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RESEARCH TIMELINE

Specific learning difficulties in second language learning and teaching

Judit Kormos

Department of Linguistics and English Language, Lancaster University, UK
Email: j.kormos@lancaster.ac.uk

Introduction

Individual differences that have an impact on the processes and outcomes of second language (L2) learning have been thoroughly investigated; but, until recently, the study of language learners with additional needs was at the periphery of both second language acquisition (SLA) and language teaching pedagogy (e.g. Nijakowska, 2010*; Kormos & Smith, 2012; Kormos, 2017*). Specific learning difficulties (SLDs), which affect between 5 and 15% of the population (Drabble, 2013), often have an impact on how additional languages are acquired. Therefore, in order to create an inclusive language learning context and set up effective instructional programmes, it is essential to understand how children with SLDs develop their competence in additional languages.

Specific learning difficulties are conceptualized differently in various educational models of disabilities. The DEFICIT MODEL views disabilities as deficiencies and a series of obstacles in individuals' lives. The educational consequence of such models is that the main focus of provision is on meeting children's individual needs. In this model, little consideration is given to the barriers that hinder successful learning (Thomas & Loxley, 2007). The INTERACTIONAL VIEW OF DISABILITIES (Frederickson & Cline, 2002; Norwich, 2009) highlights that disabilities impede full participation in society because individuals' difficulties interact with barriers in the environment. Taking this perspective allows us to understand the strengths and weaknesses of language learners with SLDs and the interactions between students and their learning contexts. In many previous studies in the field of SLA, SLDs have been considered similar to cognitive individual difference variables. Consequently, many of these studies have been either implicitly or explicitly based on deficit models of disability. This type of research has mostly focused on individual learners and the effectiveness of instructional programmes specifically designed for language learners with SLDs (e.g. Pfenninger, 2015*). Studies conducted in this paradigm have tended to use questionnaire surveys and assessment tests in L1 and L2, which were administered to language learners with SLDs to compare their disposition to learning (e.g. motivation: Kormos & Csizér, 2010*; anxiety: Piechurska-Kuciel (2008)* and language performance (e.g. Sparks, Ganschow, & Pohlman, 1989*; Helland & Kaasa 2005*). Research that has examined the processes of learning additional languages from the learners' own perspectives remains scarce. Furthermore, studies that view language learners with SLDs as a diverse group interdependent with the social and instructional context are rare and primarily rely on interview data (e.g. Kormos, Csizér, & Sarkadi, 2009*; Csizér, Kormos, & Sarkadi, 2010*). The barriers present in current language teaching practices and educational policies have remained largely under-researched (for exceptions, see Abrams, 2008; Cobb, 2010*). However, recently, attention has turned to the investigation of language teachers' self-efficacy, attitudes and beliefs on inclusive teaching practices (e.g. Kormos & Nijakowska, 2017), content knowledge and professional training needs (e.g. Nijakowska, 2014), and inclusive instructional practices (e.g. Kahn-Horwitz, 2015, 2016; Russak, 2016). This is an important

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area of research, as Csizér et al.'s 2010* study highlights the significant role teacher attitudes, practices and expertise play in the language learning experience of dyslexic students.

Different conceptualizations of SLDs also result in the fact that labels used to describe SLDs vary in different geographical and professional contexts. The 5th edition of the *Diagnostic and statistic manual of mental disorders of the American Psychiatric Association* (DSM-5 APA, 2013) uses the term SPECIFIC LEARNING DISORDER. In psychological research and legislation in Canada, Australia and the United Kingdom, the terms LEARNING DISABILITY and LEARNING DIFFICULTY are applied. The labels LEARNING DISORDER and LEARNING DISABILITY are appropriate within the deficit model of disability where the emphasis is on discovering the exact nature and underlying causes of SLDs. In this paper, I will use the term SPECIFIC LEARNING DIFFICULTY, which is in line with the interactional view of disabilities. This will help us explore how individuals' characteristics and obstacles in the educational context interact with – and impact on – processes of multilingual language development. In this research timeline, I will use the definition of SLDs provided by DSM-5 (APA, 2013) because it is one of the most widely accepted and best empirically supported conceptualizations of SLDs. DSM-5 groups various sub-types of SLDs, such as dyslexia (word-level reading difficulty) and dyscalculia (mathematics disability), under the joint umbrella term of SLDs. This acknowledges the large overlap between these types of learning difficulties. It also creates sub-categories of SLDs, two of which are particularly relevant for language learning: 'specific learning disorder in reading' and 'specific learning disorder in written expression'. Within SLDs in reading, DSM-5 distinguishes word-level decoding problems (dyslexia) and higher-level text comprehension problems (specific reading comprehension impairment) (see also Cain, Oakhill, & Bryant, 2004). SLD in writing comprises problems with spelling, punctuation and grammatical accuracy, and clarity and organization of written expression. In some countries, Attention Deficit and Hyperactivity Disorder (ADHD) is also considered to be an SLD (e.g. in the UK). In DSM-5 it is classified separately from specific learning disorders and is listed under neurodevelopmental disorders, but its description is immediately followed by SLDs to signal their overlapping features. As the name suggests, the two major features of ADHD are inattention and hyperactivity. ADHD can also be the cause of learning and literacy-related difficulties. In this research timeline, I have included existing studies on language learners with ADHD (e.g. Sparks, Ganschow, & Patton). Where studies involved participants with more generalized SLDs, I apply the term 'SLD', but where research was conducted specifically on language learning with dyslexia, I use the term 'dyslexia'.

