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A CROSS-DISORDER COMPARISON OF WRITTEN LANGUAGE SKILLS

EVIDENCE FROM CHILDREN WITH A WRITING DISORDER (DYSGRAPHIA) AND MILD LANGUAGE IMPAIRMENT: A CASE STUDY

Eglė Krivickaitė-Leišienė, Viktorija Kavaliauskaitė-Vilkinienė, Melanija Navikaitė

Abstract. This study compares the written language features of two second-grade Lithuanian children – one diagnosed with a writing disorder (dysgraphia) and one diagnosed with mild language impairment. A quantitative and qualitative analysis was conducted on the children's written texts (more than 3,000 words) collected over one academic year. The research identified both shared and distinct types of written language errors. Differences in handwriting and morphological awareness further distinguished the participants. The findings highlight overlapping phonological and grammatical difficulties characteristic of both participants.

Keywords: dysgraphia, language impairment, phonological awareness, primary school, Lithuanian language, child language, written language

1. Introduction

Language consists of distinct yet closely interrelated components – phonology, lexicon, syntax, semantics, and others. Therefore, a language disorder typically affects several components or the whole language system rather than one single area. Learning is a multifaceted process: in order to acquire the basic academic skills such as reading and writing, a wide range of abilities – information processing, attention control – is necessary. Academic skills are crucial for professional success as well as the ability to develop and maintain social relationships, and personal growth (Gedutienė 2018, Shi & Qu 2022).

Spoken language skills are acquired through natural communication between a child and his/her parents or caregivers. First, children learn to hear and recognize

the sounds of the language around them; then they naturally acquire these sounds and eventually begin to use them on their own by imitating speech. By contrast, reading and writing are not naturally acquired abilities – they require systematic learning, practice, and continuous development (Berryhill 2024). It is also important to understand, that the learning process is never the same for everyone: some individuals acquire fluent and accurate reading and writing skills relatively easily, whereas for others, this may become a long-term challenge.

Writing is a complex skill that requires the integration of various cognitive, motor, and linguistic abilities. Children who have only recently started learning to write often attempt to represent spoken language in written form by drawing on the resources of oral language, as they have not yet developed other strategies. It has been established that spoken language is related to the writing process, especially – at the beginning (see Čičirkaitė 2023, 2025). Based on this, it is claimed that speech, language, or phonological disorders affect the quality of written language. This means that spoken language skills are the foundation for primary-school-age children: to successfully acquire reading, writing, and other competencies, they need well-developed spoken language (Sun & Wallach 2014).

Research shows that speech, language, and learning (writing, reading) disorders often overlap. Children diagnosed with reading and writing disorders (dyslexia and dysgraphia), as well as those with language impairment, experience challenges in phonological awareness, semantics, syntax, and lexical development. Although these are distinct disorders, they share many common features: reading and writing disorders (dyslexia and dysgraphia) and language impairment are both characterized by deficits in phonological abilities and weaknesses in word reading and spelling, while language impairment also encompasses broader difficulties in overall language development (Catts et al. 2005).

The aim of this study is to identify similarities and differences in the characteristics of Lithuanian children's written language between two types of disorders – writing disorder (hereinafter dysgraphia, DYS)[1] and language impairment (in this case, mild). The two disorders are briefly discussed below.

Dysgraphia is a neurological disorder that affects the ability to write fluently and correctly. This disorder might develop regardless of various factors such as intellectual and cognitive competences, social and environmental circumstances (Reisman & Severino 2021, Kalenjuk 2022, Nicholson 2023). Some typical features of dysgraphia include unsystematic, disorganized, illegible handwriting, various spelling errors, challenges in expressing ideas clearly in written form, difficulties in applying grammar rules, struggling to construct grammatically correct sentences (Reisman & Severino 2021, Makauskienė & Ivoškuvienė 2022).

Children diagnosed with dysgraphia tend to hold a pen or a sheet of paper in an unusual way, struggle to use writing instruments properly, and write in a straight line. They often have difficulty orienting themselves on the page, thus they ignore margins and lines (Chung & Patel 2015). In addition, errors may also include confusion between letter forms (mixing print and cursive, uppercase and lowercase letters), mistakes in letter order and writing direction, distortions of word structure. For example, children with dysgraphia typically make several characteristic errors, such as omissions (e.g., writing *salas* instead of *s**t**alas*), additions (e.g., *t**r**akas*

[1] In this paper, we adopt the term *dysgraphia* because it is widely used in the international literature addressing writing-specific disorders and allows direct comparison with previous studies. However, it is worth mentioning that in Lithuania the term *dysgraphia* is not used in official classifications. Instead, the term *specific learning disorders (reading, writing, and mathematics)* is used, as defined in the regulation of the Lithuanian Ministry of Education, Science and Sport (Order No. V-1265/V-685/A1-317 of July 13, 2011, Annex I).

instead of *takas*), or substitutions (e.g., ***m****a****n****as* instead of ***n****a****m****as*) of letters or syllables. They may also reverse or invert letters that are visually similar but spatially oriented differently (e.g., writing *b* instead of *d*, or *n* instead of *m*), alter the writing direction or the order of letters within a word (e.g., *mo****kr****a* instead of *mo****rk****a*), and fail to apply writing conventions (e.g., omitting capital letters or punctuation marks) (Gedutienė 2018).

