

## TEACHING GERMAN AS FOREIGN LANGUAGE TO ELEMENTARY STUDENTS WITH DEVELOPMENTAL DYSLEXIA: A LANGUAGE INTERVENTION APPROACH FOR MONOLINGUAL AND BILINGUAL LEARNERS

**Ifigeneia Dosi**

Democritus University of Thrace

GREECE

idosi@helit.duth.gr

**Eleni Dolaptoglou**

Democritus University of Thrace

GREECE

elendola1@helit.duth.gr

### ABSTRACT

The aim of the present paper is to propose to foreign language teachers a language intervention approach for monolingual and bilingual elementary students with developmental dyslexia. A learner with developmental dyslexia faces difficulties in processing written language (reading and writing) including problems in oral language. In addition, students with dyslexia experience difficulties in short-term and long-term memory, in organization and processing of information, along with issues in phonological decoding. Hence, phonological, syntactic and semantic deficits in first and any other foreign language learning are present. More problems arise when the teacher must manage mixed classes with dyslectic and typically developing learners. An effective language intervention must exploit differentiated instruction, multisensory approach, along with visualization, direct instruction and the use of technology. The current intervention utilizes previous research findings and offers a 4-hour teaching plan for monolingual and bilingual elementary students with dyslexia (A1 level), who learn German as a foreign language and attend mixed classes of public schools.

**Keywords:** developmental dyslexia, foreign language teaching, language intervention approach, bilingualism

### INTRODUCTION

Learners with dyslexia struggle with phonological awareness, learning new words, processing and producing morphosyntax (Kormos & Smith 2012). These issues are also accompanied with low memory and metalinguistic abilities. The linguistic along with the cognitive deficit lead to deviations in any other second or foreign language learning (Brezing 2002, Sparks 2006). Bilingual dyslectic students face also similar issues, since, irrespective of their disorder, they may have lower vocabularies and issues in morphosyntax that may arise from cross-linguistic transfer from their dominant to their weak language (for a review see Dosi 2016). Nevertheless, dyslectic bilinguals seem to have better phonological awareness abilities (Campbell & Sais 1995) and – if they are biliterate bilinguals – they also have higher cognitive abilities (Dosi et al. 2016, Dosi & Papadopoulou 2019). Notwithstanding, previous studies have shown that bilingual students with dyslexia have similar performance to monolingual students with dyslexia (Abu Rabia & Siegel 2002). Due to the difficulties that dyslectic monolingual and bilingual students encounter, they often feel discouraged to learn a new language (Lawrence 2009). The language teacher must consider all the issues and plan an appropriate lesson that is suitable for their needs. Plenty of approaches are proposed for dyslectic students, but the most successful has found to be differentiated instruction. By

implementing differentiated instruction, teacher can manage mixed classes and learners with different needs (Berninger & Wolf 2009). Moreover, multisensory approach has found to help dyslectic students, since it attracts their attention and awakens their interest. In addition, repetition, in a more playful way, compensates for their low memory abilities (Kormos & Smith 2012). Direct instruction is also very useful for these students, since dyslectic learners feel safer with explicit instruction and feedback (Ganschow & Sparks 1995). Finally, the implementation of the use of technology is vital in learning process, especially for dyslectic students, since it increases their interest, motivation and decreases their stress and their low self-esteem (Schneider & Crombie 2003).