The aim of this article is to provide a timeline of studies that have addressed the issue of the role of SLDs in L2 development and teaching and to show how research on this topic has evolved over time. To this end, the timeline begins with early studies that examined the relationship between language learning difficulties, L2 learning aptitude and SLDs. Not long after awareness of the role of SLDs in learning additional languages had been raised, researchers also started to investigate the effectiveness of various instructional programmes to enhance the L2 skills of learners of additional languages. Early research in this field was primarily conducted by cognitive psychologists who applied diagnostic tools and remedial teaching techniques applied in first language (L1) literacy education. A large number of these studies, many of which can be placed within the deficit model of disabilities, did not specifically focus on SLDs but examined broader samples of L2 learners in which predictors of L1 literacy skills were normally distributed. These studies have analysed the role of underlying cognitive predictors on L2 literacy outcomes and produced important results on how SLDs can be identified in multilingual children in various contexts (for an overview, see Geva & Wiener, 2014; Kormos, 2017*). The history of research on SLDs in the field of SLA and language teaching only spans the last three decades. In this overview, I focus on three key issues: (1) the cognitive and (2) affective impact of SLDs on L2 learning processes and outcomes and (3) teaching languages to students with SLDs. Due to the relatively large number of theoretical and empirical studies that have addressed these issues, it is not possible, and also not intended, to provide a comprehensive account of all individual studies in these three areas. Therefore, the timeline almost exclusively contains studies where participants had an official identification of their SLDs and excludes a large amount of research where the contribution of various underlying cognitive and linguistic factors in L2 development was examined in normally distributed samples. This timeline does not include studies on the identification of SLDs in multilingual speakers (for an overview, see Geva & Wiener, 2014) and

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research on how the L2 skills of learners with SLDs can be assessed (for an overview, see Kormos, 2017*). In this timeline, studies are categorized according to the following themes:

1. The cognitive effects of SLDs on L2 learning processes and outcomes
   - **A.** Theoretical overview
   - **B.** Relationship between language learning difficulties and SLDs
   - **C.** Language learning aptitude and SLDs
   - **D.** The effect of SLDs on L2 production and comprehension
2. Affective factors in the language learning processes and outcomes of individuals with SLDs
   - **A.** Language learning motivation of students with SLDs
   - **B.** Anxiety and SLDs
3. Teaching languages to students with SLDs
   - **A.** Pedagogical overview
   - **B.** Studies on the effectiveness of multi-sensory instruction
   - **C.** Research on inclusive language teaching
   - **D.** Research on the benefits of bilingual education

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Frederickson, N., & Cline, T. (2002). *Special educational needs, inclusion and diversity: A textbook*. Maidenhead, UK: Open University Press.

Geva, E., & Wiener, J. (2014). *Psychological assessment of culturally and linguistically diverse children and adolescents: A practitioner's guide*. New York, NY: Springer.

Kahn-Horwitz, J. (2015). Organizing the mess in my mind: EFL teachers' perceptions and knowledge of English orthography. *Reading and Writing an Interdisciplinary Journal*, *28*(5), 611–631.

Kahn-Horwitz, J. (2016). Providing English foreign language teachers with content knowledge to facilitate decoding and spelling acquisition: A longitudinal perspective. *Annals of Dyslexia*, *66*, 147–170.

Kormos, J., & Nijakowska, J. (2017). Inclusive practices in teaching students with dyslexia: Second language teachers' concerns, attitudes and self-efficacy beliefs on a Massive Open Online Learning Course. *Teaching and Teacher Education*, *68*(1), 30–41.

Kormos, J., & Smith, A.-M. (2012). *Teaching languages to students with specific learning differences*. Bristol, UK: Multilingual Matters.

Nijakowska, J. (2014). Dyslexia in the European EFL teacher training context. In M. Pawlak & L. Aronin (Eds.), *Essential topics in applied linguistics and multilingualism* (pp. 129–154). Heidelberg, Germany: Springer.

Norwich, B. (2009). How compatible is the recognition of dyslexia with inclusive education? In G. Reid (Ed.), *The Routledge companion to dyslexia* (pp. 177–193). London, UK: Routledge.

Russak, S. (2016). Do inclusion practices for pupils with special educational needs in the English as a foreign language class in Israel reflect inclusion laws and language policy requirements? *International Journal of Inclusive Education*, *20*(11), 1188–1203.

Thomas, G., & Loxley, A. (2007). *Deconstructing special education*. Maidenhead, UK: Open University Press.

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Judit Kormos is a Professor of Second Language Acquisition at Lancaster University, UK. She was the chief investigator of a project that explored the foreign language learning processes of dyslexic students in Hungary She is the co-author of *Teaching languages to students with specific learning differences* (2012, Multilingual Matters) and the author of *Understanding the second language learning processes of students with specific learning difficulties* (2017, Routledge). She worked on a

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European Commission sponsored teacher training project in the field of dyslexia and language learning www.dystefl.eu and is the lead educator of the Dyslexia and Foreign Language Teaching Massive Open Online Learning Course offered by FutureLearn. She has also published several research articles on the effect of dyslexia on the process of SLA.