One of the causes of dysgraphia, as well as of dyslexia, is underdeveloped phonological abilities. Research findings indicate that phonological abilities are key predictors determining differences in children's literacy levels and can serve as indicators of literacy competence. For example, the latest Lithuanian language research showed that children with dyslexia experience difficulties in completing phonological processing tasks, such as encoding phonological information, retaining it in verbal phonological short-term memory (VPSTM) for a certain period, and retrieving it. The results of this study provide valuable insights into the phonological difficulties of dyslexic children and may contribute to the development of more effective support (see Krivickaitė 2014, Krivickaitė-Leišienė & Kavaliauskaitė-Vilkinienė 2025).

As mentioned before, speech, language, or phonological disorders are associated with difficulties in phonological skills, particularly phonological awareness and VPSTM. Research have shown that children diagnosed with dysgraphia demonstrate limited phonological awareness compared to their peers with typical reading and writing abilities. These children exhibit weaker phonological awareness skills, experience greater difficulty linking spoken language sounds to written symbols, and consequently show lower performance in reading and writing tasks (Beattie & Manis 2014).

VPSTM is responsible for the temporary storage of verbal information. It is associated with the acquisition of lexical, syntactic, and morphological knowledge, as well as with the ability to acquire reading and writing skills (Daniutė & Staliūnienė 2021). A comparative analysis revealed that children with dysgraphia performed significantly worse than typically developing children in tasks involving the reproduction of phonemes and number sequences (Swanson et al. 2009). It is known that children who perform poorly on VPSTM tasks tend to have more limited vocabulary and grammar skills than their peers who performed better on the same task. Underdeveloped VPSTM can cause inability or difficulty in understanding grammar rules, remembering certain words and letters as well as using them to construct meaningful sentences, understanding various types of texts (Daniutė & Staliūnienė 2021, Krivickaitė-Leišienė & Kavaliauskaitė-Vilkinienė 2025). Consequently, impaired VPSTM affects both language comprehension and use.

Mild language impairment is defined as an underdevelopment or insufficient formation of the entire language system, including phonetics, vocabulary, grammar, and connected speech. It represents the least severe level of language underdevelopment and is characterized by underdeveloped phonemic hearing and phonemic analysis skills. Children with this form of impairment often struggle to distinguish similar sounds, leading to articulation errors and various grammatical, lexical, and phonological inaccuracies in their speech (Dockrell et al. 2009, Makauskienė & Ivoškuvienė 2022).

Articulation difficulties also weaken phonological awareness, making it harder for children to differentiate and accurately associate speech sounds with their

graphic representations. As a result, reading and writing skills are often negatively affected (Kaffemanienė & Reseckienė 2008, Makauskienė & Ivoškuvienė 2022). Impaired phonological awareness can further lead to confusion or misidentification of speech sounds, making it challenging for children to establish sound-letter correspondence and to perform phoneme analysis and synthesis tasks.

Although children with mild language impairment are generally capable of producing short sentences of four to five words, their limited vocabulary constrains both comprehension and text production. Consequently, they may find it difficult to formulate and clearly express their ideas, both orally and in writing. Incomplete mastery of grammatical structures often results in errors in number, case, and tense as well as in sentence organization. Children with mild language impairment frequently use prepositions in spoken language, but tend to confuse them, as they struggle to grasp their precise meanings and appropriate usage. This difficulty is linked not only to language development but also to the development of spatial thinking. As a result, such children may experience difficulties orienting themselves in space and describing the exact location of objects – for example, indicating whether something is next to, behind, in front of, or in another position (Makauskienė & Ivoškuvienė 2022).

Deficits in these abilities are key factors that can predict language development disorders (Dockrell et al. 2009). The development of language skills requires the interaction of these abilities; therefore, impairments in one or more of them may contribute to learning difficulties. If one or several phonological abilities are impaired, not only a child's reading and writing skills but also overall language development is affected, which in turn further hinders the acquisition of written language.

Writing difficulties encountered by children in primary school may appear similar, yet their underlying causes can differ. In some cases, writing errors are primarily driven by challenges in phonological processing and writing-related skills (e.g., orthographic encoding, fine motor skills, and grapheme-phoneme mapping); in others, they reflect broader weaknesses in the language system (e.g., vocabulary, grammar, sentence structure, and discourse abilities), which also occur in written language. Because of this overlap, diagnostic and pedagogical challenges often arise in practice: writing errors may be attributed to "general literacy difficulties" rather than to a specific disorder, and timely support for a child may therefore be delayed.

A comparative analysis of the written language of two pupils – one diagnosed with dysgraphia and one diagnosed with mild language impairment – would allow for a more precise description of which error types and writing features are characteristic of each condition and which are shared. Such findings would be of practical value for teachers, speech-language therapists, special educators, and parents of primary-school children, as they could facilitate earlier identification of risk indicators, more accurate selection of assessment tools, and the planning of targeted interventions (e.g., strengthening phonological abilities, developing grammar and vocabulary, and teaching writing strategies), thereby enhancing academic success and reducing the risk of long-term difficulties and associated emotional consequences.

2. Data and procedure

The research material consists of the written language texts produced by two second-grade students who are native Lithuanian speakers and are diagnosed with different language disorders: one with dysgraphia and the other with mild language impairment.[2]

The data for this study were collected over the course of a single academic year (2023–2024), while the participants were attending the second grade. In collaboration with classroom teachers, the children's written work from exercise books and notebooks was periodically gathered for analysis. The written material was collected twice: at the end of the autumn semester (exercise books and classwork and homework notebooks) and at the end of the spring semester (exercise books, classwork and homework notebooks, and an assessment notebook). Three exercise books and three notebooks were collected for each child.

