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**UURIMUSI  
KEELE OMANDAMISEST,  
ÕPPIMISEST JA KORPUSTEST**

**STUDIES IN  
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LEARNING, AND CORPORA**

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# Letter-name spelling in Polish and English: Different languages, the same strategy (?)

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**Abstract.** Previous research on children's invented spelling observed that children can use the name of a letter to code two successive phonemes in a word (e.g. CR 'car'). This study presents some research results on Polish invented spelling and describes an investigation into the development of early literacy. Our aim is to characterize mistakes made by Polish children at the beginning of schooling and to compare the *letter-name spelling* strategy in Polish and in English. The results confirm that this strategy is widely used by Polish children. A comparison of two characteristic misspellings: Polish-speaking children's (RBA 'ryba' – *fish*) and English-speaking children's (HLP 'help') shows that the ways of access to literacy (teaching the names of letters vs. phonological training) have a fundamental significance to pre-schoolers' conception of grapheme-phoneme correspondences.<sup>1</sup>

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<sup>1</sup> This research was based on the project *Wczesna diagnoza specyficznych zaburzeń czytania i pisania* (Early diagnosis of specific reading and writing disorders) carried out by the Educational Research Institute within the systemic project "Quality and effectiveness of education – strengthening of institutional research capabilities" and co-financed by the European Social Fund (Human Capital Operational Programme 2007–2013, Priority III: High quality of the educational system, Submeasure 3.1.1 Creating the conditions and tools for educational system monitoring, evaluation, and research). The main goal of this project is to develop a battery of tests to



**Keywords:** psycholinguistics, invented spelling, early spelling development, error analysis, Polish

## Introduction

### Invented spelling – a window on early literacy

Invented spelling plays a special part in research on writing acquisition. This means the writing produced by young children (aged 3–7) before they are formally taught reading and writing or when they are at the beginning of the learning process. Their writing is more spontaneous than learnt. Notes made by these children, and, more specifically, their departures from standard orthography, tend not to be accidental and allow inferences to be made about their conceptualization of written language and its relation to spoken language. They illustrate the process of increasing linguistic and orthographic awareness and prove their cognitive effort. Young children invent a graphic system, which is closer to surface phonetics and their linguistic intuition than a conventional system.

The analysis of children's writing provides insight into phonological representations of words and reflects strategies of phonological segmentation and the process of the acquisition of graphotactic, orthographical, and morphological rules of a given language by pre-schoolers (cf. Titos et al. 2003, Hayes et al. 2006, Deacon et al. 2008, Rispens et al. 2008, Sangster, Deacon 2011). Invented spelling, together with phonological abilities and letter knowledge, is considered to be a strong predictor for later literacy skills (cf. Caravolas et

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assess reading and spelling abilities in children, before starting and at the beginning of formal reading instruction, that are predictive of specific reading and spelling disorders and connected with the risk of developmental dyslexia.

al. 2001, Snowling et al. 2003, Pelletier, Lasenby 2007, National Early Literacy Panel 2008, van Bergen et al. 2012).

The studies analysed linguistic conditioning for early literacy, showing how the way children are introduced to the world of sounds and letters influences their thinking about written language and their ability to write (cf. Treiman 2004, Pacton et al. 2005, Alves Martins 2007, Pasa, Morin 2007, de Vasconcelos Horta, Alves Martins 2011, Sénéchal et al. 2012) and how literacy acquisition is determined by the characteristics of a given language and its orthography (cf. Wimmer, Landerl 1997, Bourassa, Treiman 2001, Spencer, Hanley 2003, Sprenger-Charolles 2004, Viise et al. 2011). Comparative research on reading acquisition in 13 European languages (Seymour et al. 2003) confirmed that differences in the acquisition process depended mainly on the characteristics of oral language and orthography. In deep orthographies (like English or French), learning reading and writing is more difficult than in shallow orthographies (like Polish). However, the first stage seems to be the same – children start to understand the relationship between graphemes and phonemes; this means they have to catch how graphic signs correspond to phonetic signs and how phonemes are represented by graphemes.

Research on the development of early writing enabled the construction of various tools for assessing the development of these skills on the basis of errors that children made while writing single words (cf. Pelletier, Lasenby 2007, Young 2007, Oldrieve 2011). These tools are used for diagnosis, increasing the effectiveness of teaching through individualisation, early intervention, and the prediction of later reading and writing ability.