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Year	References	Annotations	Theme
1987	Gajar, A. H. (1987). Foreign language learning disabilities: The identification of predictive and diagnostic variables. *Journal of Learning Disabilities*, *20*(6), 327–330.	This study by **Gajar** is the first to systematically examine the relationship between foreign language learning difficulties and SLDs. In an investigation of a relatively large sample of North-American college students, Gajar found that those with an official SLD diagnosis performed significantly worse on all components of the Modern Language Aptitude Test (MLAT) (Carroll & Sapon, 1959) than students with no SLDs. Her results showed that the paired-associate learning and grammatical sensitivity components of MLAT were predictive of foreign language course grades. Based on this finding, she argued that the MLAT might be a useful diagnostic instrument for language learning difficulties.	**1B, 1C**
1989	Sparks, R., Ganschow, L., & Pohlman, J. (1989). Linguistic coding deficits in foreign language learners. *Annals of Dyslexia*, *39*(1), 177–195.	In this early study, **Sparks et a**l. set out to investigate the characteristics of college students who had such serious difficulties in learning a foreign language that they had to be exempted from their language courses. The analysis of students' cognitive and linguistic profiles showed that these students experienced difficulties in the areas of phonological, semantic and syntactic coding in their L1. Linguistic coding was defined as the use of phonological, syntactic and semantic systems to code information. They recommended the use of a wide range of cognitive and linguistic assessment tools, in addition to MLAT (Gajar, 1987) to establish which students might be at risk of L2 learning difficulties.	**1B**
1991	Sparks, R. L., & Ganschow, L. (1991). Foreign language learning differences: Affective or native language aptitude differences? *Modern Language Journal*, *75*(1), 3–16.	This is the paper usually credited with first proposing the Linguistic Coding Deficit Hypothesis (LCDH) as a primary explanation of failure in L2 learning. **Sparks & Ganschow** argue that the most important reason behind L2 learning difficulties are problems in L1 oral and written language processing, which are caused by reduced phonological awareness. They support their hypothesis with reference to findings in Sparks, Ganschow & Pohlman (1989).	**1A, 1B, 2A**
1991	Sparks, R. L., Ganschow, L., Kenneweg, S., & Miller, K. (1991). Use of an Orton-Gillingham approach to teach a foreign language to dyslexic/learning-disabled students: Explicit teaching of phonology in a second language. *Annals of Dyslexia*, *41*(1), 96–118.	**Sparks et al. (1991)** outline a novel teaching method called Multisensory Structured Language (MSL) Instruction to assist students who are at risk of failing L2 programmes. Their instructional programme is based on four basic principles. (1) They recommend that the language of instruction in the classroom should be the target language, and the L1 of the students should only be used for	**3A**

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Note. Authors' names are shown in small capitals when the study referred to appears in this timeline.

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		grammatical explanations. (2) Activities within lessons should be clearly structured. (3) Teachers should include frequent revision opportunities and (4) should 'emphasize simultaneous writing and pronunciation so that students can "see", "hear" and "do" the language' (p. 107).	
1992	Sparks, R. L., Ganschow, L., Pohlman, J., Skinner, S., & Artzer, M. (1992). The effects of a multisensory, structured language approach on the native and foreign language aptitude skills of at-risk foreign language learners. *Annals of Dyslexia*, *42*(1), 25–53.	**Sparks et al**. launched a ground-breaking investigation into the effects of the MSL approach (Sparks, et al., 1991) on the language learning aptitude and L1 skills of at-risk language learners in the US. At-risk learners included those who had an official diagnosis of SLD or a history of L1 and/or L2 learning difficulties. The findings provided evidence for the positive effect of MSL instruction combined with instructional use of L1 on aptitude and L1 skills.	**1C, 3B**
1993	Geva, E., & Ryan, E. B. (1993). Linguistic and cognitive correlates of academic skills in first and second languages. *Language Learning*, *43*(1), 5–42.	Although this paper's explicit focus is not on SLDs, it has been highly influential in the field. In this article, **Geva & Ryan** propose the common underlying cognitive processes framework, and they argue that a key set of cognitive and linguistic individual difference variables predict academic literacy development in both monolingual and bilingual children. Their framework is based on similar assumptions to Sparks and Ganschow's (1991) LCDH.	**1A**
1995	Ganschow, L., & Sparks, R. (1995). Effects of direct instruction in Spanish phonology on the native-language skills and foreign-language aptitude of at-risk foreign-language learners. *Journal of Learning Disabilities*, *28*(2), 107–120.	This study follows up Sparks, et al.'s (1992) research on the effects of MSL instruction. A group of learners with SLDs participated in an MSL instructional programme in L2 Spanish (Sparks, et al., 1991). Participants with no SLDs, who served as a comparison group, were taught using a communicative approach. Both groups showed improvement in language aptitude measures, but only the SLD group taught with the MSL programme achieved gains in L1 phonological awareness.	**3B**
1997	Crombie, M. A. (1997). The effects of specific learning difficulties (dyslexia) on the learning of a foreign language in school. *Dyslexia*, *3*(1), 27–47.	Crombie carried out one of the first systematic investigations of the writing, reading, listening and speaking skills of L2 learners of French with and without SLDs. Using classroom-based assessment, she found that Scottish primary and secondary students with SLDs performed significantly worse in all four skills than their peers with no identified SLDs. Her findings also highlight the important role of phonological processing in L2 learning.	**1D**

