given in section "[New Projects](#)", where interventions for

multilingual children with special needs are discussed. The interaction between the languages of a multilingual child with special needs affects his/her use of each of these languages, as shown in the studies presented above. Exposure to more than one language does not aggravate the language disorder, as has been shown for different populations with developmental disorders. Furthermore, it might show positive cognitive effects on the abilities of children with special needs. With these theoretical concepts in mind, section “[Major Contributions: Assessment, Diagnosis and Intervention](#)” highlights issues of assessment and intervention of multilingual children with special needs.

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## **Major Contributions: Assessment, Diagnosis, and Intervention**

Assessment and diagnosis are the first phase of intervention. The complexity of assessment for multilingual children with special needs and the solutions suggested by different approaches is presented section “[Assessment of Multilingual Children](#)”. Current practices for assessing multilingual children are followed by an overview of intervention approaches for monolingual children with special needs and how each approach can be adopted for multilingual children with special needs.

### **Assessment of Multilingual Children**

According to the best practice guidelines recommended by professional bodies (in the USA, ASHA 2004; in Europe, IALP 2011), multilingual children should be assessed in each language they speak. However, there are two main barriers. The first is that often, diagnostic tools are only available in the Societal language. The second barrier is that most professionals are monolingual speakers of the Societal language. There have been attempts to design parallel tools for assessing the different languages multilingual children use. For example, in the USA, some assessment batteries were developed and normed to evaluate language skills of Spanish-English bilinguals in both languages (Peña et al. 2018). In Europe, members of the COST Action IS0804 (<http://www.bi-sli.org/>) developed parallel Language Impairment Testing in Multilingual Settings tools in a variety of languages to evaluate language skills of multilingual children (Armon-Lotem et al. 2015). These tests, evaluating expressive and receptive vocabulary, morpho-syntax, narrative abilities, phonological processing and short-term memory, are available in several languages (e.g., Arabic, English, French, Greek, Hebrew, Spanish, German, Dutch, Norwegian, Polish, Russian, Swedish Turkish, etc). Yet, language assessment tools are not available in some Societal languages as well as many Heritage languages (Thordardottir 2015). For example, in Canada, there are language assessment tools for the two Societal languages: English and French, but not for many Asian Heritage languages of the local communities (Thordardottir 2015). In the USA, there are assessment tools available for Heritage Spanish, e.g., the Bilingual English Spanish Assessment, developed by Peña et al. (2018). In Israel, there are language tests in Hebrew and

Arabic (e.g., Maaluf Katzenberger and Meilijson 2014; Katzenberger and Jabara 2017); yet, there is a scarcity of tools and norms for multilingual children speaking any Heritage language in tandem with these two languages. Furthermore, using monolingual language tests from the country of origin to test multilingual children in that language has disadvantages, because the target language in these cases is the Heritage language, which is not identical to the language in the country of origin. An example of this would be using the Clinical Evaluation Language fundamental-preschool-2 designed in the USA for English-speaking children (Zimmerman et al. 2002) to assess the English of bilingual English-Hebrew speakers who live in Israel. The explanation is the language variations these children are exposed to. First, children with TLD who acquire English as their Heritage language in Israel show gaps in their lexicon and grammar compared with monolingual English-speaking peers in the USA. This gap is susceptible to crosslinguistic transfer (see section “[Crosslinguistic Transfer](#)”) from the dominant Hebrew on the English (Armon-Lotem et al. 2020), which is not the case for monolingual English-speakers. Similarly, Meir (2018) showed that the language skills of bilingual children whose Heritage language is Russian are strongly influenced by the Societal language, Hebrew. Children showed more errors in grammatical categories of case and aspect due to the influence of Hebrew, which does not mark these categories morphologically. Finally, professionals should be aware that test norms obtained for monolinguals can lead to overidentification of language disorders in multilingual children (Armon-Lotem and Meir 2016).

