Research Article

CONTRASTIVE ANALYSIS OF THE GREEK, GERMAN AND ENGLISH LANGUAGES TRANSPARENCY AND DYSLEXIA

*SOFIA P. TSAKALIDOU

Department of German Language and Literature, Aristotle University of Thessaloniki, P.O. Box 82, Aristotle University of Thessaloniki, GR-54124, Thessaloniki, Greece.

ABSTRACT

This paper focuses on three language systems: the Greek, the English and the German languages, which we will examine as to their transparency. This contrastive analysis was undertaken in the context of my doctoral research with the subject "Teaching spelling to learners with dyslexia learning German as a second foreign language in primary education" (Tsakalidou, 2020). These language systems were analysed in detail, due to the fact that we examined the spelling difficulties of learners with dyslexia and created the theoretical framework as to the three languages involved in the research. The learners, who took part in this research (95 learners between the ages of 10 and 11 years, 20 of who had dyslexia), had Greek as their first (mother) language, English as their first foreign language and German as their second foreign language. Research of various language systems has shown that dyslexia is recorded equally in all language systems, however, the difficulties that dyslexic learners face are increased in opaque orthographic systems (for example English).

Keywords: opaque orthographic systems, transparent orthographic systems, dyslexia, specific learning difficulties, contrastive analysis of language systems.

INTRODUCTION

Language systems can be: (a) pictographic/ideographic (for example Kaidā glyphs), (b) logographic (for example the Chinese language),(c) syllabaries (for example Alaska or Yugtun script) and (d) alphabetic (for example German and Greek). Alphabetic systems are situated along a continuum of opacity/transparency depending on how consistent their code is (Serrano & Defior, 2008). In transparent orthographic systems, graphemes correspond to an almost equal number of phonemes, whereas in opaque orthographic systems some graphemes may correspond to one phoneme and some phonemes may correspond to one grapheme. Dyslexia is equally found in every written language, whether it is characterized as phonologically transparent or opaque.

Transparency, Reading And Spelling Acquisition

According to the literature some languages (orthographic systems), which are mentioned as opaque, are English, French, Danish and Portuguese, whereas some transparent orthographic systems are Finish, Greek, Italian and German (Goswami, Schneider,& Scheurich, 1999; Lanzinger, 2006). English and French are considered opaque as to spelling and reading. Furthermore, the Greek language is considered to be more transparent than French (Talli, 2010). The Greek and German languages are considered transparent as far as reading is concerned. Italian and Finish are considered transparent as far as reading and spelling is concerned (Everatt & Elbehre, 2008; Miles, 2000; Russak & Kahn-Horwitz, 2013; Spencer, 2000, 2010). A transparent language is learnt much faster than an opaque language and acquiring spelling is considered much easier in transparent orthographic systems (Joshi & Carreker,2009). According to research in various orthographic systems, the orthographic skill of learners was examined as to the stages of acquiring spelling. In some alphabetic language systems, such as the German, Norwegian, Portuguese and Greek languages, there are some common features, while acquiring and teaching written

---

*Corresponding Author:Sofia P. Tsakalidou, e-mail: stsakalidou@del.auth.gr

language and these are directly connected to the development of children's phonological skills (Konstantinidou & Douklias, 2010).Furthermore, phonological awareness, knowledge of the alphabetic principle, morphology and orthographic structure of words help develop spelling skills. There are other factors, that influence written language acquisition, except for the transparency of the specific language system. Some factors are the civilization of each country, as well as the educational system (von Suchodoletz, 2007a). Learners in transparent orthographic systems are focusing on the grapheme-phoneme equivalence while reading, whereas in opaque orthographic systems they use strategies at word level as well (Ziegler, Perry, Ma-Wyatt, Ladner, & Schulte-Körne, 2003).