## LITERATURE REVIEW

Learners with dyslexia face issues in foreign language learning. The problems that exist in their first language are also present in any other language that they learn (Brezing 2002, Sparks 2006). More specifically, they encounter difficulties with new vocabulary learning, due to their low working memory abilities, their low attention span, their poor organization abilities and their deviant phonological encoding (Crombie 1997, 2000, Crombie & McColl 2001, Schneider & Crombie 2003, Kormos & Smith 2012). Dyslectic students also find it hard to comprehend and process some morphosyntactic features; especially when they are more complex (Kormos & Smith 2012). For them it is also difficult to use metalinguistic terms (e.g. subject, verb, object/SVO), because they often do not know these terms in their first language. Therefore, language teacher must introduce those terms and possibly visualize them with colors in order to incorporate them in language teaching (Pinna & Deiana 2018). The most well-known issues of dyslectic learners lie in the comprehension and production of written language (Grabe 2009, Ndlovu & Geva 2008). Bilingual dyslectic students face also similar issues in reading and writing (Abu Rabia & Siegel 2002); despite the fact that they have smaller vocabularies and errors in morphosyntax due to the transfer from their one language to the other (if they are dominant bilinguals; for review cf. Dosi 2016), but better phonological awareness abilities (Campbell & Sais 1995) and higher cognitive abilities (in the case they are biliterate; cf. Dosi et al. 2016, Dosi & Papadopoulou 2019). The aforementioned difficulties of monolingual and bilingual speakers with dyslexia are detected more intensively in foreign language learning. A parameter that affects the performance of dyslectic students and may lead to a more successful learning is the transparency of language (Sparks 2001, 2006, Sparks et al. 2008). Transparent languages, such as Greek, Italian, Spanish and German, are easier in learning, since they have almost one-to-one correspondence between phonemes and graphemes. Regarding previous studies transparency of language enhances learner's motivation and boosts their self-esteem, which is often low due to learners' performances (Lawrence 2009).

Teaching approaches are of paramount importance, since they can awake their interest, boost dyslectic learners' self-esteem and motivation. Differentiated instruction is essential for learners with different profiles and needs (Berninger & Wolf 2009). More specifically, language teachers must have the flexibility to vary their material and the activities that they give to their students, which means that they can give to more advanced students more challenging exercises and to weaker students less demanding ones. It would also be good for language teachers to accept different types of answers depending on the students' abilities and learning profile. When there is, for example,

an exercise that tests students' listening ability, teacher could accept all types of answers; some students can give their answer in written form, others can draw the answer and others can record it. On the other hand, in group work, students who are good readers and write well can present the reading and writing part, while dyslectic students can undertake an oral presentation or even engage in something more artistic. Another useful technique for dyslectic learners is direct instruction. Thus, dyslectic learners feel more comfortable with explicit instruction and feedback (Ganschow & Sparks 1995).

Multisensory approach is another way to aid these learners, since it exploits all senses (Ganschow et al. 1995, Kormos & Smith 2012) and attracts dyslectic learners' attention, which is often impaired (Schneider & Crombie 2003). Moreover, multisensory approach along with repetition counterbalance the low memory abilities of dyslectic learners and store the new knowledge more successfully (Kormos & Smith 2012). This approach is used both in the learning of vocabulary and morphosyntax. Another important goal for the learning of morphosyntax is the enhancement of morphological awareness which will be achieved gradually; hence, they are first taught how to form words and divide the word into syllables using the root, prefixes and suffixes (Sparks & Miller 2000, Ganschow et al. 1995).

Finally, the implementation of the use of technology is vital in learning process, especially for dyslectic students. The implementation of technology in foreign language teaching aids dyslectic learners, since it increases their interest, motivation and decreases their stress (Schneider & Crombie 2003). Another asset that technology offers to students with dyslexia is the ability to repeat the exercise as many times as needed so that they can understand it and do it correctly. According to Crombie (1997), students with dyslexia prefer to listen to the exercises on CD rather than listen to the teacher's voice because they have the opportunity to turn back the track and listen to the parts they did not understand as many times as they wish. There is also a wide variety of applications available to frequently practice on the phenomena being taught (Schneider & Crombie 2003). In addition, through technology there is the possibility of reducing the speed at which oral and written speech occurs, which is very important for students with dyslexia whose information processing rates are usually quite slow. This increases their self-confidence and independence and they do not feel ashamed of having a reduced pace (Schneider & Crombie 2003).

To date, few studies have proposed teaching approaches for students with dyslexia with Greek as one of their languages. The present paper, addressing this gap, presents a language intervention for the course of 'German as foreign language' for elementary students (A1 level) of Greek public schools.

## **METHODOLOGY**

The present language intervention approach refers to a mixed class with elementary students with and without developmental dyslexia. Some of the students with dyslexia might be bilinguals, thus in the next session, we would differentiate the proposed activities for them. The instructions are in both languages (German and Greek). Most of the activities were designed by means of free open-access applications.

**Teaching scenario details**

Topic: *Breakfast in Germany*

Education Level: Elementary

Targeted audience: 11-12 years old / 5<sup>th</sup>- 6<sup>th</sup> graders

First language: Greek

Foreign language: German

Language Proficiency Level: A1-

General goal: “To describe what I eat and drink for breakfast”

- Students after the end of the teaching intervention should be able to describe orally and in writing what they eat and drink for breakfast.