Furthermore, even if we continue to develop language tests for each minority language that is used by a community in any country, we will never be able to cover all of them. As a partial solution for this dilemma, parent questionnaires were developed (e.g., Abutbul-Oz et al. 2012; Gutiérrez-Clellen and Kreiter 2003; Paradis et al. 2010; Restrepo 1998; Tuller 2015). The aim of these questionnaires is to bridge the gap between best practice guidelines and the assessment tools available for diagnoses in the Societal language. With monolingual children, parental questionnaires are complementary tools in the diagnostic protocol, in addition to direct testing of the child. Among multilingual children, parental questionnaires might be the core source of information for clinical decisions. Another solution is dynamic assessment tools (Kohnert 2010). In dynamic assessment, language outcomes are not the target. The score is given to the child for the change in performance shown during the testing, which includes pretest, learning phase, and post-test. Whereas parental questionnaires target the child’s caregivers for information (with translation when needed), dynamic assessment tools measure the child’s capacity to learn the Societal language (Hasson and Joffe 2007).

To conclude, multilingual children with TLD do not learn their two languages like monolingual children do, due to the effects of the other language and to the variations of the Heritage language within small communities, as compared to the origin language. This specific learning situation is reflected in the performance of multilingual children with TLD on language tests, both in the Societal language and in the Heritage language, when it is applicable (Armon-Lotem and Meir 2016). This is true also for children with special needs. Professionals should be aware that lower

performance relative to monolingual norms in the languages spoken by the child should not be construed as a sign of a language disorder. Thus, all languages need to be viewed in the context of the child's linguistic environment and they all need to be assessed. The Heritage language and the Societal language are both essential for functioning at home and in school settings. When language tests in the Heritage language and multilingual norms for the Societal language are not available, clinicians should seek language milestones in both languages by collecting data via parental and teacher questionnaires and by using dynamic assessment. These tools provide complementary information: parental and teachers' questionnaires provide information about the child's language capacity in the Heritage language and the Societal language, and dynamic assessment taps into the child's ability to progress in the Societal language.

## **Intervention of Multilingual Children**

Integrating multilingual intervention into special education is an optimal option; yet, not the common practice for multilingual children with special needs. Interventions for preschool children with special needs (not specific to multilingual children) have three different tracks (e.g., for Israel see: Ari-Am and Gumpel 2014; Novogrodsky and Kreiser 2019; for the US, see: Kauffman and Badar 2014). These three tracks vary with respect to how the child with special needs is integrated within the mainstream educational systems. The first track is preschool special education programs for children with similar developmental diagnoses or special needs (e.g., DLD, ASD). In all programs, core goals of intervention are language and communication. However, the focus is on the Societal language. In some countries, children with different developmental diagnosis are supported within the same program, meaning, for example, that children with ASD and children with DLD participate in the same intervention program. The second track is partial inclusion. In these programs, there is inclusion within a preschool of typically developing children for part of the day/week. Most children in the kindergarten will have typical development and a small group will have special needs. Ideally, two teachers, one of them is a special education teacher, and two assistant teachers will operate the program. Many activities are shared between the two groups and specific, separate activities are planned for the children with special needs. However, multilingual interventions are not common in the first and second tracks. The third track is full inclusion. In these programs, a child with special needs attends a mainstream preschool together with typically developing children. Usually, full-inclusion programs are recommended for children with less severe diagnoses. The child with special needs receives one-on-one intervention outside the classroom during or after school hours. Variations between these three tracks: special education school or class, on the one hand, and full inclusion for children with special needs, on the other hand, are not available in all countries. Sometimes within different school districts in the same country, all three tracks are not available (Novogrodsky and Kreiser 2019).