The participants attended different schools but followed the same general education curriculum, using the same textbooks and exercise books. Written assignments were selected for analysis from the collected material, focusing on texts produced independently by the pupils (short essays, dictations by the teacher) and other individual writing tasks (i.e., all texts written by children, except those rewritten based on the given example in the exercise books).

Two corpora were compiled for this study: the sample of analyzed texts produced by the child with dysgraphia consisted of approximately 1,860 words, while the sample from the child with mild language impairment comprised slightly more than 1,210 words. Both quantitative and qualitative analysis methods were applied to thoroughly assess the errors made by the students.

The principles of data protection, anonymity, confidentiality, and respect for participants were upheld. Parental consent for the collection and analysis of their children's written language data was obtained.

Repeated errors were counted as separate error instances. Each occurrence of an error was included in the analysis, even when the same error appeared multiple times or involved repeated use of the same word. This approach was adopted to reflect the frequency and persistence of error patterns in the participants' written work. In analyzing the children's texts, all errors were classified into three main categories.

1. **Acoustic and optical errors** included omissions or insertions of sounds, confusion of acoustically or visually similar sounds within words, mixing of short and long vowels,[3] incorrect or inconsistent use of the soft sign, errors in writing diphthongs.
2. **Spelling rule errors** encompassed mistakes in the use of the singular accusative and plural genitive, singular locative, and plural nominative case endings;[4] incorrect spelling of third-person present

[2] The diagnoses of the children who participated in the study were established by specialists from the Pedagogical Psychological Service. Within the service, the children are assessed by a speech-language therapist, a psychologist, and a special education specialist. Each specialist provides an evaluation, and a joint conclusion regarding the child's language development is then reached.

[3] Typically, it involved the mixing of *u*, *ū*, *i*, and *y*. In Lithuanian, *u* and *i* denote short sounds, while *ū* and y denote long sounds. Generally, the short and long vowels *i*, *u*, *y*, *ū* in Lithuanian are written as they are pronounced, that is, according to the phonetic spelling principle.

[4] In Lithuanian, there are certain specific spelling rules that children must learn: in the singular accusative case endings, the long vowels *-ą*, *-ę*, *-į*, *-ų* are used; in the plural genitive case endings, *-ų* is used; in the singular locative ending, the vowel *-e* is used; in the plural nominative case of specific paradigm, the ending *-iai* is used.

tense verb endings;[5] errors in the spelling of adverbs, adjectives, and pronouns.[6]

3. **Grammatical errors** included agreement errors (in gender and number), verb government errors (in case usage).

As mentioned before, the aim of this study is to reveal the main differences and similarities of written language features between the child with dysgraphia and the child with mild language impairment. To achieve this goal, the following steps had to be taken.

1. To calculate all analyzed words in these children's written works and to find and calculate words with errors.
2. To analyze the errors, categorize them into types, and compare them between the two participants.

To achieve these goals, qualitative and quantitative analysis was carried out. For qualitative analysis we used the SPSS.22 program. To assess the difference in writing errors between the two children, the Chi-square (χ^2) test was applied, as it allows the comparison of proportions between two independent samples. The Chi-square test is widely used in educational and psycholinguistic research to evaluate whether differences between groups are random or systematic (the Chi-square test is a non-parametric statistical test used for data analysis when one or more variables are nominal or categorical in nature). Although the sample consisted of two children, the Chi-square (χ^2) test was applied to compare the distributions of error types across many individual error tokens. Thus, the statistical unit was the frequency of errors rather than the number of participants. Nevertheless, the results should be interpreted cautiously and viewed as exploratory rather than confirmatory.

3. Results

The analysis of the total number of correct and incorrect words showed that the child with dysgraphia (hereinafter, DYS child) wrote approximately 20% of the words with errors, while the child with mild language impairment (MLI child) made errors in about 11% of all analyzed words. Thus, in general, the DYS child made more errors than the MLI child. The statistical analysis revealed that the difference is significant ($\chi^2(1) = 51.78$, $p < 0.001$).

As mentioned earlier, these two impairments – writing and language – are associated with difficulties in phonological abilities, which makes it necessary to examine and analyze in greater depth the types of errors made by the children.

The analysis of error types revealed both similarities and differences between the participants (see Figure 1). The statistical analysis revealed that the difference in the distribution of error types between the participants was statistically significant ($\chi^2(3) = 128.95$, $p < 0.001$).

Acoustic and optical errors dominated in the written assignments of both the DYS and MLI child. Spelling errors were also common in both cases. However, the participant with MLI tended to make more grammatical errors than the participant with DYS. These differences may indicate that the errors made by the participants were influenced, to varying degrees, by different mechanisms of language processing. These findings support the statements about these impairments discussed in

[5] In Lithuanian, 1st conjugation verbs in the present tense 3rd person have the ending *-(i)a*, which is often mistakenly replaced with the ending *-e*.

[6] Typically, it involves writing adverbs, adjectives, or pronouns with the endings *-ia(i)*, *-ia*.