Language goals:

- Vocabulary: Food and beverages for breakfast
- Grammar: Verb inflection of irregular verb *eat* (*essen*), revision of the correct word structure (SVO) in forming declarative and interrogative sentences and connection of sentences with the conjunction *and*

**Scenario Implementation Framework**

Scenario Duration: 4 hours

Classroom management: individual work, in pairs, group work

Course venue: Computer room

Techniques-tools: PC, internet access, free software, worksheets

Prerequisite knowledge required: inflection of regular verbs, interrogative sentences (yes/no questions and wh-questions).

(Meta-)Cognitive Strategies: Observation, Pair/Group work, Brainstorming, Enhancement of phonological awareness, Self-evaluation

**RESULTS**

Our scenario is divided into five (5) phases and it starts from the less complex and moves onwards to the more complex. Practice is an essential part of the scenario. In each phase, the short-term teaching goals will be presented.

**1<sup>st</sup> phase of cognitive process: Activating the known knowledge**

During the warm-up phase the short-term goals are to relax students, to arouse their interest and curiosity, to activate pre-existing knowledge and to understand the subject of the teaching unit. In this phase, a video about *breakfast* is presented along with subtitles in German. The subtitles would help the students with dyslexia to process oral and written language. Moreover, the issues that may be faced in processing can be counterbalanced by the use of image/motion. After the video, the educator asks a question about the content of the video and students' beliefs. The students can work in pairs so that they do not feel anxiety. This would also enhance dyslectic students' motivation.

The second activity has some similar short-term goals; to activate pre-existing knowledge, to prepare students for the new knowledge, to enhance visual perception and to enhance organization abilities. The educator gives the students a worksheet in which there is a text in their first language. The teacher reads the text aloud in order to aid dyslectic students and prevent issues in decoding. The text notes that the school organizes a trip to Germany and students should list food and beverages that they know in order to be prepared for the breakfast in a brunch place. In the worksheet there are

two columns; one for the foods and one for the beverages. The students work in pairs and they should activate their pre-existing knowledge about the foods and beverages that they already know. The bilingual students are encouraged to provide the word also in their other language. Students enhance their knowledge and decrease their possible anxiety by discussing the activity with their classmates. After the completion of the activity the educator writes students' ideas using concept maps on the whiteboard. The concept maps would remain on the whiteboard until the section of speaking in order to give ideas to the students. The visual representation of the words on the whiteboard is always a good chance for the students to see many times the vocabulary and thus to store it more successfully. Besides, the repetition is a very good practice for the dyslectic students that have low memory abilities.

### **2<sup>nd</sup> phase of cognitive process: Presenting the new knowledge**

The short-term goals of the phase are the introduction and processing of the new vocabulary, the enhancement of visual perception and the memory enhancement. During this phase the educator introduces the new vocabulary by giving a worksheet where there are the pictures of food and beverages and the new words in a mixed order. Students should place them in the correct order and write the equivalent word in their first language. The bilingual students can write the equivalent word in both their first languages. By this way the links between the vocabularies in each language are better established. An important note in this activity is that on the top of the worksheet there is a reminder about grammar that articles in Greek and German are not the same. This reminder is in Greek and it is necessary because it prompts explicitly about differences between the two languages and it is a good idea to present grammar and vocabulary at once.

The next exercise builds on the previous one. Students should write on the program "Paint" the words of the previous activity. The short-term goals are the enhancement of phonemic awareness, the practice of reading fluency and the cultivation of creativity and imagination. Students enjoy more to write on the computer, though it might be more time-consuming. Hence, dyslectic students would be more motivated.

The next activity is an online activity that aims to practice visual perception and reading fluency. Students have to turn over cards that have a word together with the depicted object and read them aloud<sup>1</sup>. The words are the known words that have been presented before.

After the presentation and practice of vocabulary, grammar is presented. The educator gives a worksheet with a dialog in German. The context is that the students are in a hotel and they listen to this dialog. The text facilitates visualization. Thus, the subjects are in blue, the verbs in red and the objects in green. The short-term goals are the practice and improvement of reading ability, the understanding of the word structure SVO and the memory enhancement. Students have to read the dialog with their classmate. After the reading of the dialog students must produce a similar dialog changing the food and beverages. The aim of the second activity is to automatize the dialogue and to produce oral speech using the word structure SVO. Using the given dialog dyslectic students become also familiar with fixed expressions, which can reduce their anxiety and enhance their motivation for the final free production activities.