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1998	Sparks, R. L., Artzer, M., Patton, J., Ganschow, L., Miller, K., Hordubay, D. J., & Walsh, G. (1998). Benefits of multisensory structured language instruction for at-risk foreign language learners: A comparison study of high school Spanish students. *Annals of Dyslexia*, *48*, 239–270.	This study, which examines the effects of MSL instruction (Sparks, et al., 1991) on the L2 development of at-risk learners of Spanish in the USA, is a follow-up to Sparks, et al. (1992). A remarkable finding of the study is that the at-risk-group, which received MSL instruction, showed a comparable level of L2 attainment as the not-at-risk group and outperformed the other at-risk groups which were taught via the communicative approach. These results are the first to provide evidence for the effectiveness of the MSL approach in the development of L2 skills.	**3A**
1999	Sparks, R. L., Philips, L., Ganschow, L., & Javorsky, J. (1999). Comparison of students classified as LD who petitioned for or fulfilled the college foreign language requirement. *Journal of Learning Disabilities*, *32*(5), 553–565.	**Sparks et al.** present an investigation of the differences between American college students with SLDs who were exempted from foreign language study and those who were not identified as having SLDs disability but were low-achievers in foreign language courses. They show that many of the students in their context received official certification of their SLDs due their L2 learning problems, and diagnoses were often based solely on the basis of MLAT tests (Gajar, 1987). Their results highlight that there are no major differences in aptitude between students who are exempted from L2 learning and those who take L2 courses that would warrant exemption from learning additional languages (Sparks, et al., 1989).	**1B, 1C**
2000	Downey, D. M., Snyder, L. E., & Hill, B. (2000). College students with dyslexia: Persistent linguistic deficits and foreign language learning. *Dyslexia*, *6*(1), 101–111.	The first study reported by **Downey, Snyder & Hill** replicates findings by Gajar (1987) and demonstrates significant differences in language learning aptitude between US college students with and without SLDs (see also Sparks, et al., 1991). The second study offers additional evidence for the benefits of MSL instruction (Sparks, et al., 1991) in teaching Latin in a North-American college context.	**1B, 3C**
2000	Schneider, E., & Ganschow, L. (2000). Dynamic assessment and instructional strategies for learners who struggle to learn a foreign language. *Dyslexia*, *6*(1), 72–82.	In this paper, **Schneider & Ganschow** modify the MSL teaching procedures outlined in Sparks, et al. (1991). They complement the MSL approach with principles of dynamic assessment. They emphasize the importance of explicit language knowledge and encourage the use of guided-discovery procedures. They attribute great importance to the development and self-monitoring skills of L2 learners with SLDs.	**3A**
2000	Miller-Guron, L., & Lundberg, I. (2000). Dyslexia and second language reading: A second bite at the apple? *Reading and Writing*, *12*(1), 41–61.	This is a pioneering study that investigated a group of dyslexic Swedish L1 speakers who expressed a clear preference for reading in English as opposed to reading in their L1 Swedish. **Miller-Guron & Lundberg** compared this group's performance on a variety of L1 and L2 phonological awareness, word- and text-level reading measures to dyslexic and non-dyslexic Swedish adults who had no preference for reading in English. The two groups of dyslexic readers demonstrated inferior performance in the L1 tests compared to their non-dyslexic	**1B. 1D, 2A**

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Year	References	Annotations	Theme
		peers. However, the dyslexic group that preferred reading in English scored significantly higher than the other dyslexic group in all the reading measures and was not significantly different from the non-dyslexic group. Miller-Guron & Lundberg explain these surprising results with reference to alternative reading strategies used by the dyslexic students who preferred reading in English and possible affective factors that account for more exposure to English texts.	
2005	Helland, T., & Kaasa, R. (2005). Dyslexia in English as a second language. *Dyslexia*, *11*(1), 41–60.	**Helland & Kaasa (2005)** developed an assessment tool to evaluate dyslexia-related L2 language learning difficulties in Norway. The innovative feature of their test is that it unites expertise from the fields of special education, psychology and SLA research. Dyslexic children were found to score lower on spelling, translation and reading skills in L2 English than non-dyslexic participants. Within the dyslexic group, those who did not have impairments in language comprehension (D+ group) performed better than dyslexic participants with language comprehension difficulties (D– group) on all L2 tests, except for spelling. Children in the D+ group did not differ from non-dyslexic participants in spoken L2 production and oral language comprehension. Their study, like that of Miller-Guron & Lundberg (2000), shows that there is variation among dyslexic language learners in L2 learning outcomes.	**1D**
2005	Ho, C. S. H., & Fong, K. M. (2005). Do Chinese dyslexic children have difficulties learning English as a second language? *Journal of Psycholinguistic Research*, *34*(1D), 603–618.	This the first study that systematically examines the impact of dyslexia on English language skills of Chinese children. **Ho & Fong** compared the English vocabulary, phonological and orthographic processing, and reading skills of young dyslexic and non-dyslexic L2 learners in Hong Kong. They found that dyslexic children scored significantly lower on all the L2 English vocabulary, reading, phonological and orthographic tasks than their non-dyslexic peers. Furthermore, their results indicated strong links between L1 Chinese reading and phonological skills and L2 skills but no relationship between phonological processing skills and reading in L1 Chinese. They argued that Chinese dyslexic children's phonological processing difficulties might account for L2 learning difficulties, while visual-orthographic challenges might be the cause of reading problems in L1 Chinese (Chung & Ho, 2010).	**1D**