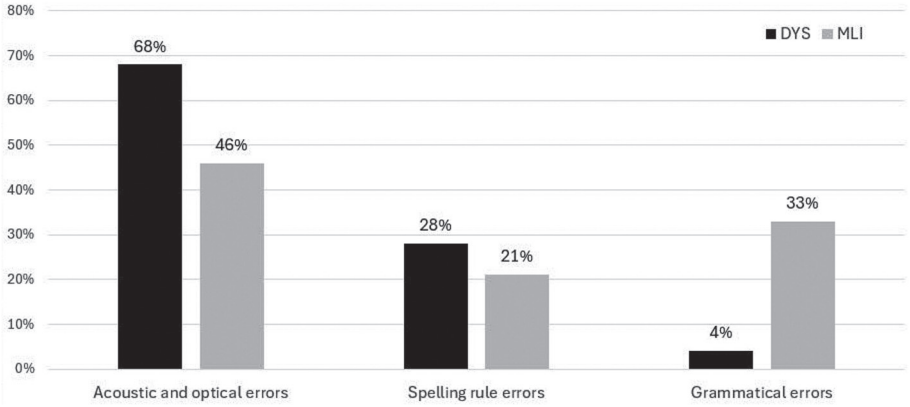

Figure 1. Types of errors in the written work of the child diagnosed with dysgraphia (DYS) and the child diagnosed with mild language impairment (MLI)

scientific literature – they are overlapping each other. It is therefore important to provide a qualitative description of the types of errors made by both children and to compare them.

3.1. Acoustic and optical errors

The types of errors in the acoustic and optical group consisted of omission and addition of sounds within a word, visual and acoustic similarities of sounds, errors within diphthongs (this usually included swapping the sounds in a diphthong), mixing short and long vowels, and incorrect or inconsistent use of the soft sign.

Figure 2 illustrates the distribution of these errors in the written works of both participants. The largest number of errors made by both participants were sound omissions, acoustically similar sound errors, and short and long vowel errors. This shows that both participants – DYS and MLI – experience difficulties in phonological processing tasks.

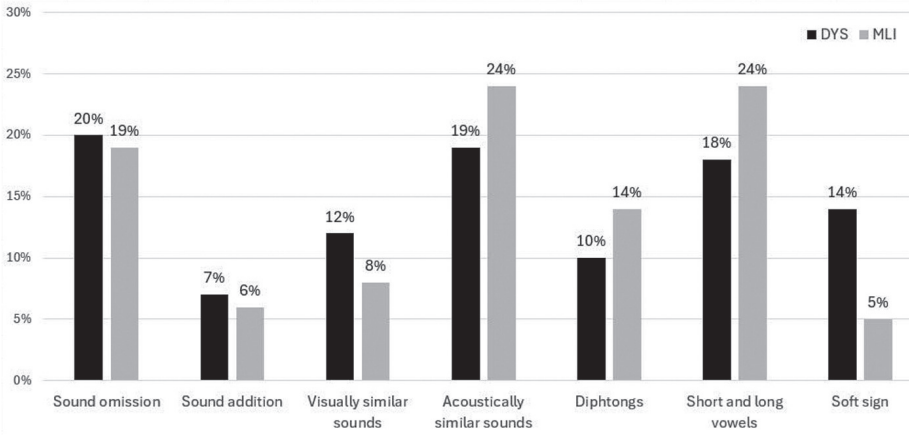

Figure 2. Acoustic and optical errors in the written work of the child diagnosed with dysgraphia (DYS) and the child diagnosed with mild language impairment (MLI)

We can observe some differences between the error subcategories of the DYS and MLI children – for example, the usage of the soft sign errors was more common in the DYS child's writing, while short-long vowel distinctions caused more difficulties for the MLI child. However, these differences were not statistically significant ($\chi^2(6) = 12.10$, $p = 0.06$).

The qualitative analysis reveals that the DYS child tended to omit vowels, consonants, and even syllables, for example: *senlio* (= *sen**e**lio*), *papsakojo* (= *pap**a**sakojo*), *galma* (= *gal**i**ma*), *žogus* (= *ž**m**ogus*), *skisiu* (= *sk**r**isiu*), *mokla* (= *mok**yk**la*), *geisminikiu* (= *giesmin**in**kų*). The MLI child more often omitted consonants, usually in consonant clusters: *vagomojo* (= *va**l**gomojo*), *šiadien* (= *ši**a**ndien*), *alekia* (= *a**t**lekia*).

Sound addition analysis showed that the DYS child usually added a vowel within consonant clusters: *d**i**lizga* (= *blizga*), *g**i**ryšu* (= *grįšiu*), *kal**i**niuko* (= *kalniuko*) or next to another vowel: *ru**i**gu* (= *rugių*), *ra**i**ktams* (= *raktams*). The MLI child seemed to add sounds either due to their visual similarity (e.g., *n**o**aują* = *naują*, as the child writes the letters *a* and *o* similarly) or because of the acoustic similarity of the word's sound (e.g., *oran**dž**inis* = *oranžinis*).

The analysis of visually similar sounds showed that the DYS child mostly confused the sounds *d–b*, *m–n*, *s–š*, *z–ž*: e.g., *ma**m**o* (= *ma**n**o*), ***d**utu* (= ***b**ūtų*), ***s**eima* (= ***š**eima*), ***d**lizga* (= ***b**lizga*), *gra**z**us* (= *gra**ž**us*); while the MLI child mostly confused *u*–v and *p–g*, *m–n*, *z–ž*, for example: ***v**odytė* (= ***u**ogytė*), *se**p**tukus* (= *se**g**tukus*), *pili**m*** (= *pili**n***), *mu**ž**ikos* (= *mu**z**ikos*).