Dyslexia In Various Language Systems

Dyslexia is equally found in every written language, whether it is characterized as phonologically transparent or opaque. The errors learners with dyslexia make in transparent languages are clearly less than in opaque languages, however there is a statistically significant difference between the errors the learners with dyslexia make in comparison to their peers without dyslexia in both cases (transparent and opaque orthographic systems) (Kotsopoulos, 2005). According to research conducted internationally and referring to different language systems, it was found, as mentioned above, that the phenomenon of dyslexia is met across various languages, however it is reported that the difficulties of dyslexic learners are increased in opaque orthographic systems. Therefore, in Great Britain, for example, the cases of learners with dyslexia are recorded in more than 10% of the population according to the British Dyslexia Association[1]. In the U.S.A. the dyslexic learners correspond to almost 20% of the population according to the International Dyslexia Association[2].On the contrary, in Germany the number of learners with dyslexia varies from 3-8%, according to Bundesverband Legasthenie und Dyskalkulie[3]. In Italy there is a small number of dyslexic learners recorded, namely 3-4% of the population, according to Association Italiana Dislessia[4] and

---

[1] http://www.bdadyslexia.org.uk/about.

[2] http://eida.org/dyslexia-basics/.

[3] http://www.bvl-legasthenie.de/legasthenie/wissenschaft.html.

[4] http://www.aiditalia.org/.

in Greece the learners with dyslexia are almost 5% of the general population, according to the Greek Ministry of Education[5].Acquisition of written language in English-speaking learners compared to their German-speaking peers is accomplished at a significantly slower pace. In particular, English-speaking learners can read and write worse and slower after the end of their first school year, than their German-speaking peers (Lanzinger, 2006).The English language creates spelling difficulties to the learners with dyslexia due to the high degree of opacity. French is also an opaque language and requires a good ability to differentiate sounds. According to research conducted with a sample of German-speaking and English-speaking dyslexics (Landerl, Wimmer & Frith, 1997; Wimmer, 1996) the latter had more severe difficulties in reading low-frequency or trisyllabic words (reading accuracy was 50% and 70% respectively), whereas the German-speaking dyslexics made very few reading errors (reading accuracy was 90% and 80% respectively). However, in both cases, the dyslexic learners showed a lower reading speed compared to their peers without dyslexia. Furthermore, it is not considered that there is a suitable foreign language for learners with dyslexia (von Suchodoletz, 2007b), as all languages have peculiarities, that may make it difficult for learners with special learning difficulties (dyslexia) to learn a foreign language (Ganschow & Schneider, 2006a, 2006b).

Similarities And Differences Between The Greek, English And German Languages

Regarding two out of three linguistic systems in our research (German and English) many similarities are mentioned mainly in spelling and pronunciation, where the main difference are the vowels, since in German every letter related to a vowel corresponds to a unique phoneme, while in English the same letter can correspond to many phonemes. Typical examples are: (a) the words Ball, Katze, Hand and ball, cat, hand, and (b) the words hear, bear, heard, beard, where the diphthong /ea/ corresponds to a different phoneme every time. Greek and German have 18 common consonant sounds, whereas English and French have 15 common consonant sounds with the Greek language (Petrounias, 1993). Balassi (2016) comparing the main languages of our research (Greek and German) comes to the following conclusions:

- The number of Greek vowels is very small in relation to the number of German vowels. Specifically, there are five vowels in Greek and 16 in German. This is due to the fact that in German there are long and short vowels, while in Greek there are only short vowels. Also, in Greek there is no Schwa sound ([ə]), nor the sounds [ü] and [ö].
- In both languages there are three diphthongs and, in fact, the diphthongs ([a͜i]) and ([ɔ͜χ]) are common in both languages.
- While in German there are 21 consonants, in Greek there are 25. Consonants which are met in the Greek language but not in German are: [c], [ɟ], [θ], [ð], [c], [ɲ] and [ʎ].Consonants of the German language, which are not found in the Greek language are [ʕ], [ʝ], [h] and [R].

Furthermore, we should mention a study comparing the ocular movement of dyslexic learners while reading in English, German and Italian, which found that German readers had an advantage in terms of decoding due to the spelling-phonological correspondence of German orthography. The same research records that the eye movement of dyslexic learners with dyslexia was chaotic while reading in the English language, something that was not found in transparent spelling systems (Hutzler & Wimmer, 2003).