Examples of intervention programs for children with DLD are presented in Law et al. (2019). Children with special needs (e.g., DLD) are eligible for special education programs in preschool and kindergarten. Different programs are designed according to the model of special education presented above. However, in most cases, the emphasis on communication and language skills is in the Societal language (Novogrodsky and Kreiser 2019). Information on intervention delivery for children with DLD for specific countries is available in the following dataset: [www2.dtl.ish-lyon.cnrs.fr/COST\\_IS1406/query.php](http://www2.dtl.ish-lyon.cnrs.fr/COST_IS1406/query.php). Although this project focused only on children with DLD, it reflects the current practice regarding multilingualism for children with special needs in general, across Europe (Law et al. 2019). The online dataset provides information about identification, assessment, diagnosis, decisions, planning, intervention delivery, funding, and education. The issue of multilingual intervention is not included in the dataset, not because professionals and researchers disagree that it is a crucial issue (Thordardottir and Topbaş 2019), but because it is not available for parents who seek early multilingual intervention for their children with DLD (Jordaan 2008). The needs for multilingual intervention are highlighted in the American Speech and Hearing Association 2011 position statement, which emphasized this topic from the speech and language therapists' point of view. It suggested that cultural competence is part of the knowledge that speech and language therapists must acquire (ASHA, 2011, in Thordardottir and Topbaş 2019). Furthermore, in a recent study that explored multilingual interventions based on a survey of 2455 speech and language therapists from 39 European countries, only 17% of the respondents said that multilingual intervention in the languages spoken by the child is available, and 46% responded that it is available sometimes. This finding suggests a shift in the field compared to findings from 10 years earlier (Thordardottir and Topbaş 2019). Jordaan (2008) reported on findings from 99 speech and language therapists from 13 countries and showed that 87% used the Societal language only. It is important to note that these percentages of multilingual intervention mean that there is intervention in a language other than the Societal language, not necessarily that the two languages are part of the intervention.

To summarize, the professional community is aware of the concept of multilingual intervention, but it is not the common practice for multilingual children with special needs. The next section describes different levels of support for the languages a child speaks. It further elaborates on how professionals working with children with special needs can modulate the intervention of the languages based on the child's needs.

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## New Projects

An interesting change in interventions for children with special needs in recent years has been a shift from private, individual sessions to group work. This change, focused on the Societal language, has influenced all three intervention tracks described above. These groups include children with special needs and children with typical development. This change is a result of moving from the didactic

medical model of direct teaching, to a constructivist model, emphasizing an active role of the learner. According to this model, learning in general, including language learning is perceived as a social process in which the learner connects known information with new information (Vygotsky 1980). This model increases the child's participation and allows the specialist (e.g., teacher, speech and language therapist) to provide modeling of actual communication situations, while the child actively participates in the activity. The group intervention models everyday situations (e.g., playing, shopping) and can be adapted to age and culture. Group work enables more children to be involved in communicative-linguistic activities.

Support in the Heritage language can be added to individual and group interventions, based on the child's needs (Barrera 1993). It can vary between a Full Bilingual approach, where both languages are used equally, to a Dominant Bilingual approach, where the Societal language is dominant. Alternatively, a Modified Single language approach can be adopted, where the non-Societal language is used only when needed for clarification. Furthermore, a Multicultural Monolingual approach can be used, with cultural scaffolding, when needed for intervention with the Societal language (Barrera 1993).

Another important aspect of multilingual intervention is to ensure collaboration between clinicians and parents/caregivers and to support their role as intervention agents for their children. One route is to conduct an intervention session in which both languages alternate in the session. For example, if a parent/caregiver speaking the Heritage language is present, the clinician and parent work together, creating bilingual intervention sessions (e.g., Thordardottir et al. 2015). The second scenario is when the intervention is carried out in the Societal language within the educational setting in the absence of parents. In this scenario, the Heritage language is conducted via parent training as a home-based intervention (for an overview, see Durán et al. 2016). In the second scenario, the intervention focuses on the Societal language, while the Heritage language is enriched by the parents who receive training from the clinician to exercise a variety of language-stimulation activities in the home. Previous studies have emphasized the importance of maintaining the languages of multilingual children, as parents of multilingual children have strong positive attitudes towards maintaining the Heritage language of their children (e.g., Howard et al. 2020; Jordaan 2008). An important variable in successful involvement of parents is understanding the culturally relevant values, beliefs, and practices found in parent-child interactions with multilingual children (Jegatheesan 2011; van Kleeck 1994).

We will discuss possible intervention scenarios in the next section emphasizing: the effect of intervention in the Societal language on improvement in the Heritage language, the effect of intervention in both languages on improvement in the Societal language, and finally the effect of treating the Heritage language on improvement in the Societal language. Studies that explored multilingual intervention for different populations of children with special needs are reviewed. These studies include children with DLD, ASD, hearing impairment, and intellectual developmental disorder.