### **Letter-name spelling strategy**

Children striving to understand the essence of an alphabetic system become acquainted with letters and realize that they represent sounds in writing. At the beginning, children have many problems with the phonological segmentation of words. This is visible in writing in the form of omitted letters. Syllables are represented by single graphemes. In English, these characteristic errors are related to methods of teaching. English-speaking children learning the alphabet write a letter to represent the sounds of the letter's name. For instance, children spell *help* as HLP, because they relate the phonetic value of L to the sound form of the letter name /el/. This is why this stage is called *letter-name spelling* (Henderson 1985).

The knowledge of letter names and their use by young learners at an early stage in phonic spelling has been studied in many studies conducted in English (cf. Treiman, Cassar 1997, Ehri 2000, Bourassa, Treiman 2001, Werfel, Schuele 2012). The strategy of letter-name spelling also appears in children beginning to write in other alphabetic scripts (cf. Levin et al. 2002, Hannouz 2005, Morin 2007). *Letter-name spelling* is the characteristic stage for children who learn reading and writing in many alphabetical systems.

### **The Polish language, orthography and its implications for teaching reading and writing**

Polish is a language in which numerous morphological alternations take place and consonants form over 70% of the whole phonological system. The inflectional nature of Polish, which is related to changes in the graphic representation of forms of one lexeme in a written text (e.g. *ręka* 'hand', but *(bez) rąk* '(without) hands', *(dwie) ręce* '(two) hands'), results in the fact that a global method becomes of

little efficiency. Writing cannot merely rely on auditory experience because Polish spelling codes both phonological and morphological information. The consonantal character of the Polish language and the variety of syllable structures, especially the presence of consonantal confluences, cause difficulties in phonological segmentation. The properties of syllables and their number in a word result in the fact that a syllable in initial reading and writing acquisition may only play an auxiliary role.

Polish uses the Latin alphabet. Polish spelling may be called phonetic/morphological. The Polish alphabet has 32 letters, out of which nine have diacritics (e.g. *Ć*, *Ę*). The Polish language uses 44 graphemes to mark its 37 phonemes due to the fact that, apart from individual letters, it also uses 12 compound graphemes (e.g. *CZ*, *DZI*). Among Polish graphemes, there are pairs referring to the same phonetic unit (e.g. *Ż* – *RZ*, *Ź* – *ZI*). The majority of remaining graphemes are consistent in reading even though correct reading requires an analysis of the closest graphic context. In writing, inconsistent units constitute a large group whose notation is not always predictable (e.g. *A-ON-OM-OŃ*, *SZ-Ż-RZ*). This means that, knowing the basic principles of the Polish language, it is easier to read a given word than to write it down. Summing up, it may be stated that the Polish script system is not as shallow as Italian or Finnish, but it is also not as opaque as English or French.

### **The education system in Poland**

In recent years, the Polish education system has been reformed. This includes changes in school and preschool entrance ages. The age at which children start compulsory annual preschool education has been decreased to five years (before it was six years), and compulsory school education now starts at the age of six (it was seven

previously). The changes are being introduced gradually. They now mean an absolute preschool obligation for all five-year-olds, which can only be realised in kindergartens or special school units that are adapted for this in an appropriate way. When it comes to compulsory school education, until 2014, the decision on whether to send a six-year-old child to school was to be made by the parents. In this circumstance, there were both six-year-old children and seven-year-old children in the same class. The situation changed in September 2014, when all six-year-olds had to start their school education in the first grade. The aim is that five-year-old children attend mandatorily an annual school preparation course and then – at the age of six – continue their education at the first grade of primary school. The result of the on-going reforms of the school system is age-level diversity among pupils in the three first grades of primary school (the first level of education).

### **Reading and spelling instruction in Poland**

In the annual preschool course, readiness for reading and writing is developed. The core curriculum assumes that, during this time, reading, writing, letters etc. are not yet taught, but some exercises are introduced that improve the organization of the field of visual perception and eye-hand coordination. Also, an interest in reading and writing is developed, as well as the ability to construct sentences, segment sentences into words, and isolate sounds in words of a simple phonetic structure.