[5]https://www.minedu.gov.gr/.

Analysis Of The Greek, German And English Language Systems

Greek language

After examining the Greek language, we find that the Greek orthographic system is extremely transparent and therefore the reading and phonological difficulties of dyslexic learners tend to be milder (Nikolopoulos, 2007).Greek is considered less transparent than Hungarian and more transparent than French, German and English in terms of reading, while in terms of spelling it is considered less transparent than Hungarian, Dutch and German and more transparent than English. (Seymour, Aro & Erskine, 2003).The phonological system of the Greek language consists of 20 phonemes. Specifically, 15 consonants (/p/, /t/, /k/, /f/, /θ/, /x/, /v/, /ð/, /γ/, /s/, /z/, /l/, /r/, /m/, /n/) and five vowels (/i/, /e/, /a/, /o/, /u/). Each syllable includes a vowel or a diphthong (which constitutes the core), that is preceded or followed by one or more consonants (Porpodas, 2003).Protopapas (2010) mentions that there are 27 consonants and five vowels, which can form 14 possible letter combinations (for example the consonant [e] is represented by the graphemes <ε> or <αι>, the consonant [o] by the graphemes <o> or <ω> and the consonant [i] with the graphemes <ι>, <η>, <υ>, <ει>, <οι> or <υι> (Tables 1 and 2). Protopapas (2010) does not include the consonant [m̥] (second in the word άμφια [ˈam̥fia], before f), as it is not obligatory in pure articulation and its replacement by m does not lead to an unacceptable result, i.e. the word does not sound wrong. The same criterion is applied in other cases, such as the rolled /r/, the tense /e/ etc.). Balassi (2004, in press) states that the Greek language has 25 consonants, five vowels and three diphthongs. We notice that there is agreement on the number of vowels, but disagreement on the number of consonants. The reason is that, as Protopapas (2010) mentions, each grapheme corresponds to a phoneme (with the exception of the graphemes ξ and ψ, which correspond to two phonemes each), therefore he includes these two letters, unlike Balassi (in press).

German language

The German language consists of 39 phonemes, namely 21 consonants, 16 vowels and three diphthongs (Balassi, 2002). Due to the transparency of the German language it is possible for learners with phonological deficits to have a good understanding of the alphabetic principle and the phonemic structure of the language (Landerl, 2001).As far as the accentuation in German is concerned, it is reported that it affects the meaning of the word (*um*fahren / um*fah*ren), it is not placed on a specific syllable and can be moved (*Bä*cker / Bäcker*ei*). Also, the lengthening of a vowel (whether it is long or short) can affect the meaning of the word (St*aa*t / St*a*dt) (Dieling & Hirschfeld, 2000).

English language

The English alphabetical system consists of 26 letters, where a grapheme corresponds to two or more phonemes, but there is no grammar rule that determines which of the possible phonemes is used in each word. This large number of exceptions to the rule contributes to the poor correspondence between graphemes and phonemes. Specifically, the 44 phonemes of the English language can be represented in writing with 561 different graphemes (Peristeri, 2008) or 1,120 different graphemes (Balassi, 2002).The lack of coherence in the grapheme-phoneme correspondence in the English language is especially evident with regard to the vowels, since the five vowels of English correspond to 48 phonemes in contrast to the German language, where each vowel represents a unique sound.

Some examples are given in Comparative Tables 1 and 2, where we can see the grapheme-phoneme correspondences for the sounds /i/ and /ʃ/ in the English and German languages.

Table 1. Grapheme-phoneme correspondences for the sound /i/ (English, German)

German language		Phoneme	English language	
Grapheme	**Example**		**Grapheme**	**Example**
<i>	Igel		<e>	be
<ie>	viel	[i]	<i>	gasoline
<ih>	ihn		<a>	Israel
<ieh>	Vieh		<y>	happy
<ee>	Teenager		<ay>	Sunday
			<ae>	sundae
			<ea>	each
			<ee>	see
			<eh>	vehicle
			<ei>	receive
			<ie>	chief
			<eo>	people
			<oe>	Phoenix
			<er>	catercorner
			<ey>	key
			<is>	debris
			<ix>	grand prix
			<ill>	tortilla
			<ii>	Hawaii
			<ï>	naïve
5		**Sum**	**20**	

Source: Bleyhl, 2000.