## Critical Issues and Topics

Only a few studies have tracked multilingual interventions. They are reviewed in the following subsections, highlighting different clinical populations and the outcomes of these interventions. For each study, a description structure (individual versus group) is given emphasizing how multilingual intervention can be implemented and the language outcomes in both the Heritage and Societal languages.

### The Effect of Therapy in the Societal Language on the Heritage Language

As described earlier, services provided to multilingual children with special needs are largely available only in the Societal language. One question is whether the effects generalize from the treated Societal language to the non-treated Heritage language. The answer is not simple. When not directly treated, improvement in the Heritage language is limited. Confirming the predictions of crosslinguistic transfer, improvement in the non-treated language is observed in aspects that are shared across the two languages. For example, articulation difficulties (also termed as phonological difficulties at the phoneme level) in both languages can be addressed through therapy in one language. Research showed that improvement in the production of phonemes that are shared across languages is observed when the treatment targets only the Societal language (Holm et al. 1997). Yet, some phonological rules are not shared across the two languages and should be treated separately. This was demonstrated by Holm et al. (1997) who investigated the efficacy of individual treatment provided in the Societal English to an English-Cantonese-speaking child age 5;2 years. The child was diagnosed with DLD and part of his language difficulties were in the domain of phonology. He had articulation errors characterized at the phoneme level and at the phonological-rule level (production errors in combining phonemes). In both languages at the phoneme level, some phonemes were missing, and some were produced incorrectly. At the phonological-rule level, some consonant clusters (combinations of two or more consonants) were not produced. The therapy was provided in English, the Societal language, and focused on phonological production and perception of distinct phonemes. For example, therapy targeted the production of [s] (e.g., *sip*) to make it distinct from the sound [ʃ] (e.g., *ship*), which is how the child produced it. After targeting specific phonemes in the Societal language, considerable improvement was observed in both languages, as they share these two phonemes. In contrast, treatment of consonant clusters (e.g., *plane*, *blue*) in the Societal language did not generalize to Cantonese, as the characteristics of clusters in Cantonese are different. This study has important clinical implications suggesting that shared features of languages show generalizations from the treated language to the non-treated language and certain features of linguistic knowledge are language independent. The generalization is shown for features that are similar across both languages, supporting the idea of crosslinguistic transfer (Paradis and Genesee 1996; Schwartz and Sprouse 1994, 1996). Thus, when

planning an intervention for a multilingual child in the Societal language, it is suggested to begin with linguistic aspects that have shared properties in the two languages.

The phenomenon of crosslinguistic transfer is also demonstrated for the domain of lexicon. In an intervention study, Kambanaros et al. (2017) found evidence of crosslinguistic transfer in this domain. They presented a case study of cognate intervention for a trilingual (English, Cypriote Greek, and Bulgarian) girl age 8;6 years, diagnosed with DLD in Cyprus. Cognates are words with similar form and meaning across languages, such as Bulgarian *tigur*, English *tiger*, and Greek *tigris* for the concept of “tiger.” Intervention was provided in English. The girl showed effects of crosslinguistic transfer from the treated language to the non-treated languages in learning cognate words. Importantly, generalization was observed for new words not included in the treatment, suggesting crosslinguistic awareness that seems to be activated during this intervention. This specific study focused on words that shared phonological forms (meaning that two cognate words have partial phonological overlap between them) across the lexicons of the three languages; thereby, supporting the bilingual approach (Barrera 1993) in individual interventions. The bilingual approach would suggest using the three languages equally. Here, the intervention focused on words that overlap across the languages spoken by the child. This method can be applied in full inclusion settings when a child receives individualized language intervention in the Societal language. It requires the speech and language therapist to know the overlaps in the lexicons of the languages the child speaks. Such information can be obtained from the parents, or by conducting a search over internet resources. Furthermore, this approach can target other language domains as well. For example, it can be extended to treatment of morphology (inflectional and derivational) and syntax, requiring knowledge about these domains in the languages the child speaks. Parents can join as facilitators, who provide information about words and structures that are similar in the languages. For multilingual children with intellectual developmental disorder and severe disabilities, it is crucially important for professionals to interact with parents. Based on observations and qualitative research interviews with multilingual parents, Pickl (2011) suggested that the quality of parent-teacher-interactions is central to effective communication interventions. Parental involvement and partnership have a broad effect on the intervention, which is beyond the scope of the current chapter (Schwartz and Yagmur 2018).