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2008	Abrams, Z. (2008). Alternative second language curricula for learners with disabilities: Two case studies. *Modern Language Journal*, *92*(3), 414–430.	In this case study, **Abrams** investigates how the use of alternative assessment tasks and weekly tutorial sessions assists a college student with SLD to successfully complete a German course. Abrams points out that the organization and co-ordination of the additional support and alternative assessment tasks require considerable resources. She highlights the need for close collaboration among the teaching team and learning support services.	**3C**
2008	Ndlovu, K., & Geva, E. (2008) Writing abilities in first and second language learners with and without reading disabilities. In J. Kormos & E. H. Kontra (Eds.), *Language learners with special needs: An international perspective* (pp. 36–62). Bristol, UK: Multilingual Matters.	**Ndlovu & Geva**'s study is unique in its focus on the writing skills of mono- and bilingual children with and without SLDs in the Canadian context. Their results show that both mono- and bilingual children with SLDs have difficulty with spelling, punctuation and the monitoring of syntax, as well as with higher level aspects of writing such as coherence and cohesion.	**1D**
2008	Kormos J., & Kontra, H. E. (2008). Hungarian teachers' perceptions of dyslexic language learners. In J. Kormos & E. H. Kontra (Eds.), *Language learners with special needs: An international perspective* (pp. 189–213). Bristol, UK: Multilingual Matters.	**Kormos & Kontra**'s study is one of the first qualitative investigations in the field. They interviewed L2 and special education teachers and speech therapists involved in a novel instructional programme for dyslexic language learners in Hungary and analyzed their perceptions of the effects of dyslexia in classroom-based L2 learning. The interview data revealed that teachers felt that dyslexia had an effect on every aspect of classroom-based L2 learning, not just on spelling and reading performance. On the basis of their findings, the authors draw up a model of teachers' perceptions of dyslexia in the process of L2 learning and demonstrate how inclusive practices can be implemented based on their model.	**1D, 3D**
2008	Nijakowska, J. (2008). An experiment with direct multisensory instruction in teaching word reading and spelling to Polish dyslexic learners of English. In J. Kormos & E. H. Kontra (Eds.), *Language learners with special needs: An international perspective* (pp. 130–157). Bristol, UK: Multilingual Matters.	Although a small-scale investigation, Nijakowska's research is the first one to systematically examine the effect of MSL instruction (Schneider & Ganschow, 2000; Sparks, et al., 1991) on the development of orthographic and word-decoding skills of L2 learners with SLDs. This study is also the first to use a pre-test to assess the initial level of L2 skills before an MFL intervention. A remarkable finding of the study is that a group of Polish L2 learners with SLDs who were taught with the MFL approach significantly outperformed a control group with no SLDs in an L2 word-reading and spelling post-test.	**3A**
2008	Piechurska-Kuciel E. (2008). Input, processing and output anxiety in students with symptoms of developmental dyslexia. In J. Kormos & E. H. Kontra (Eds.), *Language learners with special needs. An international perspective* (pp. 86–109). Bristol, UK: Multilingual Matters.	**Piechurska-Kuciel**'s (2008) study remains the only one to date that examines the role of anxiety in the language learning processes of L2 learners of English with SLDs. Her results show that Polish students with SLD symptoms exhibit higher levels of L2 anxiety in most stages of language processing in comparison to students who report no dyslexic symptoms. The findings also reveal that, with the progression of time,	**2B**