---

<sup>1</sup> <https://wordwall.net/de/resource/1859094>

**3<sup>rd</sup> phase of cognitive process: Explicit presentation of grammar**

After practicing with the dialog, the educator asks students to find and underline the verb *eat*. The students must fill out a table on their worksheet with the verb *eat* in the given persons. Once they have completed the activity, the educator asks them to turn over their worksheet and check the answers, while (s)he presents them on the white board at the same time. In the given table, the irregular forms, and more specifically the morphological changes in the verb *eat*, are in red. Next to the table there is a rule that students must complete. This rule highlights the morphological change in this verb. With this activity discovery learning is encouraged and the directly and explicitly teaching of grammatical rules along with the practice Focus on Form, since it is known that visualization is useful to both dyslectic and non-dyslectic learners.

A practice exercise follows where the students must fill in the gaps and write the correct form of the verb *eat*. The goals are to practice on the correct forms and agreement of verb *eat*, to implicitly focus on SVO word structure and finally to increase memory abilities. Visualization is also used in this activity. Thus, the subjects are in blue and the objects in green. Moreover, there is an explicit reminder in Greek that prompts that the verb agrees in person and number with the subject. As mentioned before, this practice is very useful for dyslectic students, since they need explicit teaching and the enhancement of their metalinguistic awareness.

**4<sup>th</sup> phase of cognitive process: Practicing & Revising**

All the activities in this phase are online and boost the practice and vocabulary revision in a playful way, which reduces the stress and boosts self-confidence through self-assessment and self-correction. The short-term goals of this phase are to practice on visual processing, to enhance phonological awareness, to revise the new vocabulary.

The first two activities aim to revise the new vocabulary. The first activity is a multiple-choice quiz<sup>2</sup>. A picture and four words are presented. The learner must find which is the correct word. This exercise activates the existing knowledge. The succeeding activity is an online memory game<sup>3</sup>. Learners match the picture with the word.

The next activity is a wordsearch<sup>4</sup>. Learners have to find eight words in the wordsearch accompanied by relevant pictures. If the learners struggle with finding some of the words, they can use an online dictionary. The careful use of an online dictionary can enhance the auditory perception, the pronunciation, the cultivation of metacognitive skills and provide autonomy, while it boosts self-confidence at once.

The following activity is an anagramming activity<sup>5</sup>. With this activity the learners revise the vocabulary while they also practice their phonological awareness abilities. For dyslectic students the anagram is accompanied by a picture. For typically developing students the picture might be omitted in order to increase the difficulty.

---

<sup>2</sup> <https://wordwall.net/resource/1789590>

<sup>3</sup> <https://learningapps.org/display?v=pv2bvvgu520>

<sup>4</sup> <https://wordwall.net/play/1713/329/678>

<sup>5</sup> <https://wordwall.net/play/1789/590/920>

The next activity builds on the two previous ones, and it is the “hangman game”<sup>6</sup>. The numbers of the graphemes of the word are given accompanied by a picture. The learners have to guess the word by telling graphemes, which enhances the phonological awareness. The use of the picture aids the dyslectic students. Students must not look for the word in their notes or in a dictionary.

The three following activities aim to practice and revise grammar. The short-term goals of the activities are to create the correct morphosyntactic declarative and interrogative sentences, to boost self-confidence through self-assessment and self-correction. In the first activity a continuum of graphemes is presented without spaces. Learners must segment and then color the words and write the sentence below. The same color-coding is used; subjects in blue, verbs in red and objects in green. These sentences can prepare dyslectic learners for the next phase and give them ideas.

The next activity revises the word order<sup>7</sup>. Thus, learners must place declarative and interrogative sentences in the correct order. They drag and drop the words and they receive immediate feedback, which is helpful especially for the dyslectic students and boosts their confidence.

The last activity of this phase revises the correct forming of interrogative sentences<sup>8</sup>. Learners must form the correct question based on the given answer. Learners can work in pairs the dyslectic student may form the question orally and the non-dyslectic student may type the question. After each answer they receive immediate feedback.