Narrative interventions show similar patterns in the grammar elements of narratives across languages. Narratives might take advantage of the interrelations of the cognitive schemata, which are noted in the grammatical structures of narratives told by bilingual children. Petersen and Spencer (2016) investigated the extent of the crosslinguistic transfer of English on Spanish, regarding complex syntax and narrative schemata in Spanish-English-speaking children with DLD, ages 7–8 years. The results indicated generalization from the treated language (English) to the non-treated Heritage language (Spanish) for complex syntax and story grammar. Crosslinguistic transfer of story grammar schemata has been demonstrated in numerous studies showing that children rely on their language-independent universal



knowledge of story grammar (see “Narrative abilities in bilingual children” by Gagarina et al. (2016) and the studies cited in it).

These studies further demonstrate that there is a crosslinguistic transfer, which can potentially yield a positive transfer from the treated Societal language to the non-treated Heritage language for phenomena that overlap between them. Thus, when planning therapy for multilingual children in the Societal language, speech and language therapists should be aware of similarities between the languages that the child speaks. These overlaps in different linguistic domains: phonology, lexicon, morpho-syntax, and narrative story grammar might be utilized as a tool to maintain the Heritage language. On the other hand, the studies clearly demonstrated that if there is no overlap between the two languages, there is no transfer from the treated to the non-treated languages, suggesting that both should be treated. It is thus important that speech and language therapists and special education practitioners increase their professional knowledge about languages spoken by children with special needs from diverse linguistic backgrounds.

### **Therapy in Both Languages Does Not Slow Progress in the Societal Language**

Dual language intervention is promising for promoting the Societal language while maintaining the child’s Heritage language. Ideally, the child should receive therapy in both languages, because treatment of the Societal language positively affects the Heritage language only in the domains in which the two languages overlap. Thus, dual language intervention will also target domains in which the two languages spoken by a child differ. For example, it will allow targeting lexicons in both languages beyond cognate words, and focusing on morpho-syntactic structures that differ across the languages.

However, there is a potential concern that dual language intervention might slow progress in the Societal language, which is the language in which the child functions in the mainstream education setting. Although studies evaluating the efficacy of dual language interventions are scarce, their results converge: dual language intervention does not impede progress in the Societal language. Importantly, the duration of the therapy should not be doubled for multilingual children, which is important because therapy hours are limited. Children receiving bilingual intervention seem to improve in both languages within the same time span as bilingual children who receive therapy in the Societal language only do (Restrepo et al. 2013).

For example, a study by Restrepo et al. (2013) compared the efficacy of Spanish-English and English-only vocabulary intervention for bilingual children with DLD in the USA. Preschool children ages 3;7–5;8 participated in bilingual versus English only intervention. Interventions were delivered in small groups (2–5 children), in 45-minute sessions, four times a week, for 12 weeks. The intervention targeted vocabulary through different activities: pointing to words in sets of pictures or objects, producing words, definitions through questioning in a script, and using words in sentences through scripted play with manipulative and dialogic book reading. The

results indicated that the bilingual intervention was more effective, as compared to the monolingual intervention in the Societal language, English. The children in the bilingual intervention showed gains in both the Heritage Spanish and in the Societal English, while children in the monolingual intervention showed gains in the Societal language only. Importantly, children with DLD in the bilingual intervention program showed similar gains in the Societal language as compared to bilinguals with DLD who received intervention in the Societal language only. This study, exploring the bilingual approach in a group setting, highlights the idea that bilingual intervention does not impede improvement in the Societal language.