In the first level of education, the teaching of pupils' native language in the first grade includes initial reading and writing education. A student finishing first grade will know all the letters of alphabet<sup>2</sup>,

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<sup>2</sup> The core curriculum assumes that a student finishing first grade can also read and write simple, short texts, care for the aesthetics and graphic cor-

but this means recognition of letters, not reciting the alphabet. Polish pre-schoolers, like those in Greece (Tantaros 2007) – as compared with English-speaking children – can more frequently utter a sound than the name of a letter. The process of getting to know letters usually commences with the introduction of letters denoting vowels (e.g. A, O, and E). This facilitates the process of sound analysis and synthesis of words due to the fact that vowels are syllable-forming elements; subsequently, single letters denoting consonants are introduced (e.g. M, T, B). Finally, children become acquainted with compound graphemes (e.g. SZ, CZ) and soft consonants, which have dual marking (e.g. Ś – SI). Reading acquisition commences with short texts containing words with a simple phonetic structure compliant with a script; later, more natural texts are introduced.

In Poland, learning to read and write is dominated by the analytical and synthetic method in its lexical variety. This means that the basis of analysis (visual or auditory) and, subsequently, synthesis is a word containing an introduced letter or sound. Phonemic analysis exercises consist in the auditory separation of sounds in a word. Familiarization with the phonetic value of individual letters takes place during perceptual analysis of individual words, which consists of the pronunciation of sounds in isolation.

### **Studies on early spelling development in the Polish language**

Against the background of dynamically developing international research about invented spelling, there is a lack of Polish work on writing acquisition by children at preschool age. The reason for the relatively low interest in children's writing prior to formal education is the approach to teaching reading and writing. Work on

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rectness of writing, and use the following terms with understanding: word, sound, letter, syllable, or sentence.

teaching methodology and pedagogy recommends against encouraging children to write too early to avoid strengthening potentially improper graphic models. Work which treats writing awareness as a part of language awareness and as a component of maturity in learning to read and write (Krasowicz-Kupis 2004), as well as work devoted to the linguistic determinants of early writing (Awramiuk 2006), indicates a change in the approach to early writing in Polish research. The results of the first studies on the invented spelling of Polish speakers showed that children make similar mistakes, consisting of leaving out vowel letters, especially the letter Y in sequences with consonants (sequence  $Cy^3$ ) (Awramiuk 2006, Awramiuk, Krasowicz-Kupis 2014).

### **The present study**

Because Polish children are not taught letter names in kindergarten, the reason for omitting some letters is not as obvious as it is in English or French. To explain this dilemma, we are presenting some research results on Polish invented spelling. The purpose of the research was to describe the types of errors made by young Polish-speaking children. Our research questions were as follows:

- Is there a differentiation in the level of spelling among children at the beginning of school education?
- What are the most common mistakes made by young Polish-speaking children in rendering the phonological structure of simple words?
- What are the possible reasons – from a linguistic point of view – for the most common mistakes?

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<sup>3</sup> Here and below, C stands for 'any consonant'.

In the discussion, the *letter-name spelling* strategy in Polish and English languages will be compared with a focus on the answer to the question, 'Do children starting to write in Polish and English omit the vowel letter for the same reason?'

## Method

### Participants

The sample consisted of 252 primary school students. All participants were L1 Polish speakers recruited from 19 primary schools (three rural, four rural-urban, 12 urban) in one province, Mazowieckie<sup>4</sup>, during the first semester of the academic year. The male and female proportion was roughly 1:1 (female N=134 (53%), male N=118 (47%)). The participants were from first grade classes (six to seven years old). Among this group, 15% of the students started school at the age of six, and 85% of the children went to school at the age of seven. As explained earlier, age diversity is a result of on-going reforms of the school system. Children with severe sensory deficits, as well as those with an intellectual disability or serious somatic diseases, were excluded from the study. School and parental consent for participation in the study was obtained before children were tested.

### The task

The task involved forming 12 words from letters using a movable alphabet. A list of the words used, together with their translations into English, can be found in the Appendix. The words were

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<sup>4</sup> Mazowieckie is the largest province in terms of area and population and is located in the central eastern part of Poland. The provincial capital is Warsaw.



characterized by a simple structure and a consistent relation between a grapheme and phoneme, without any orthographic problems. The words were grouped in four series, which tested the manner of writing four sounds: [c], [d], [r], and [t] in different phonological environments. Each series contained three words that belonged to one of the following groups:

- 1) group I – words containing a sequence corresponding to the name of a letter (e.g. **ROWER** ‘bike’ contains the name of the letter R [er]),
- 2) group II – words containing the sequence Cy (e.g. **RYBA** ‘fish’ contains the sequence [ry]),
- 3) group III – words with a neutral phonological context (e.g. sequence [ra] for the letter R in the word **RAK** ‘crayfish’).