The analysis of acoustically similar sound errors revealed that, in the written work of both the DYS and MLI children, the most frequent mistakes involved confusion between pairs of voiced and voiceless consonants, such as *k–g*, *š–ž*, and *č–dž*, for example: *ran**g**ena* (= *ran**k**ena*), *dau**k*** (= *dau**g***), *balan**č**o* (= *balan**dž**io*), *i**ž**gel**d**ėjo* (= *i**š**gel**b**ėjo*), as well as between vowels *e–ė*, e.g., *egl**e**s* (= *egl**ė**s*), *l**ė**dus* (= *l**e**dus*), *mergait**e*** (= *mergait**ė***), *v**e**lau* (= *v**ė**liau*).

The analysis of the diphthongs showed that the DYS child usually substituted the elements of the diphthongs with other diphthongs, for example: *dr**uo**ge* (= *dr**au**gę*), *nuotr**uo**ką* (= *nuotr**au**ką*), *d**ai**ną* (= *d**ie**ną*), *l**uo**kuose* (= *l**au**kuose*), *vilkiuk**ie*** (= *vilkiuk**ai***). While the MLI child usually omitted one of diphtong's member: *plauk**o**tas* (= *plauk**uo**tas*), *vart**uo**ju* (= *vart**o**ju*), *pratyb**uo**se* (= *pratyb**o**se*).

The analysis revealed that both participants face difficulties in differentiation of short and long vowels. Interestingly, the DYS child usually wrote a short instead of long vowel in accented syllables: *v**i**ras* (= *v**y**ras*), *lazd**i**no* (= *lazd**y**no*), *ož**i**s* (= *ož**y**s*), *sk**i**stas* (= *sk**y**stas), mam**i**tei* (= *mam**y**tei*), *skruzdėl**i**tė* (= *skruzdėl**y**tė*), *saul**i**tė* (= *saul**y**tė*), *koj**i**tes* (= *koj**y**tės*); while the MLI child used a short vowel in both (non-accented and accented) syllables of the word: *nepais**i**dama* (= *nepais**y**dama*), *pasaul**i**je* (= *pasaul**y**je*), *neb**u**ti* (= *neb**ū**ti*).

The soft sign use errors were more common in the DYS child's texts. In Lithuanian, the letter *-i-* between a consonant and a vowel functions as a soft sign. The child either omitted it, for example, *kač**u**kas* (= *kač**iu**kas*), *ž**ū**ri* (= *ž**iū**ri*), or inserted it where it was not needed, for example, *fok**iu**sas* (= *fok**u**sas*), *beržiu* (= *beržu*). These types of errors indicate difficulties in phonemic analysis, which refers to the ability to recognize and distinguish the acoustic features of speech sounds by hearing – such as voicing and devoicing (e.g., *p–b*, *k–g*), vowel length (e.g., *i–y*, *u–ū*), or softness.

3.2. Spelling rule errors

The spelling rule errors included mistakes in the use of singular accusative and plural genitive endings – where long vowels *-ą*, *-ę*, *-į*, *or -ų* are required – as well as in singular locative and plural nominative case endings of specific paradigm, third-person present tense verb of the 1st conjugation endings, and the spelling of adverbs, adjectives or pronouns with the ending *-ia(i)*. Most of these errors relate to orthographic rules that children must memorize, since the pronunciation often sounds like [ei] or [e], whereas the correct written representation of these forms should be <iai> or <ia>.

The analysis showed that both – DYS and MLI – participants made the most errors of this type when writing the singular accusative and plural genitive case ending, especially the DYS child. The MLI child made more spelling errors of other types (see Figure 3).

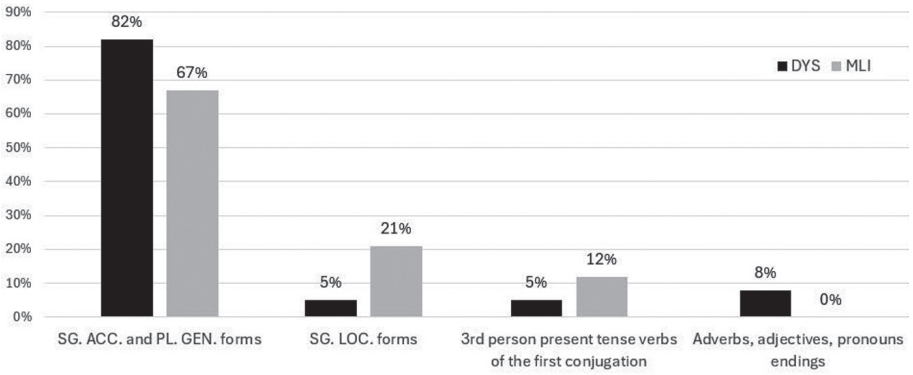

Figure 3. Spelling rule errors in the written work of the child diagnosed with dysgraphia (DYS) and the child diagnosed with mild language impairment (MLI)

Singular accusative and plural genitive errors included two main types. In the first type, participants replaced the vowels *ą*, *ę*, *į*, *ų* with the vowels *a*, *e*, *i*, *u*, for example: *ežer**a*** (= *ežer**ą***), *į klas**e*** (= *į klas**ę***), *saldain**i*** (= *saldain**į***), *mįsl**e*** (= *mįsl**ę***), *šun**i*** (= *šun**į***). In the second type, instead of using the long vowel *ų* or *į*, they wrote the long vowel *ū* or *y*, for example: *senel**y*** (= *senel**į***), *į švytur**y*** (= *į švytur**į***), *nakt**y*** (= *nakt**į***).