A study on children with hearing impairment who received intervention in both the Heritage (Spanish) and the Societal (English) languages (Bunta et al. 2016) also supports the advantage of the full bilingual approach. Two groups of preschool children participated. The monolingual group (mean chronological age, 4;8) received support only in the Societal English and the bilingual group (mean chronological age, 4;7) received support in both their Heritage Spanish and the Societal English. Children in both groups used hearing aids and cochlear implants and their “hearing age” was younger than their chronological age (mean 1;6 years). The “hearing age” is calculated from age of implantation of a cochlear implant or the age of beginning using a hearing aid, aiming to represent the age of functional hearing of the child. The intervention for both groups included listening and speaking activities in English as the main language of instruction. The monolingual intervention group received small-group intervention three times a week. The bilingual intervention group also received three interventions per week, but once a week the auditory-based therapy was in Spanish, led by a native speaker. Participants in the bilingual intervention group also received professional interpreter services for all audiology-related appointments. Children who received dual language support outperformed their peers who received English-only support on expressive communication scores and language age scores. The findings support the bilingual approach in a group setting, emphasizing the importance of communication with the family in their Heritage language.

The bilingual-bimodal intervention (signed and spoken language) for children with hearing impairment showed parallel outcomes. Children receiving intervention in both American Sign Language and English scored similarly to their hearing peers on language measures that matched their chronological age in the spoken language (Davidson et al. 2014). The study tested five preschool children with hearing impairment, who used a cochlear implant. They communicated in American Sign Language, their Heritage language, with their deaf signing parents at home and in English, the Societal language. Their language skills in English were compared with bilingual-bimodal hearing children who communicate in American Sign Language and English. These were hearing children of deaf signing parents. The results showed comparable English scores for both groups on a variety of standardized language measures. The authors concluded that natural sign language input (comparable to the Heritage language of bilingual children) does not harm the development of the spoken language of children with hearing impairment. An important finding in this study is that bilingual-bimodal children with hearing impairment

closed the language gap compared with their bilingual hearing peers; a phenomenon not observed in other population. An explanation for this unique finding is that sign language might mitigate negative effects of early auditory deprivation for spoken language (Henner et al. 2018).

In another study, school age native signers, exposed to their Heritage American Sign Language, outperformed non-native signers in reading comprehension measures, representing the written modality of the spoken language (Novogrodsky et al. 2014). These findings support the importance of language exposure beyond modality (spoken or signed) at preschool age for this population and the advantages of multilingual intervention in general.

The advantage of using the bilingual approach in intervention is further expanded in a study of children with DLD, who spoke several Heritage languages (Arabic, Bangla, Bengali, Chinese, Dutch, English, Japanese, Kabyl, Punjabi/Urdu, Russian, Sinhalese, Spanish, and Tamil) in addition to the Societal Language, French (Thordardottir et al. 2015). In this study, bilingual and monolingual interventions were delivered to bilingual children with DLD in Canada, who spoke French as their Societal language and a variety of Heritage languages. The intervention in the Societal language was delivered by French-speaking speech and language therapists. The Heritage language in the bilingual intervention was supported through parental collaboration. The authors noted that parents opted for bilingual interventions, which reflected their desire to maintain the child's Heritage language. The study did not find significant gains in the Heritage languages. However, children in both intervention programs made similar gains in the Societal language (French). Thus, this study reiterates previous research suggesting that progress in the Societal language is not endangered when the Heritage language is supported. This is particularly important because in many cases, certified multilingual clinicians are not available for a specific Heritage language. Thus, parental participation might be a solution in these situations. Involving parents in the intervention requires the clinician's sensitivity to the characteristics of each family's interactions. This, in effect, reinforces the family's resources and ability to interact with their child with special needs (Kleeck 1994; Kreiser and Novogrodsky 2019). Thus, it is important for professionals to develop sensitivity to cultural differences. For example, the value of talk, which might be different across cultures, and beliefs about intentionality, e.g., who is permitted to initiate an interaction (for a detailed review of this topic, see Kleeck 1994).

To conclude, the studies discussed in this subsection provide clear evidence that interventions in both languages do not impede the Societal language capacity of the child. This is supported in vocabulary measures, language scores, reading comprehension scores, and parental involvement in the intervention. Moreover, this is found among children with DLD and for those with hearing impairment and for different combinations of Societal and Heritage languages, suggesting that this idea can be adopted for various populations of children with special needs.