If children equated the name of a letter with its phonetic value, then the words from the first group would be spelled without the vowels. If there were other reasons for omitting letters (e.g. weak visual memory or low phonological awareness), the number of omissions should not differ among groups. A greater number of misspellings in group II would prove some specific problems with phonological segmentation.

### **Procedure and assessment**

Children were tested individually by trained psychologists. The spelling tasks were the part of a battery of tests to assess spelling, reading, phonological abilities, and other language and cognitive abilities.

While assessing children’s writing, two criteria were taken into account: the completeness of phonological representation (whether every phoneme was represented in writing, which reflected possible problems with phonological representation) and the degree

of conventionality (whether the phonemes were represented properly, which reflected the degree of mastery of norms regarding the relationships between graphemes and phonemes). For each word, a maximum 4 points could be obtained, and the maximum number of points in the entire task was 48. The detailed evaluation criteria were as following:

- 4 points – correctly spelled word (RYBA)
- 3 points – the full transcript, but a reversed order (ABYR)
- 2 points – partial or erroneous transcription (RB, RBA, RABY)
- 1 point – the first or last letter correct (RK, RGY, DTA, R)
- 0 points – no attempt or random letters (ACB).

## Results

### Quantitative error analysis

Table 1 illustrates spelling skills diversity in the first grade.

**Table 1.** Spelling skills diversity in the first grade

Spelling skills	Scores (points)	Number of children	Per cent
- all words spelled correctly	48	141	55.95
- most words spelled correctly (max. 4 mistakes)	40–46	71	28.18
- partial or incorrect transcription, letter-name spelling	24–38	27	10.71
- only the first or last letter correct	3–23	13	5.16
	<b>Total</b>	<b>252</b>	<b>100%</b>

In the spelling task, 141 children (almost 56%) spelled all words correctly. The lowest level was represented by the group of children who did not reach even 2 points when writing each word. They were

not able to render the phonological structure of the simplest words. It can be assumed that they were at the stage before script. The global score was not significantly affected by age ( $\chi^2(2, N=247)=5.81, p=0.055$ ).

Table 2 shows the number of words written correctly and takes into account different degrees of misspellings. The mean total score was 43.48 (SD 8.61). 84% of words were spelled correctly (2,531 records for 4 points). Girls (mean 44.07, SD 8.03) obtained better results than boys (mean 42.86, SD 9.13), but these differences were not statistically significant ( $Z=-0.97, p=0.334$ ; n.s.).

**Table 2.** Spelling task scores – statistical characteristics

	Mean	SD	Girls	Boys
<b>Total scores</b>	<b>43.48</b>	<b>8.61</b>	<b>44.07</b>	<b>42.86</b>
The number of words for 4 p.	10.04	3.35	10.39	9.83
The number of words for 3 p.	0.02	0.15	0.01	0.03
The number of words for 2 p.	1.31	2.25	1.14	1.52
The number of words for 1 p.	0.32	1.16	0.22	0.43
The number of words for 0 p.	0.18	0.82	0.18	0.17

Table 3 illustrates the mean of scores obtained in the examined groups, testing the manner of writing four sounds in different phonological environments. The greatest number of errors (the lowest number of points) occurred in group II, the group containing words with the sequence *Cy*, whereas the errors in words from group I (containing words with a sequence corresponding to a letter name) were more frequent than errors in natural context words (group III). This proves that the letter omissions were caused by problems with phonological segmentation, especially with the sequence *Cy*.

**Table 3.** Mean of scores obtained in each group

Tested sound	Group I	Group II	Group III	Total
[c]	3.66	3.49	3.73	3.62
[d]	3.48	3.62	3.84	3.64
[r]	3.64	3.51	3.82	3.65
[t]	3.69	3.59	3.74	3.67
<b>Total</b>	<b>3.61</b>	<b>3.55</b>	<b>3.78</b>	

The frequency of misspellings varied depending on the phonological context, but the type of phoneme was also important. Words containing the affricative /c/ proved to be the most difficult in terms of performing phonological segmentation.