Table 2. Grapheme-phoneme correspondences forth sound /ʃ/ (English, German)

German language		Phoneme	English language	
Grapheme	**Example**		**Grapheme**	**Example**
<sch>	Schaf		<c>	appreciate
<st>	Staat	[ʃ]	<s>	sure
<sp>	Spiel		<t>	initiation
<ch>	Chef		<x>	luxury
			<ce>	ocean
			<ch>	machine
			<ci>	delicious
			<sc>	conscientious
			<sh>	shoot
			<si>	tension
			<ss>	tissue
			<ti>	action
			<xi>	anxious
			<che>	mustache
			<chi>	pistachio
			<sci>	luscious
			<shh(!)>	(be quiet)
			<shi>	fashionable
			<ssi>	Russian
			<psh>	pshaw
			<cesh>	apprenticeship
4		**Sum**	**21**	

Source: Bleyhl, 2000.

Furthermore, the English language has a variety of: (a) homonyms, i.e. words that have the same sound, the same spelling, but different meaning (fair: beautiful, festival), (b) homographs, i.e. words that have the same writing, different sound and different meaning (tear: tears /tia/, tear /tea/), (c) homophones, i.e. words that have the same sound, different writing and meaning (through/threw, week/weak, no/know, hole/whole, pair/pear).

Conclusion

Four factors, which affect the foreign language acquisition by dyslexic learners are the following: (a) the interference of the dyslexic learner's low performance in spelling and reading in his/her mother language (Interference Hypothesis), (b) the learner's limited capacity in the active memory, (c) poor phonological awareness, (d) morphological and pragmatic differences between the mother language (Greek) and the first (English) and second(German) foreign languages (Riddick, 2001; Peristeri, 2008).Based on the research carried out for the author's doctoral dissertation, it was found, that there is a statistically significant difference in the performance of learners with dyslexia compared to their peers without dyslexia in spelling, reading and phonological awareness. Nonetheless, possibly due to the structure of the German language (transparent spelling system) and after systematic learning of the correspondences of graphemes-phonemes, it was found that the performance of both learners with and without dyslexia in reading, spelling and phonological awareness noted great improvement (Tsakalidou, 2020, 2021, in press).

Conflict of Interest Statement

The author declares no conflicts of interests.

Acknowledgment

The author certifies that she has no commercial associations (e.g., consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted article.

About The Author

Sofia P. Tsakalidou completed her PhD in Didactics of German as a Second foreign language at Aristotle University of Thessaloniki. In her PhD research she examines teaching spelling to learners with dyslexia and focuses on developing assessment tools as well as applying teaching modifications and intervention. She is currently conducting her postdoctoral research at the Department of German Language and Literature at Aristotle University of Thessaloniki. Her research focuses on the field of special education and especially students with specific learning disabilities, including studies on the nature and the assessment of learning disabilities of children in German language. Her interests focus on teacher training as to the subject of her doctoral and postdoctoral research, namely learners with dyslexia and diversity in the classroom in general. Furthermore, she has worked as an EFL and a GFL teacher for 20 years in private and public schools in both Primary and Secondary education.

REFERENCES

Associazione Italiana Dislessia. http://www.aiditalia.org/.

Balassi, E. (2002). Phonetik/Phonologie und Ausspracheschulung. Phonetik, Band A. Postgraduiertenstudium in Deutsch als Fremdsprache.Hellenic Open University, ΕλληνικόΑνοιχτόΠανεπιστήμιο, School of Humanities and Social Studies, Patras.

Balassi, E. (2004). Aussprachefehler griechischer Germanistikstudenten. Muttersprache, 3, 244-252.

Balassi, E. (2016). Phonetik/Phonologie des Deutschen und Griechischen und ihre Didaktisierung. Athens: Πεδίο.