### **5<sup>th</sup> phase of cognitive process: Free oral and written production**

The last phase refers to real-world situations. Learners must express themselves both in oral and in written form.

The first activity is a role play exercise. Our learners have visitors from Germany, and they have to prepare them breakfast. Therefore, they must ask them about their preferences in food and beverages. One learner is the host and the other the visitor. The short-term goals are to strengthen learners’ organizational skills and prepare them for real-life conditions along with the use of new vocabulary and morphosyntactic abilities. In the last activity they prepare their own comic about breakfast<sup>9</sup>. They also work in pairs. The short-term goals are like the previous activity but in this case, learners practice their written skills in a more playful way.

## **DISCUSSION**

The present language intervention approach is appropriate for either monolingual or bilingual learners with dyslexia. The main idea of this scenario was based on what the student has already learned and to start from easy activities (comprehension) and to continue to more difficult ones (structured production) until they produce free oral (role play) and written speech (comic creation).

---

<sup>6</sup> <https://wordwall.net/play/1789/590/941>

<sup>7</sup> <https://wordwall.net/play/1923/939/420>

<sup>8</sup> <https://learningapps.org/display?v=p2w3keux520>

<sup>9</sup> <https://pixton.com>

First and foremost, the current scenario leveraged differentiated instruction, which is pivotal to be used in a mixed class with dyslectic students (Berninger & Wolf 2009). Second, it respected the learning pace of dyslectic students, since they would have the time to complete the activities with their speed (Schneider & Crombie 2003), meaning that they may complete less activities, or this issue might be counterbalanced if they work in pairs or in groups with 'good' students (Berninger & Wolf 2009). The scenario also respects dyslectic students' memory abilities by presenting 8 new words (Kormos & Smith 2012). Moreover, the systematic repetition also works towards this direction (Kormos & Smith 2012; cf. concept maps, memory game, grammar rules reminder on worksheet). In order to reduce the cognitive overload, visualization was used to indicate grammar (i.e. word order) and metalinguistic information (SVO, verb and adjective endings) (Pinna & Deiana 2018). Phonological awareness, which is of paramount importance for reading and writing and it is impaired in dyslexia (Campbell & Sais 1995), has also been practiced by means of wordsearch activity, anagramming activity and hangman game. Regarding grammar teaching, direct instruction was used (by clearly giving the rules in a simple manner; Ganschow & Sparks 1995), without excluding self-discovery. In addition, concerning vocabulary learning, learning opportunities were offered for the practice of metacognitive strategies so that students with dyslexia can become autonomous and gain confidence (finding words through an online dictionary).

The use of technology in this scenario was very important, since the activities were presented in a more playful way so as not to cause stress and boredom to learners and in order to enhance motivation (Schneider & Crombie 2003). Direct feedback that is given by means of the use of technology also worked in this direction. These types of activities also offer many opportunities for self-correction, which significantly increases self-confidence of the student with dyslexia.

Few words about bilingual dyslectic learners. Bilingual learners have many different profiles (Dosi 2016); thus, it is harder to implement all their needs in a scenario. Language teachers must be aware that they might be dominant to one language, receive literacy to one of their languages, have reduced vocabulary compared to monolingual students with dyslexia and they might have cross-linguistic influence from their most dominant to the less dominant language. Nevertheless, they might also have better phonological and metalinguistic awareness and better cognitive abilities. It is important for the teacher to remember not to ignore their other language but in well-planned vocabulary or grammar activities to give them the chance to use their language or share information about their culture.

This scenario deployed student-centered learning. Nevertheless, the role of the language teacher is decisive, since they would adjust and reform the scenario based on the profile of their group and during the lesson, their role is to organize, to guide and to manage the class.

Finally, we should acknowledge some limitations. The scenario has not been implemented into a real class; therefore, it would be subjected to improvements and corrections. Moreover, the time of the scenario is indicative and may be change regarding dyslectic learners' needs and pace.



## CONCLUSIONS

The present paper aimed to present a teaching scenario for mixed classes of Greek public schools, in which monolingual and bilingual dyslectic foreign language learners of German (A1 level) attend. The major points of this scenario were (a) the implementation of differentiated instruction, (b) visualization, (c) direct instruction and (d) the exploitation of metalinguistic knowledge. The current intervention also suggested that teachers can create their own online material and update it and improve it. Moreover, this material exploiting the use of technology was playful and motivating, especially for dyslectic learners, since different types of activities would be used and thus attention, interest and motivation are awakened. Finally, a successful intervention encourages self-assessment and self-evaluation, which are very important for dyslectic learners, who often have a low self-esteem.