#### Qualitative error analysis

Among wrongly formed or non-formed words (493 records), 331 obtained 2 points. The errors from this group were analysed qualitatively because only when at least two letters in a word are correct can an ability to render the phonological structure be considered.

The errors were subdivided into four groups: (1) additions of letter(s), (2) omission of letter(s), (3) letter substitution, and (4) transposition. The percentage for each type of error out of the total number of errors made was calculated (see Table 4).

**Table 4.** Types of misspellings in words for 2 points

Type of misspelling	Number of misspellings	Per cent
addition	9	2.31
omission	212	54.36
substitution	149	38.21
transposition	20	5.12
<b>Total</b>	<b>390</b>	<b>100%</b>

All spelling errors were phonologically inappropriate misspellings. The most common types of error were those of letter omissions.

Among the all misspellings in the examined word group (390<sup>5</sup>), 212 (nearly 55%) were related to letter(s) omissions, which means an absence of representation of a phoneme(s). In the most numerous group, 42 errors were consonant letter omissions and 129 were vowel letter omissions. Y was the most often omitted letter (84 omissions, which is 65.11% of all vowel letter omissions). Other letters were omitted considerably less frequently. The frequency of individual vowels in the examined words (Y occurred four times and, for example, A occurred six times) did not justify the disproportion among the omissions of the vowels.

## Discussion

*What are the differences in the level of spelling among children at the beginning of school education?*

The study examined the ability to render the phonological structure of very simple words. Children who have already gone through several months of phonological training should not have had any problems with the task. It turned out that, in the study group, there were children at the pre-phonological stage, that is, those who could not give the phonological structure of even three-phoneme words with a consistent grapheme and phoneme relation. The large variation in early writing skills among children in the first grade certainly may have significant implications for teaching.

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<sup>5</sup> The number of specific mistakes does not correspond to the number of misspelled words because children made more than one mistake in one word (e.g. the word *RB ryba* 'fish' contains 2 errors: the omissions of letters Y and A).

*What are the most common mistakes made by young Polish-speaking children in rendering the phonological structure of simple words?*

The most common errors in rendering the phonological structure of simple words involved letter omissions, especially the letter Y.

*What are the reasons for the most common mistakes?*

The omission of letter Y was caused by problems with phonological segmentation, especially the sequence consonant + /y/. Polish children are made familiar with the phonetic value of individual letters during audio analysis of individual words, which consists of the pronunciation of sounds in isolation. In the case of consonants, this leads to the separation of the vocalic element /y/. Auditory analysis of *dom* 'house' should be /d/ – /o/ – /m/, but, in many cases, it sounds like /dy/ – /o/ – /my/. When a Polish child asks his or her teacher or parent: *What letter is this?* the answer often is /dy/ not /de/ or /d/. This is the reason for the specific problems with the segmentation of Cy sequences.

*Do children starting to write in Polish and English omit the vowel letter for the same reason?*

Familiarity with letter names is important in the process of acquiring writing skills, but Polish children learn letter names (*a, be, ce* etc.) and recite the alphabet in the second grade. Earlier, children are exposed to a phonic-based instructional approach where letter sounds, instead of the conventional letter names, are learned.

Letter recognition is an introduction to the acquisition of writing and reading skills, and, for a Polish child, the first letter (first, but not officially) names in many cases are /dy/, /my/, /ry/ etc. Hence, Polish children apply the *letter-name spelling* strategy, but, in this case, the *letter name* has a slightly different meaning than in English. Mistakes such as WR 'war' in English speaking children and RBA

'ryba' (*fish*) in Polish speaking children consist of writing a letter with the idea that it corresponds to a syllable. An English-speaking child, introduced to script by learning the alphabet, writes [ar] as R due to the fact that he/she relates the letter R to the letter name R. A Polish child writes [ry] as R due to the fact that he/she relates the letter R to the syllable, which corresponds to the unofficial name of the letter. The mechanism of both mistakes is, therefore, similar. Specific spelling errors, which consist of vowel letter omissions, are committed by children learning how to spell in both English and in Polish. The difference consists of the fact that, for Polish letters, there are two name sets: an official set, introduced at school relatively late, and an unofficial set, resulting from the manner of teaching. A comparison of the two characteristic misspellings of Polish children and English children show, that the ways of access to literacy (teaching the alphabet vs. phonological training) have a fundamental significance to pre-schoolers' conception of grapheme-phoneme correspondences.