As noted by Čičirkaitė (2023, 2025), such errors suggest that the children's spelling was influenced by spoken language, as they wrote words the way they pronounced them. When they pronounced the vowel as short, they wrote a short vowel: *ežer**a*** (= *ežer**ą***); whereas when they perceived the ending as long, they wrote long *y* or *ū* instead of long *į* or *ų*, which are pronounced the same as *y* or *ū*: e.g., *senel**y*** (= *senel**į***).

In all other subtypes of errors, both DYS and MLI participants also wrote words the way they heard or pronounced them. They relied on the articulatory-phonetic principle, meaning they spelled words based on how they sounded rather than according to standard orthographic rules (Čičirkaitė 2023). For instance, the rule requires the use of *-e* at the end of singular locative forms (e.g., *klasėj**e***). However,

children often wrote the words according to their pronunciation with the ending *-(i)a*, for example: *pakėlėj**ia*** (= *pakelėj**e***), *arklidėj**a*** (= *arklidėj**e***), *viduj**a*** (= *vidu**je***), *kurpinėj**a*** (= *kuprinėj**e***). A similar pattern was observed in the third-person present tense verb endings of the 1st conjugation, where the correct form should be *-a* or *-ia*, but participants often replaced *-ia* with -e, for example: *tup**e*** (= *tup**ia***), *grėb**e*** (= *grėb**ia***), *ruoš**e*** (= *ruoš**ia***), *kryk**e*** (= *kryk**ia***). A comparable pattern was found in the use of feminine forms of adjectives and pronouns, where the correct ending is <-**ia**>, but the DYS child used <-**e**>, or example: adjective *žal**e*** (= *žal**ia***), *mekstameus**e*** (= *mėgstamiaus**ia***), *kok**e*** (= *kok**ia***). Similarly, in adverb formation, where the correct ending is <-**iau**>, the DYS child often used <-**eu**>, for example: *smark**eu*** (= *smark**iau***), *skan**eu*** (= *skan**iau***).

These types of errors confirm that the participants had not yet mastered the spelling rules and tend to write words based on their sound rather than their correct orthographic form.

3.3. Grammatical errors

The grammatical errors group included use of the incorrect case (verb government errors), agreement errors, word segmentation errors (the prefix was written separately), and paradigm errors. The analysis showed that the differences between the participants' results were not significant ($\chi^2(4) = 3.20$, $p = 0.53$). Although the DYS child's writing more frequently exhibited government and word segmentation errors, while the MLI child's writing showed more agreement errors. These differences were not sufficient enough to be considered statistically significant.

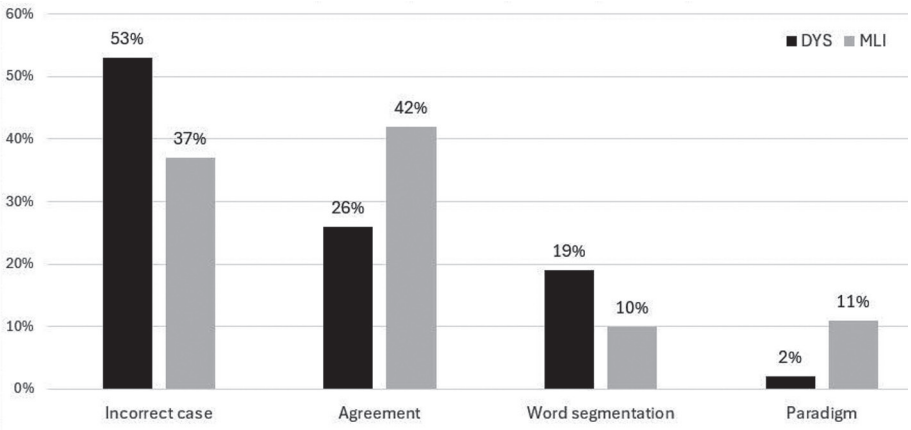

Figure 4. Grammatical errors in the written work of the child diagnosed with dysgraphia (DYS) and the child diagnosed with mild language impairment (MLI)

It is clear that using the correct grammatical case in a sentence was problematic for both participants – they made the largest number of errors in this subcategory. There are some examples (1–3):

(1) Jie pagalvojo apsimesti, kad užmiršo jo **gimtadien<u>is</u>** (= **gimtadienį**).
they:PRON:MS:PL:NOM think:V:PAST.3PL pretend:V:INF that:CON
forget:V:PAST:3PL his:PRON:MS:SG:GEN birthday:NOUN:MS:SG:**NOM**
(= birthday:NOUN:MS:SG:**ACC**)
'They thought of pretending that they had forgotten his birthday.'

(2) Kiškis mėgsta **salot<u>ų</u>** (= **salot<u>as</u>**).
rabbit:NOUN:MS:SG:NOM like:V:PRES:3SG salad:NOUN:FEM:PL:**GEN**
(= salad:NOUN:FEM:PL:**ACC**)
'The rabbit likes salad.'

(3) Mes su **Adom<u>as</u>** (= **Adom<u>u</u>**) būsim kinoteatre.
we:PRON:PL:NOM with:PREP Adam:NOUN:MS:SG:**NOM**
(= Adam:NOUN:MS:SG:**INS**) be:V:FUT:1PL cinema:NOUN:MS:SG:LOC
'Adam will be with us at the cinema.'

As illustrated by the examples, the participants replaced less frequent Lithuanian grammatical cases (e.g., instrumental) with more frequent ones, such as the nominative or genitive,[7] in their writing.