## REFERENCES

- Abu Rabia, R., & Siegel, L. (2002). Reading, syntactic, orthographic, and working memory skills of bilingual Arab Canadian children. *Journal of Psycholinguistic Research*, 31, 661-678.
- Berninger, V. W. & Wolf, B. J. (2009). *Teaching students with dyslexia and dysgraphia: Lessons from teaching and science*. Paul H Brookes Publishing.
- Brezing, H. (2002). Fremdsprachen lernen: Unbelasteter Neubeginn oder altvertraute Schwierigkeiten? In Schulte-Körne, G. (Hrsg.). *Legasthenie: Zum aktuellen Stand der Ursachenforschung, der diagnostischen Methoden und der Förderkonzepte*. Bochum: Dr. Winkler, 191-200.
- Campbell, R., & Sais, E. (1995). Accelerated metalinguistic (phonological) awareness in bilingual children. *British Journal of Developmental Psychology*, 13, 61-68.
- Crombie, M. A. (1997). The Effects of Specific Learning Difficulties (Dyslexia) on the Learning of a Foreign Language in School, *Dyslexia*, 3, 27-47.
- Crombie, M. A. (2000). Dyslexia and the Learning of a Foreign Language in School: Where Are We Going? *Dyslexia*, 6, 112-123.
- Crombie, M. & McColl, H. (2001). Dyslexia and the Teaching of Modern Foreign Languages, In L. Peer and G. Reid (Eds.), *Dyslexia: Successful Inclusion in the Secondary School*, David Fulton Publishers: London.
- Dosi, I. (2016). *The verbal aspect in bilingual children: The effect of linguistic, cognitive and environmental factors* [in Greek]. A.U.Th.: Unpublished PhD Thesis.
- Dosi, I., & Papadopoulou, D. (2019). The role of educational setting in the development of verbal aspect and executive functions: evidence from Greek-German bilingual children. *International Journal of Bilingual Education & Bilingualism*. Routledge.
- Dosi, I., Papadopoulou, D. & Tsimpli I. M. (2016). Linguistic and cognitive factors in Elicited Imitation Tasks: A study with mono- and biliterate Greek-Albanian bilingual children. In J.Scott and D. Waughtal (Eds.), *Proceedings of the 40th annual Boston University Conference on Language Development*, 101-115. Somerville, MA: Cascadilla Press.
- 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, 107-120.

- Ganschow, L., Sparks, R. & Schneider, E. (1995). Learning a Foreign Language: Challenges for Students with Language Learning Difficulties. *Dyslexia* 1, 75-95.
- Grabe, W. (2009). *Reading in a second language: Moving from theory to practice*. Cambridge: Cambridge University Press.
- Kormos, J. & Smith, A. M. (2012). *Teaching Languages to Students with Specific Learning Differences*. Bristol: Multilingual Matters.
- Lawrence, D. (2009). *Understanding dyslexia: A guide for teachers and parents*. Maidenhead: Open University Press.
- 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. 130-158). Bristol: Multilingual Matters.
- Pinna, B., & Deiana, K. (2018). On the role of color in reading and comprehension tasks in dyslexic children and adults. *i-Perception*, 9(3): 1–22. doi:10.1177/2041669518779098.
- Schneider, E. & Crombie, M. (2003). *Dyslexia and Foreign Language Learning*. David Fulton Publishers Ltd, London.
- Sparks, R. (2001). Foreign language learning problems of students classified as learning disabled and non-learning disabled: Is there a difference? *Topics in Language Disorders*, 21(1), 38–54.
- Sparks, R. (2006). Is there a ‘disability’ for learning a foreign language? *Journal of Learning Disabilities*, 39(6), 544–557.
- Sparks, R., N. Humbach, & Javorsky, J. (2008). Individual and longitudinal differences among high- and low-achieving, LD and ADHD L2 learners. *Learning and Individual Differences* 8, 29–43.
- Sparks, R. L., & Miller, K. S. (2000). Teaching a foreign language using multisensory structured language techniques to at-risk learners: A review. *Dyslexia* 6, 124-132.