Balassi, E. (in press). Aussprachebuch für Kinder. Lehrerhandbuch. Kreta: Kounalaki Verlag.

Bleyhl, W. (2000). Fremdsprachen in der Grundschule. Grundlagen und Praxisbeispiele. Hannover: Schroedel Verlag.

British Dyslexia Association. http://www.bdadyslexia.org.uk/about.

Bundesverband Legasthenie und Dyskalkulie. http://www.bvl-legasthenie.de/legasthenie/wissenschaft.html.

Circular of the Ministry of Education, Lifelong learning and Religious Affairs (Γ6/106/3.4.1992 ΥΠ.Ε.Π.Θ.).

Dieling, H., & Hirschfeld, U. (2000). Phonetik lehren und lernen. Fernstudieneinheit 21. München: Langenscheidt.

Everatt, J., & Elbehri, G. (2008). Dyslexia in different orthographies: Variability in transparency. In G. Reid, A. Fawcett, F. Manis & L. Siegel (eds.), The Sage Dyslexia Handbook. London: Sage, 427-438.

Ganschow, L., & Schneider, E. (2006a). At-Risk Students and the Study of Foreign Language in School. Factsheet. Baltimore: The International Dyslexia Association (IDA).

Ganschow, L., & Schneider, E. (2006b). Assisting Students with Foreign Language Learning Difficulties in School. In International Dyslexia Association (ed.), Perspectives on Language and Literacy. Special Edition 32. Baltimore: International Dyslexia Association. Available at: http://www.ldonline.org/article/22725/.

Goswami, U., Schneider, W., & Scheurich, B. (1999). Report. Picture naming deficits in developmental dyslexia in German. Developmental Science 2(1), 53-38. doi: 10.1111/1467-7687.00054.

Holton, D., Mackridge, P., & Fillipaki-Warburton, E. (2012). Γραμματική της ελληνικής γλώσσας. [Grammar of the Greek language]. Athens: Πατάκη.

Hutzler, F., & Wimmer, H. (2003). Eye movements of dyslexic children when reading in a regular orthography. Brain and Language 89, 235–242. doi: 10.1016/S0093-934X(03)00401-2.

International Dyslexia Association. http://eida.org/dyslexia-basics/.

Joshi, M. R., & Carreker, S. (2009). Spelling. Development, assessment and instruction. In G. Reid (ed.), The Routledge companion to dyslexia. London: Routledge, 113-125.

Katsaounis, N. (2013). SS13 Einführung in die Linguistik II: Phonetik-Phonologie. Sitzung am 04.04.2013. Thessaloniki: Aristoteles Universität Thessaloniki, Philosophische Fakultät, Abteilung für Deutsche Sprache und Philologie.

Konstandinidou, M., & Douklias, S. D. (2010). Μέθοδοικαιτεχνικέςδιδασκαλίαςτηςορθογραφικήςδεξιότητας [Methods and techniques for teaching orthographic skill]. ΣεΑ. Mouzaki &Α. Protopapas (eds.), Ορθογραφία. Μάθησηκαιδιαταραχές [Spelling. Learning and disorders]. Αθήνα: Gutenberg-Ψυχολογία/33, 371-394.

Kotsopoulos, I. (2005). Δυσλεξία: Νεότεραευρήματαγιατηναιτιολογία, παθογένειακαιθεραπευτικήαντιμετώπιση [Dyslexia: New findings in etiology, pathogeny and therapeutical treatment]. Εγκέφαλος - Αρχεία νευρολογίας και ψυχιατρικής 42(2). http://www.encephalos.gr/full/42-2-01g.htm.

Landerl, K. (2001). Word Recognition Deficits in German: More evidence from a representative sample. Dyslexia, 7, 183–196. doi: 10.1002/dys.199.

Landerl, K., Wimmer, H., & Frith, U. (1997). The impact of orthographic consistency on dyslexia: A German-English comparison. Cognition, 63, 315-334. doi: 10.1016/S0010-0277(97)00005-X.