Figure 4 shows that agreement was also problematic for both participants. As mentioned earlier, in Lithuanian, adjectives, pronouns, and numerals must agree with the nouns they modify. Children diagnosed with language difficulties usually also tend to have problems in this area (4–6).

(4) **Koks** (= **kokia**) tavo mekstameuse (= mėgstamiausia) batu virma (= firma)?
what:PRON:**MS**:SG:NOM (= what:PRON:**FEM**:SG:NOM)
your:PRON:SG:GEN favorite:ADJ:FEM:SG:NOM shoe:NOUN:MS:PL:GEN
brand:NOUN:FEM:SG:NOM
'What is your favorite shoe brand?'

(5) **Vienas** (= **viena**) žuvis plaukia ežere.
one:NUM:**MS**:SG:NOM (= one:NUM:**FEM**:SG:NOM) fish:NOUN:FEM:SG:NOM
swim:V:PRS:3SG lake:NOUN:MS:SG:LOC
'One fish is swimming in the lake.'

(6) Pūskelio kojytės yra **balt<u>a</u>** (= **balt<u>os</u>**).
Pūskelio:NOM:MS:SG:GEN leg:NOUN:FEM:PL:NOM is:V:PRS:3PL
white:ADJ:FEM:**SG**:NOM (= white:ADJ:FEM:**PL**:NOM)
'Pūskelis's little legs are white.'

The analysis revealed that the DYS child faced difficulties with word segmentation – the participant consistently wrote prefixes separately from the root word, for example: *at važevom* (= *atvažiavome*), *į dėjo* (= *įdėjo*), *susi tarė* (= *susitarė*).

This indicates that the DYS child has not yet fully acquired the morphological structure of words and has difficulties recognizing prefixes as a full part of the word. It means that the child faces challenges with morphological awareness and the visual-orthographic processing of word forms.

The MLI child had difficulties using the correct paradigms of past tense verbs. For example, the child wrote: *miego* instead of *miegojo* ('slept'); *filmojau* instead of *filmavau* ('I was filming'); *nustembė* instead of *nustebo* ('surprised'); *atsisėdė* instead of *atsisėdo* ('sat down'), etc. These examples indicate that the child has

[7] You can read more about the most and least frequently used grammatical cases in Lithuanian in Savickienė 2006.

not yet fully acquired the correct use of past tense verb conjugation, suggesting an incomplete acquisition of verb morphology and tense formation.

Although the total number grammatical errors in the participants' texts was not large, the pattern was clear: the analysis revealed that both pupils experience certain issues with morphology acquisition and development.

4. Final remarks

This study examined the written language of two children with different language disorders – dysgraphia (DYS) and mild language impairment (MLI) – to explore differences as well as overlaps in their error patterns. Dysgraphia is often associated with difficulties in the mechanics of writing and phonological-orthographic encoding, including letter formation, spatial organization, and grapheme-phoneme mapping (Chung & Patel 2015, Reisman & Severino 2021); whereas mild language impairment reflects broader weaknesses in vocabulary, grammar, and sentence structure (Dockrell et al. 2009). Thus, the child with MLI is more strongly associated with grammatical and lexical weakness in writing, while the child with DYS primarily shows difficulties with transcription and word form accuracy.

At the same time, both disorders share underlying vulnerabilities in phonological processing and verbal short-term memory, which are crucial for both spoken and written language (see Catts et al. 2005, Daniute & Staliūnienė 2021, Krivickaitė-Leišienė & Kavaliauskaitė-Vilkinienė 2025). These shared weaknesses can lead to overlapping patterns of errors, such as omission, substitution, and confusions of acoustically similar sounds (Beattie & Manis 2014, Gedutienė 2018). Consequently, the written language of children with DYS and MLI may appear similar at the surface level, making differential diagnosis challenging. This overlap underscores the importance of careful, case-based analysis when interpreting children's writing difficulties (Dockrell et al. 2009).

The aim of the study was to compare the distinctive and shared features of written language texts of a child with dysgraphia and a child with mild language impairment. It is important to note that the empirical data used for this case study are based on only two children. Therefore, the results cannot be generalized, and further research with larger datasets is needed. Nevertheless, the findings provide valuable insights into the written language characteristics associated with different language disorders and may inform future, larger-scale studies.

The analysis of written texts produced by the two participants (DYS and MLI) revealed that the child with DYS made a statistically significant larger number of errors overall. In particular, the DYS child showed a higher frequency of errors in the acoustic and optical categories specifically, whereas the MLI child produced more errors in the grammatical category. Below, we summarize the main similarities and differences observed in their written work. A comparison of both participants' written work revealed overlapping patterns of phonological errors, suggesting common areas of difficulty, alongside some emerging differences in error profiles. In both cases, confusions between acoustically similar sounds – especially voiced and voiceless consonants (e.g., *k–g*, *š–ž*) and vowels contrasts (*e–ė*) – were frequent, pointing to challenges in phonemic processing. At the same time, notable differences were observed: the DYS child more often omitted vowels, consonants,

or entire syllables and tended to add vowels within consonant clusters, whereas the MLI child more frequently omitted consonants, particularly in clusters, and occasionally added sounds based on visual or acoustic similarity. Differences were also noted in visually similar letter confusions, diphthong errors, and short-long vowels distinctions.