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		L2 learners with SLD symptoms become increasingly anxious when comprehending input and producing output in another language.	
2008	Sparks, R. L., Ganschow, L., & Patton, J. (2008). L1 and L2 literacy, aptitude, and affective variables and as discriminators among high- and low-achieving L2 learners. In J. Kormos & E. H. Kontra (Eds.), *Language learners with special needs. An international perspective* (pp. 11–35). Bristol, UK: Multilingual Matters.	**Sparks, Ganschow & Patton**'s research is one of the few studies that focuses on the L1 and L2 literacy skills and cognitive abilities of learning disabled students and students with ADHD. Their findings indicate that low-achieving and high-achieving SLD students and those with ADHD differ in their writing skills in L1 and L2 word reading skills and foreign language aptitude. Importantly, their results also show that if these variables are used to classify learners, participants with ADHD tend to be placed among high-achievers.	**1B, 1C, 1D**
2009	Kormos, J., Csizér, K., & Sarkadi, Á. (2009). The language learning experiences of students with dyslexia: Lessons from an interview study. *International Journal of Innovation in Language Learning and Teaching*, *3*(2), 115–130.	**Kormos, Sarkadi & Csizér**'s (2009) interview study is the first to use qualitative research tools to investigate the language learning experiences of students with SLDs. Hungarian language learners give an account of several classroom, teacher and group-level factors that contribute to their anxiety in L2 learning. Assessment, especially the high emphasis on accuracy and spelling in written work, teachers' negative attitudes to SLDs and a lack of willingness to accommodate learners with SLDs in the classroom are reported as the most important causes of anxiety.	**2B, 3C**
2010	Chung, K. K. H., & Ho, C. S. H. (2010). Second language learning difficulties in Chinese children with dyslexia: What are the reading-related cognitive skills that contribute to English and Chinese word reading? *Journal of Learning Disabilities*, *43*(2), 195–211.	This study is a follow-up to Ho & Fong (2005) and also examines the reading difficulties of dyslexic Chinese children learning L2 English. **Chung & Ho**'s results showed that children identified with dyslexia in their L1 Chinese had significant difficulties in both phonological awareness and word reading in L2 English. In accordance with Sparks & Ganschow's (1991) LCDH and Geva & Ryan's (1993) common underlying cognitive processes framework, they found a strong link between L1 Chinese and L2 English phonological awareness, orthographic skills and word-reading. However, phonological awareness predicted only L2 English word-reading skills but not L1 Chinese word-level decoding. They argued that the findings provide evidence for Ziegler and Goswami (2005)'s psycholinguistic grain-size theory. This theory posits that languages differ with regard to the size of the unit within a word that can reliably predict sound–spelling associations units and the contributions these various grain-sized units make to reading achievement.	**1B, 1D**

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2010	Csizér, K., Kormos, J., & Sarkadi, Á. (2010). The dynamics of language learning attitudes and motivation: Lessons from an interview study of dyslexic language learners. *Modern Language Journal*, *94*(3), 470–487.	This interview study, which investigates the language learning motivation of students with dyslexia, is an extension of Kormos, et al. (2009). Participants were found to have three main goals for language learning: international posture, instrumental orientation and cultural orientation. The interviewees' negative attitudes to L2 English, which underwent changes in the course of their learning history, were mainly related to their SLD. However, the participants often demonstrated positive attitudes to languages other than English. A large group of participants with SLDs were found to be demotivated and made low investment in language learning. This result was explained by persistent difficulties in language learning and a lack of support in the Hungarian educational setting investigated.	**2A**
2010	Kormos, J., & Csizér, K. (2010). A comparison of the foreign language learning motivation of Hungarian dyslexic and non-dyslexic students. *International Journal of Applied Linguistics*, *20*(2), 232–250.	To date, this is the only large-scale questionnaire survey of the language learning motivation of dyslexic learners of English and German. **Kormos & Csizér** found that primary school students in Hungary displayed more negative attitudes to language learning than their non-dyslexic peers, regardless of the language they studied. Dyslexic children also had a negative self-concept in the domain of language learning (Csizér et al., 2010). Their study revealed that language learning experience, which was strongly associated with evaluations of teachers' instructional practices and behaviours, was an important predictor of language learning attitudes for all participants, regardless of dyslexia status (Kormos et al., 2009).	**2A**
2010	Lindgrén, S.-A., & Laine, M. (2011). Cognitive linguistics performances of multilingual university students suspected of dyslexia. *Dyslexia*, *17*(2), 184–200.	In this study, which was conducted with bilingual Swedish and Finish university students, **Lindgrén & Laine** found that the accuracy of reading was affected by dyslexia to a similar extent in both languages. However, dyslexic bilingual students' reading speed did not differ significantly from that of their non-dyslexic peers in either Swedish or Finnish.	**1D**
2010	Nijakowska, J. (2010). *Dyslexia in the foreign language classroom*. Bristol, UK: Multilingual Matters.	This is the first book-length publication on the effects of dyslexia on the processes of learning additional languages in classroom contexts. Nijakowska provides a detailed overview of research supporting the LCDH (Sparks & Ganschow, 1991) and the manifestations of dyslexic-type reading and writing difficulties in languages with different orthographic systems. The book includes an extended discussion of the findings of Nijakowska (2008) and outlines recommendations for teachers on how to implement MSL teaching methods (Sparks et al., 1991) to enhance dyslexic learners' orthographic and pronunciation skills.	**1A, 1B, 3A**