In this context, the large number of omissions that occurred in group I, with sequences corresponding to the letter names, is surprising. This means that, since teaching the alphabet (i.e. letter names) occurs relatively late in the school curricula, children may acquire the letter names earlier through informal learning (at home) and informal instruction at school (teachers – often unwittingly – use letter names).

Treiman and Cassar (1997) found that the tendency to write letter names by English speaking children is supported by the phonological structure of the letter names. The variable numbers of spelling errors in our study may suggest that the phonological context of sequences has an impact on the omission of vowel letters by Polish children. This thesis, however, needs to be verified in additional studies.

## Conclusions

Invented spelling helps a child to understand the essence of writing and encourages them to reflect on language structure and to search for a proper means of representing the relationship between a grapheme and a phoneme. On the other hand, errors in writing are determined by problems with the phonological segmentation and categorisation of heard sounds.

Knowledge about the development of literacy allows early identification of children's existing and potential literacy difficulties, the use of appropriate pre-emptive measures, and the provision of effective help with a mother tongue system. Analysis of the invented spelling of pre-schoolers and children at the beginning of reading instruction allows better understanding of how these young children acquire the principles of writing and think about the functions and nature of written language. Together with phonological awareness and the knowledge of letters, invented spelling is a significant factor predicting future literacy skills. Teachers can monitor development at this early stage and support those who have not yet encountered writing or show signs of delay by intervening with tools suitable for children at risk of learning difficulties.

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## APPENDIX

### 1. The words containing the examined phonemes

/r/: **rak**, **ryba**, **rower** (*crayfish, fish, bike*)

/d/: **dom**, **dym**, **deser** (*house, smoke, dessert*)

/c/: **taca**, **kocyk**, **cena** (*tray, blanket, price*)

/t/: **tato**, **buty**, **kotek** (*dad, shoes, kitten*)

### 2. The words in three groups

I group: **rower**, **deser**, **cena**, **kotek** (*bike, dessert, price, kitten*)

II group: **ryba**, **dym**, **kocyk**, **buty** (*fish, smoke, blanket, shoes*)

III group: **rak**, **dom**, **taca**, **tato** (*cancer, house, tray, dad*)

### 3. The children's writing samples of words TATO, BUTY and KOTEK

Points	TATO <i>dad</i>	BUTY <i>shoes</i>	KOTEK <i>kitten</i>
0 p.	MTW	DWT, RUTN, CUT, NSSN, NW, UT, DLE, UDT, DUT	DONA
1 p.	T	BODAB, B	K
2 p.	TAT, TATA, TADO, TATAT, TAATO, TATY, TAO, TO, TOTO	BT, BYT, BUT, BUDE, BAY, BUTE, BUKA, ETY, BUD, BTE, BUTN, DUTY, BUDY	KOT, KOTK, KOK, KOTYK, KOTL, KOTO, KTOTE, KOTE, KOTKE, KOA, KOL, KO, KTEK, KOEK
3 p.	–	–	–
4 p.	TATO	BUTY	KOTEK

# Tähenime järgi kirjutamine poola ja inglise keeles: eri keeled, sama strateegia (?)

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Varasemad laste suunatud kirjutamise uuringud on näidanud, et lapsed võivad foneemi õnnestunud kodeerimiseks kasutada tähenime (nt ingl CR 'car'). Artiklis on esitatud mõned tulemused poola keele suunatud häälimise uurimisest ja kirjeldatud varase kirjaoskuse arengut. Eesmärgiks on kirjeldada vigu, mida poola lapsed teevad kooli minnes ja võrrelda tähenime häälimise strateegia levimust poola ja inglise keeles. Kahe keele võrdlus kinnitab, et see strateegia on poola keeles ulatuslikult kasutusel. Kahe ilmekaima väärkirjutuse – poola RBA 'ryba' ehk *kala* ja inglise HLP 'help' ehk *aita* – võrdlus näitab, et kirjaoskuse saavutamise moodusel ehk sellel, kas õpetatakse lugema tähenimedega või fonoloogiliselt, on suur tähtsus koolieelikute oskusel grafeeme ja foneeme hiljem vastavusse seada.

**Võtmesõnad:** psühholingvistika, suunatud häälimine, varane õigekirja areng, veaanalüüs, poola keel