The analysis of spelling rule errors showed that both participants displayed similar orthographic error pattens, especially in grammatical forms requiring the long vowels *ą, ę, į, ų,* commonly used in singular accusative and plural genitive endings, as well as in locative forms and present tense verb endings of the 1st conjugation with *-e* or *-ia*. These errors may indicate a reliance on spoken language, with words often spelled as they were perceived or pronounced (see Čičirkaitė 2023, 2025). Such errors were most frequent in singular accusative and plural genitive forms, particularly in the written work of the child with DYS.

The grammatical error analysis indicated that both children had difficulties with morphological features of written language, pointing to common areas of weakness. The use of grammatical case was problematic for both pupils; numerous agreement errors were also observed. Some tentative differences emerged: the DYS child more frequently exhibited government and word segmentation errors, whereas the MLI child showed more agreement errors and difficulties with past tense verb paradigms. However, given that these observations are based on the written work of two children, they should be interpreted with caution and viewed as illustrative rather than generalizable, pointing to patterns that may encourage further investigation in larger samples.

This study focused on the children's written language and the errors observed in their written work. In addition to error patterns, another feature that may differentiate the two participants is handwriting neatness. Based on visual observation, the written work of the child with DYS appeared less orderly, with more frequent erasures and less consistent writing direction, whereas the child with MLI tended to produce neater and more consistent handwriting (see Figure 5 and Figure 6).

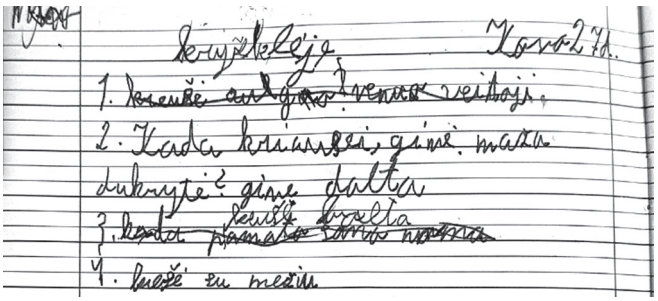

Figure 5. An example of the DYS child's handwriting

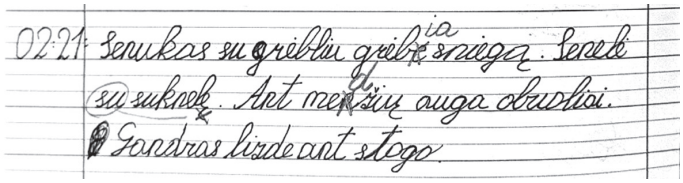

Figure 6. An example of the MLI child's handwriting

This contrast in handwriting between the two participants highlights differences in their graphomotor skills and in their ability to plan and control the writing process, representing yet another distinction between DYS and MLI. However, given the small sample size, these observations should be interpreted with caution and viewed as indicative rather than conclusive.

Each child with DYS may differ considerably and their writing characteristics can vary widely. Children with dysgraphia and/or dyslexia do not represent a homogeneous group. The different types and manifestations of these disorders mean that there is no single universal solution, which makes it difficult to precisely identify the causes and to select appropriate support or intervention methods.

Although all the errors discussed may be typical for most beginning writers, it is important to pay attention to whether these errors are systematic – that is, whether they recur across a child's written work. Monitoring the development of written language is crucial: typically, developing children show continuous improvement in their writing, gradual decrease in both the number and types of errors, whereas children with language or writing disorders usually develop written language skills slower and the errors tend to persist.

Abbreviations

ACC	accusative case	MS	masculine
ADJ	adjective	NOM	nominative case
CON	conjunction	NUM	numeral
DYS	dysgraphia	SG	singular
FEM	feminine	PAST	past tense
FUT	future tense	PREP	preposition
GEN	genitive case	PRES	present tense
INF	infinitive	PRON	pronoun
LOC	locative case	PL	plural
MLI	mild language impairment	V	verb

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KIRJUTAMISOSKUSE HÄIRETEÜLENE VÕRDLUS: VAEGKIRJUTAMISE (DÜSGRAAFIA) JA KERGE ALAKÕNEGA LASTE JUHTUMIUURING

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Uuringu eesmärk oli võrrelda kirjaliku kõne omadusi kahel teise klassi lapsel, kellel on erinevad raskused kirjutamisoskuses: düsgraafia ja kerge alakõne. Laste enam kui 3000-sõnaliste kirjalike tekstide kvantitatiivne ja kvalitatiivne analüüs näitas nii sarnasusi kui ka erinevusi nende veamustrites. Mõlemal lapsel esines kattuvaid fonoloogilisi ja ortograafilisi raskusi, eriti vigu, mis olid seotud häälikute segiajamise, vahelejätmise või asendamisega. Düsgraafiaga laps tegi kokkuvõttes märkimisväärselt rohkem vigu, eelkõige akustilisi ja visuaalseid (optilisi) vigu, mis on seotud fonoloogilise töötluse ja kirjutamise tehniliste oskustega. Seevastu kerge alakõnega lapsel esines rohkem morfoloogia ja lauseehitusega seotud grammatilisi vigu. Tulemused osutavad, et kuigi neil häiretel on ühiseid fonoloogiliste oskuste raskusi ja need võivad seetõttu kirjalikus keeles sarnased paista, võimaldab veatüüpide üksikasjalikum analüüs tuvastada erinevaid alusmehhanisme. Sellised eristused on olulised täpsema diagnoosi seadmiseks ning sobiva haridusliku ja logopeedilise toe kavandamiseks lastele.

Võtmesõnad: düsgraafia, alakõne, fonoloogiline teadlikkus, kirjalik kõne, põhikool, lastekeel, leedu keel

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