Lanzinger, I. M. (2006). Legasthenie in der Fremdsprache Englisch.Erster Österreichischer Dachverband Legasthenie. Dyslexia Research Center.

Miles, E. (2000). Dyslexia May Show a Different Face in Different Languages.Dyslexia 6, 193–201. doi: 10.1002/1099-0909(200007/09)6:3<193::AID-DYS170>3.0.CO;2-P.

Nikolopoulos, D. (2007). ΑναγνωστικέςΔυσκολίες / Δυσλεξία: ΒασικέςΕπισημάνσεις, ΔιλήμματακαιΕκπαιδευτικήΠρακτική [Reading difficulties/ Dyslexia: Basic remarks, dilemmas and educational practice]. In: E. Makri-Botsari (ed.), ΘέματαΔιαχείρισηςΠροβλημάτωνΣχολικήςΤάξης [Classroom Management Issues]. Athens: The Pedagogical Institute, 8-28.

Peristeri, E. (2008). Ηεκμάθησητηςαγγλικήςωςδεύτερηςξένηςγλώσσαςαπόδυσλεξικ ούςμαθητέςμεμητρικήγλώσσατηνελληνική:δυσκολίεςκαιδιδακτικ έςπροτάσειςαντιμετώπισης [Learning English as a second foreign language for Greek learners with dyslexia: difficulties and didactic suggestions]. In E. Tzelepi-Giannatou (ed.), ΘέματαΔιαχείρισηςΠροβλημάτωνΣχολικήςΤάξης[Classroom Management Issues]. Athens: The PedagogicalInstitute, 66-79.

Petrounias, E. (1993). Νεοελληνική Γραμματική και Συγκριτική Ανάλυση. ΜέροςΑ΄: Θεωρία [Modern Greek Grammar and Comparative Analysis. Part A: Theory]. Thessaloniki: UniversityStudioPress.

Petrounias, E. (2002). Νεοελληνική Γραμματική και Συγκριτική («Αντιπαραθετική») Ανάλυση. Τόμος Α΄. Γενικές Γλωσσικές Αρχές, Φωνητική, Εισαγωγή στη Φωνολογία. Μέρος Α΄: Θεωρία [ModernGreekGrammarandComparativeAnalysis. Volume A: General Linguistic Principles, Phonetics, Introduction to Phonology. Part A: Theory]. Thessaloniki: University Studio Press.

Porpodas, K. D. (2003). ΔιαγνωστικήαξιολόγησηκαιαντιμετώπισητωνΜαθησιακώνΔυσκ ολιώνστοΔημοτικόΣχολείο (Ανάγνωση, Ορθογραφία, Δυσλεξία, Μαθηματικά) [DiagnosticevaluationandtreatmentofLearningDisabilitiesinPrima rySchool (Reading, Spelling, Dyslexia, Mathematics)].Έκδοση στο πλαίσιο υλοποίησης του Έργου ΕΠΕΑΕΚ 2000-2006 του Υπουργείου Εθνικής Παιδείας και Θρησκευμάτων (Μέτρο 1.1., Ενέργεια 1.1.3, Κατηγορία Πράξεων Α) με θέμα «Επιμόρφωση και Εξειδίκευση Εκπαιδευτικών και Στελεχών της Πρωτοβάθμιας Εκπαίδευσης για μαθητές με Μαθησιακές Δυσκολίες». Πανεπιστήμιο Πατρών, Παιδαγωγικό Τμήμα Δημοτικής Εκπαίδευσης, Εργαστήριο Γνωστικής Ανάλυσης της Μάθησης Γλώσσας και Δυσλεξίας. ΕρευνητικήκαιΔιαγνωστικήΜονάδαΔυσλεξίας, ΑνάγνωσηςκαιΓραφής [Publication in the framework of the implementation of the EPEAEK 2000-2006 Project of the Ministry of National Education and Religious Affairs (Measure 1.1., Action 1.1.3, Category A) on "Training and Specialization of Teachers and Executives of Primary Education for Learners with Learning Disabilities". University of Patras, Department of Primary Education, Laboratory of Cognitive Analysis, Language Learning and Dyslexia. Dyslexia Research and Diagnostics Unit, Reading and Writing].