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2010	Soroli, E., Szenkovits, G., Ramus, F., Fawcett, A., & Vicari, S. (2010). Exploring dyslexics' phonological deficit III: Foreign speech perception and production. *Dyslexia*, *16*(3), 318–340.	This study investigated how dyslexic and non-dyslexic French native speakers perceive and produce sounds and lexical stress in L2 Korean. Overall, the results indicated only a small number of differences between dyslexic and non-dyslexic students in sound perception and production. However, in tasks on lexical stress that presented higher short-term memory load, non-dyslexic students outperformed those with dyslexia.	**1D**
2013	Geva, E., & Massey-Garrison, A. (2013). A comparison of the language skills of ELLs and monolinguals who are poor decoders, poor comprehenders or normal readers. *Journal of Learning Disabilities*, *46*(5), 387–401.	**Geva & Massey-Garrison** (2013) examined the factors that can explain reading outcomes of L1 and L2 speaking children in Canada. Their participants included monolingual and bilingual poor decoders (i.e. children with low word-decoding ability), poor comprehenders (children with low reading comprehension scores) and normal readers. The findings revealed that phonological awareness and working memory were significant predictors of word- and text-level comprehension problems in both L1 and L2 children. The study also showed that both poor-comprehenders and poor decoders, regardless of L1 status, demonstrated oral language comprehension difficulties.	**1B, 1D**
2013	Palladino, P., Bellagamba, I., Ferrari, M., & Cornoldi, C. (2013). Italian children with dyslexia are also poor in reading English words, but accurate in reading English pseudowords. *Dyslexia*, *19*(2), 165–177.	This study sought to answer the question of how Italian dyslexic children's L2 word reading and pseudo-word reading skills differ from those of their non-dyslexic peers. In line with previous studies (Helland & Kaasa, 2005), **Palladino et al.** found that dyslexic L2 learners performed below the level of non-dyslexic participants. However, when it came to non-word reading, dyslexic learners were neither significantly slower nor less accurate than non-dyslexic ones. Based on these findings, Palladino et al. argued against the assumption that dyslexic children 'have general difficulties in learning an L2 and should be exonerated by every form of written material processing or even from the whole study of L2' (p. 174) (Sparks et al., 1999).	**1D**
2014	Borodkin, K., & Faust, M. (2014). Native language phonological skills in low proficiency second language learners. *Language Learning*, *64*(1), 132–159.	**Borodkin & Faust** examined phonological and cognitive differences between low-achieving L2 learners and students who had a formal diagnosis of their SLD. Their results showed that in the domain of L1 phonological awareness and rapid-word naming in L1, there are significant differences between low-achieving students and L2 learners who hold a formal diagnosis of dyslexia. These two groups, however, were significantly different from the high-achieving group in terms of phonological short-term memory and retrieving phonological word forms in L1 in an artificially induced tip-of-the-tongue task.	**1B**

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2014	de Bree, E., & Unsworth, S. (2014). Dutch and English literacy and language outcomes of dyslexic students in regular and bilingual secondary education. *Dutch Journal of Applied Linguistics*, *3*(1), 62–81.	This study aimed to find an answer to the question of how bilingual education affects the L1 and L2 literacy development of dyslexic and non-dyslexic secondary school children. Participants in a bilingual education programme and those in a traditional instructed foreign language setting completed word-level reading and spelling and lexical retrieval tasks in L1 Dutch and L2 English. Dyslexic students in the bilingual education programme outperformed the dyslexic participants in traditional instructional programmes in L2 word reading and lexical tasks, but showed no differences in L1 literacy measures. Although the study had a small sample size and the effect of some intervening variables such as the initially higher language proficiency of students in the bilingual programme cannot be excluded, the study provided initial evidence for the beneficial nature of bilingual education for dyslexic language learners.	**3D**
2015	Cobb, C. (2015). Is French immersion a special education loophole? … And does it intensify issues of accessibility and exclusion? *International Journal of Bilingual Education and Bilingualism*, *18*(2), 170–187.	**Cobb**'s case study describes a parent's efforts to ensure that her children with SLD are adequately supported in a bilingual programme. The findings demonstrate insufficient assistance for students with additional needs in the Canadian French immersion context.	**3C**
2015	Pfenninger, S. E. (2015). MSL in the digital age: Effects and effectiveness of computer-mediated intervention for FL learners with dyslexia. *Studies in Second Language Learning and Teaching*, *5*(1), 109–133.	**Pfenninger** made an important contribution to the series of studies that investigate the impact of the MSL approach on L2 development (Nijakowska, 2008; Sparks, et al., 2001; Schneider & Ganschow, 2000). The novelty of her study lies in the use of a computer-based instructional programme. Her study is also unique in its focus on young multilingual language learners in a Swiss context where the standard variety of German is the children's L2 and English is the third language they acquire. The computer-based intervention programme provided explicit teaching on how to read and spell words in English following the principles of the MSL approach. Findings showed that MSL instruction was beneficial for both students with SLDs and those with no SLD. Students in the experimental groups improved significantly in a number of L2 German and L3 English skills, but participants with SLDs benefited significantly more from the MSL instruction than did those with no SLD.	**3C**
2016	Pfenninger, S. E. (2016). Taking L3 learning by the horns: Benefits of computer-mediated intervention for dyslexic school children. *Innovation in Language Learning and Teaching*, *10*(2), 220–237.	This follow-up study to Pfenninger (2015) investigated the effect of MSL instruction on motivation, self-confidence and the use of learning strategies (Nijakowska, 2008; Sparks et al., 2001; Schneider & Ganschow, 2000). MSL instruction was shown to lead to increased self-confidence and more frequent use of learning strategies by young multilingual children with SLDs.	**3C**