## The Value of Treating the Heritage Language

This section focuses on the Heritage language as a choice for intervention. Choosing the language of intervention seems to have important clinical implications beyond language outcomes. The case of children with ASD highlights the importance of maintaining the Heritage language from another perspective. In this population, the Heritage language might open the child to communication with his/her close environment, as shown in the following studies. Communication is one of the core impairments of children with ASD. The ability to communicate (e.g., eye contact, initiating interaction) is a prerequisite developmental stage for specific language goals in interventions (e.g., storytelling, vocabulary learning). Lang et al. (2011) showed that children with ASD performed better and participated more in intervention sessions that used the Heritage language, as compared with similar intervention sessions that used the Societal language. Support for this assumption comes from a study on play behavior. Bilingual children with ASD demonstrated more play behaviors when using their Heritage language, as compared to sessions in the Societal language (Lim and Charlop 2018). It is suggested that bilingual children with ASD demonstrate increased accuracy in responding to instructions and fewer challenging behaviors, when using their Heritage language. Among children with ASD, the Heritage language may represent the warmth and comfort of the home environment (Lang et al. 2011). Kremer-Sadlik (2005) suggested that intervention in the Heritage language might also be associated with the positive aspects of home, as parents use the Heritage language to communicate between themselves, with other siblings, family members, and the community (Fillmore 1991). Thordardottir and Topbaş (2019) reported that speech and language therapists recommend parents speak the Heritage language at home, based on the individual needs of the child. Implementing the Heritage language in intervention requires a partnership between professionals and parents. As shown above, the positive outcomes of the Heritage language can support the Societal language. Intervention in the Heritage language and in the Societal language can be delivered individually and/or in group settings, depending on the child's language and communication needs.

Importantly, using the Heritage language in intervention does not harm the Societal language. In two case studies of children with ASD, ages 3 and 5, both showed improvement in the monolingual (English) and bilingual interventions (English-Spanish), alternating across 14 treatment sessions (Summers et al. 2017). The children showed similar improvement in morphological abilities measured by mean length of utterance across the two intervention conditions. The authors stated that bilingual intervention did not have negative effects on children with ASD. Although no positive effect was shown in the bilingual intervention compared with the monolingual intervention, the importance of early intervention in the Heritage language for children with ASD is supported by its transmission to the Societal language (Seung et al. 2006). Seung et al. (2006) reported an intervention case study of a bilingual Korean-English child. The child's primary language at home was Korean and he attended a private prekindergarten program where he was exposed to English. He was diagnosed with ASD at the age of 3:6 and was followed

longitudinally for 24 months. The intervention was delivered in the Heritage language (Korean) for 12 months, and then English was gradually introduced. The final phase was delivered in the Societal Language (English). It seems that the child established a linguistic foundation in his Heritage language, the home language of communication, and then progressively transferred it to the Societal language with intervention support. This study presents an individual intervention that was sensitive to the child's developmental and emotional needs. It started with the child's Heritage language and progressively integrated the "bilingual approach" and the "Modified Single language approach" (Barrera 1993), where the Societal language is dominant.

Research on multilingual intervention is a growing field. To date, many are case studies. They use precise statistical models and are crucial for exploring the efficacy of multilingual interventions. It is important to note that interventions for multilingual children include several variables, such as the number of languages the child with special needs is exposed to, the interaction between these languages (see section "[Crosslinguistic Transfer](#)" for crosslinguistic transfer), the cultural differences that are linked to the multilingual situation, and the effect of cultural differences on the intervention.

This chapter reviewed and discussed the efficacy and variations of multilingual interventions. The outcome measures were the language, communication, and cognition capacities of the child. However, outcome measures are one of the three pillars of evidence-based practice. The second pillar is based on perspectives and expertise of speech and language therapists, which are also affected by their cultures and by their knowledge of multilingual interventions (Thordardottir and Topbaş 2019). The third is the choice of language for assessment and intervention. For example with regards to intervention, do naturalistic and drilling multilingual interventions have similarly positive effects? Does modeling multilingual intervention enough or is repetition required? If repetitions are required, how many? Finally, do the repetitions have to be equal in all languages the child speaks to show improvement? With these questions in mind, the advantages of multilingual intervention in early education, for several populations with special needs, await future clinical initiatives.