Protopapas,A.(2010).Ηδιαφάνειατουελληνικούορθογραφικούσυστήμ ατος [The transparency of the Greek orthographic system]. In: A. Mouzaki &A. Protopapas (eds.), Ορθογραφία. Μάθησηκαιδιαταραχές [Spelling: learning and disorders] (pp. 67-104). Athens: Gutenberg.

Riddick, B. (2001). Dyslexia and inclusion: Time for a social model of disability perspective? International Studies in Sociology of Education 11(3), 223-236. doi: 10.1080/09620210100200078.

Russak, S., & Kahn-Horwitz, J. (2013). English as a Foreign Language Spelling: Comparisons between Good and Poor Spellers. Journal of Research in Reading, Early View.

Serrano, F., & Defior, S. (2008). Dyslexia speed problems in a transparent orthography. Annals of Dyslexia 58, 81–95. doi: 10.1007/s11881-008-0013-6.

Seymour, P., Aro, M., & Erskine, J. M. (2003). Foundation literacy acquisition in European orthographies. British Journal of Psychology 94, 143-174. doi: 10.1348/000712603321661859.

Spencer, K. (2000). Is English a dyslexic language? Dyslexia. Special Issue: Multilingualism and Dyslexia (Part Two) 6 (2), 152-162.

doi: 10.1002/(SICI)1099-0909(200004/06)6:2<152: :AID-DYS158>3.0.CO;2-P.

Spencer, K. (2010). Predicting children's word-reading accuracy for common English words: The effect of word transparency and complexity. British Journal of Psychology 101, 519–543. doi: 10.1348/000712609X470752.

Talli, I. (2010). Linguistic abilities in developmental dyslexia and specific language impairment (SLI): a comparative and cross-linguistic approach. (PhD Dissertation). L'Université Paris Descartes & Aristotle University of Thessaloniki, Thessaloniki.

Tsakalidou, S. (2020). ΔιδασκαλίατηςορθογραφημένηςγραφήςσεμαθητέςΔημοτικούμε δυσλεξίαστομάθηματηςΓερμανικήςωςΒ΄ξένηςγλώσσας [Teaching spelling to learners with dyslexia learning German as a second Foreign Language in primary education]. (PhD Dissertation). Department of German Language and Literature. Aristotle University of Thessaloniki, Thessaloniki. https://www.didaktorika.gr/eadd/handle/10442/48757

Tsakalidou, S. (2021). Μαθητές με δυσλεξία. Δυσκολίες και τρόποι ενίσχυσης [Learnerswithdyslexia. Difficulties and intervention]. Aktuell 52, 16-19.

Tsakalidou, S. (in press). Effectiveness of spelling interventions for learners with dyslexia learning German as a second foreign language. In Proceedings of 3rd International Conference on Management of Educational Units (18-20/12/2020). Preparing for new realities in Education: Opportunities and Challenges. International Hellenic University.

von Suchodoletz, W. (2007a). Lese-Rechtschreibstörung (LRS) im Sprachenvergleich und im Fremdsprachenunterricht. Dyslexia in Different Languages and the Effect of Dyslexia on Foreign Language Learning. Sprache-Stimme-Gehör 31, 126-131.

von Suchodoletz, W. (2007b). Welche Behandlung ist bei der Legasthenie wirksam?Monatsschrift Kinderheilkunde 4, 351–356. doi: 10.1007/s00112-007-1478-9.

Wimmer, H. (1996). The Nonword Reading Deficit in Developmental Dyslexia: Evidence from Children Learning to Read German. Journal of experimental child psychology 61, 80–90. doi: 10.1006/jecp.1996.0004.

Ziegler, J. C., Perry, C., Ma-Wyatt, A., Ladner, D., & Schulte-Körne, G. (2003). Developmental dyslexia in different languages: Language-specific or universal? Journal Experimental Child Psychology 86, 169–193.

****