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2016	Farukh, A., & Vulchanova, M. (2016). L1, quantity of exposure to L2 and reading disability as factors in L2 oral comprehension and production skills. *Learning and Individual Differences*, *50*(2), 221–233.	This study, which was conducted with Urdu L1-speaking children in Pakistan, is similar to de Bree & Unsworth's (2014) research in its focus on the impact of English medium instruction (EMI) on L1 and L2 literacy skills. Using the English L2 Dyslexia Test (Helland & Kaasa, 2005) as well as Urdu L1 literacy measures, **Farukh & Vulchanova** found that children at risk of reading difficulties in EMI schools scored higher on L2 tasks than both at-risk children and those with no risk of reading difficulties in a traditional foreign language instructed context in Urdu schools. Although the higher socio-economic status and more extensive outside school exposure to English of children in EMI schools may also account for these findings, this study also highlights the potentially positive impact of bilingual education programmes for students with dyslexic-type reading difficulties.	**3D**
2016	Palladino, P., Cismondo, D., Ferrari, M., Ballagamba, I., & Cornoldi, C. (2016). L2 spelling errors in Italian children with dyslexia. *Dyslexia*, *22*(2), 158–172.	**Palladino et al.** examined how the L2 spelling skills of Italian children with dyslexia differ from those who have general L2 learning difficulties but no identified dyslexia and children with neither L1 literacy-related nor L2 learning difficulties. Their results showed that the dyslexic children made significantly more spelling errors than the participants in the other two groups and their mistakes contained more phonologically implausible spelling patterns. In the dyslexic group, spelling of short words was less accurate than that of longer words and errors occurred more frequently at the end of words than at the beginning.	**1D**
2017	D'Angelo, N., & Chen, X. (2017). Language profiles of poor comprehenders in English and French. *Journal of Research in Reading*, *40*(2), 153–168.	This study investigated the reading comprehension problems of poor comprehenders (Geva & Massey-Garrison, 2013) in a bilingual immersion setting in Canada. **D'Angelo & Chen** found that children who had difficulties in reading comprehension had smaller vocabulary sizes in both their L1 English and L2 French than children with average and good comprehension skills. Poor comprehenders did not demonstrate difficulties in a test assessing the semantic depth of vocabulary knowledge in L1 English, but scored significantly lower on L2 French than their peers with average and good comprehension skills. Lower levels of morphological awareness and inferential skills in L2 French were also characteristics of poor comprehenders.	**1B, 1D**

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2017	Kormos, J. (2017). *The second language learning processes of students with specific learning difficulties.* New York, NY: Routledge.	This research monograph offers a comprehensive overview of the L2 learning processes of students with SLDs and relates them to the development of reading L2 literacy skills. **Kormos** discusses how cognitive and affective factors impact on the L2 development of language learners with SLDs. The book summarizes and critically evaluates available research findings on the effectiveness of pedagogical intervention programmes. A novel feature of the book is that it views learners with SLDs in their social and educational contexts and elaborates how barriers in these contexts can be overcome.	**1A, 1B, 1C, 1D 2A, 2B, 3B, 3C**
2017	Van Viersen, S., de Bree, E. H., Kalee, L., Kroesbergen, E. H., & De Jong, P. F. (2017). Foreign language reading and spelling in gifted students with dyslexia in secondary education. *Reading and Writing*, *30*, 1173–1192.	This study explored the combined role of giftedness and dyslexia in L1 and L2 spelling and reading. Dutch dyslexic and typically developing secondary school students were classified as gifted or non-gifted and their performance on measures of word-reading and orthographic knowledge were compared in L1 Dutch and L2 English. Gifted dyslexic participants outperformed their non-gifted dyslexic peers on both L1 and L2 measures. Moreover, in L2 English their scores approximated to the achievement of typically developing students. Similar to Miller-Guron & Lundberg (2000), **Van Viersen, et al.** argue that gifted dyslexic readers use alternative reading strategies in L2 English, such as sight-word reading or processing words in larger orthographic units (see also Bekebrede et al., 2009).	**1D**
2017	Zhang, J., & Shulley, L. (2017). Poor comprehenders in English-only and English language learners: Influence of morphological analysis during incidental word learning. *Journal of Research in Reading*, *40*(2), 169–183.	**Zhang & Shulley** investigated how monolingual and bilingual children with varying levels of text comprehension abilities (Geva & Massey-Garrison, 2013) infer the meanings of unknown words in written texts. Their results showed that regardless of language status, poor-comprehenders had difficulties with using morphological information in deciphering unfamiliar words while reading.	**1D**
2018	Košak-Babuder, M., Kormos, J., Ratajczak, M., & Pižorn, K. (2018). The effect of read-aloud assistance on the text comprehension of dyslexic and non-dyslexic English language learners. *Language Testing*, *36*(1), 51–75.	This study is the first to examine the differential effect of read-aloud assistance on the L2 language comprehension scores of students with and without dyslexia identification. Slovenian learners of English with and without identified dyslexia completed two language comprehension tasks in a reading-only condition, one task with read-aloud assistance, and one task in listening-only mode. The reading texts differed in reading difficulty indices. The dyslexic participants scored significantly lower than non-dyslexic learners in every mode, except for the read-aloud condition in the case of difficult texts (Crombie, 1997; Helland & Kaasa, 2005). In the case of easier texts, both dyslexic and non-dyslexic students benefited from read-aloud assistance. The bi-modal presentation of the more difficult texts, however, improved the comprehension scores of dyslexic L2 participants more than those of non-dyslexic participants.	**1D, 3B**