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## Directions for Future Research

Historically, research on interventions for multilingual children with special needs was limited. This lack of knowledge created barriers for professionals encountering multilingual children with special needs (Welterlin and LaRue 2007; Yu 2013). Further studies are needed to evaluate the effect of multilingual interventions in individual and group settings. It is important to explore these effects among populations of children with various special needs (e.g., ASD compared to hearing impairment), as they might respond differently. Moreover, future studies should also address the short- and long-term benefits of multilingual interventions, and the effect of direct multilingual interventions versus indirect multilingual support given to the families. Longitudinal studies are needed to better understand the long-term effects

of multilingualism on the language and cognitive skills of children with special needs. It is important to ensure that these studies follow children through their school years, exploring the effects of multilingual interventions during the preschool years of children with special needs on their academic achievement and social interaction capacities in school. In addition, studies should address the long-term emotional and psychological aspects of multilingualism for parents and for their children with special needs.

Materials to support interventions in Heritage languages are lacking (Paradis et al. 2018). Thus, future studies should focus on developing and exploring clinical materials that enhance the Heritage languages and that can be used for both the Societal and the Heritage languages. In addition, it is important to develop programs that support the Heritage language and incorporate parental collaboration. It is suggested that parents of multilingual children with special needs, similarly to parents of multilingual children with TLD, want their child to be able to communicate in the Societal language without losing the Heritage language. Future studies should focus on developing roadmaps for parents of multilingual children with special needs, advising them how to maintain and support the Heritage language in different educational settings. These roadmaps might be specific to settings with full inclusion, partial inclusion, and special education programs.

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## Conclusions

Linguistic skills are unevenly dispersed within and across the languages spoken by a multilingual child (Kohnert 2010). For multilingual children, the Heritage language is an important part of their family life, tradition, and culture, and the Societal language is important for integration into the broader community. Multilingualism is not a choice; it is necessary for children to communicate in different settings in everyday life. Thus, all languages spoken by a multilingual child need to be viewed in the context of the child's linguistic environment and should be part of assessment and intervention. Multiple components of the language system should be part of intervention, based on the child's language profile and needs.

There is no empirical evidence that children with developmental disorders cannot become multilingual. Multilingual children with developmental disorders can acquire two languages, following their own trajectory of language development. As demonstrated in this chapter, multilingual children with developmental disorders do not demonstrate a double delay in language acquisition, as compared to their monolingual peers with special needs. Yet, research shows that these children are less likely to become balanced in the languages, they speak as compared to their TLD peers. They are at great risk of losing their Heritage language (Paradis et al. 2018) due to a lack of opportunities to become multilingual. Unfortunately, common practice today is to provide intervention to multilingual children in the Societal language, which contrasts sharply with the evidence-based approach. Support of both languages provides optimal language outcomes for children with developmental disorders.

This chapter synthesizes research demonstrating that progress in the Societal language is not impeded during dual-language interventions among diverse, atypical populations (e.g., children with DLD, ASD, or hearing impairments). Multilingual interventions are effective for children with special needs, as both languages are maintained and developed (Kohnert et al. 2005). Moreover, support for the advantage of intervention in the Heritage language advanced the idea of implementing multilingual interventions as an umbrella for a variety of optional programs. This concept relies on evidence-based practice research covering different domains of language: phonology, lexicon, morpho-syntax, and discourse level (pragmatics). These programs focus on the specific linguistic profile of the child, while capitalizing on the multilingual intervention. It is important to adapt the program to the child's needs, which can vary between "Full-bilingualism" to "Multicultural Monolingual" approaches (Barrera 1993). As different studies showed, the intervention can be delivered in various formats: full inclusion, partial inclusion, and special education settings. Whereas intervention in the Societal language supports development of the Societal language only, multilingual intervention provides a child with special needs the chance to maintain both languages and to function in various settings throughout life. Thus, educational policies should encourage the Heritage language and multilingual interventions for these children. Training specialists to provide intervention in the Heritage language should become a priority for policy makers. This will support improving the social and linguistic development of children with special needs.

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## Cross-References

- ▶ [Caregivers' Linguistic Interaction in Early Language Learning and Education](#)
- ▶ [Cognition and Young Learners' Language Development](#)
- ▶ [Vocabulary Development in Early Language Education](#)

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