

Invented spelling – a window on early literacy

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A wide spectrum of research on preschool spelling development in different languages is presented. In Poland, children at kindergarten are usually at a stage of pre-literacy. Invented spelling means the writing produced by young children (aged 3–7) before they are formally taught reading and writing or are at the beginning of the learning process. Their writing is more spontaneous than learnt. The paper describes an investigation of the development of early literacy and factors influencing it, such as knowledge about orthography (spelling), early morphological awareness or teaching methods. Children's early writing provides a window on their conceptualisation of the written language, illustrating the process of developing language awareness and spelling skills. Invented spelling, together with phonological abilities and letter knowledge is considered to be a strong predictor for later literacy skills.

KEYWORDS: applied linguistics, early spelling development, error analysis, invented spelling, kindergarten, linguistic factors.

Research literature on reading acquisition is much more extensive than on writing acquisition; however, in the last twenty years a significantly growing interest can be observed (c.f. Joshi, Leong and Kaczmarek, 2003; Leong and Joshi, 1997; Perfetti, Rieben and Faylor, 1997). After a period of the domination of research on English, numerous findings on writing acquisition in other languages have been reported in English (Sprenger-Charolles, Singel and Béchenec, 1997; Tantaros,

2007; Titos, Defior, Alegria and Martos, 2003; Tsukada, 2007; Viise, Richards and Pandis, 2011). Comparative studies of similarities and differences in the acquisition of writing in different language systems have also been carried out (Lehtonen and Bryant, 2004; Pasa and Morin, 2007; Seymour, Aro and Erskine, 2003; Sprenger-Charolles, 2004; Wimmer and Landerl, 1997). Invented spelling, as the writing of young children is termed in the literature, plays a special part in research on

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writing acquisition¹. Learning to write is more spontaneous than learned for children aged 3 to 7 years and who have not yet experienced formal learning or are in its initial phase. Notes made by these children, and more specifically – their departures from standard orthography – tend not to be accidental and allow inference to be made about their conceptualisation 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.

Against the background of dynamically developing international research, there is a lack of Polish work on writing acquisition by children at preschool age. Polish studies on writing have analysed the issue mainly from the pedagogical perspective and focused on the stage of formal instruction (Małkowska-Zegadło, 1983; Wróbel, 1979; Żytko, 2006). The work concerning writing ability of children under seven years old is usually treated at preschool level as preparation for learning to write² properly (e.g. Brzezińska, 1987; Cackowska, 1984; Roślowski, 2000). Early assessment of writing ability conducted by psychological and pedagogical counselling centres concerns children learning at the first stage of educa-

tion (Kostka-Szymańska, Krasowicz-Kupis and Pietras, 2009). Although the studies devoted to writing disorders in the Polish language take into account different aspects of mastery of this ability, they only cover learning in school (Bogdanowicz, 1989; Maciejewska, 2007; Pietras, 2012). The work which treats writing awareness as a part of language awareness and a component of maturity to learn to read and write (Krasowicz-Kupis, 2004), as well as work devoted to determinants of early writing (Awramiuk, 2006) indicate a change in the approach to early writing in Polish research.

The reason for a relatively low interest in children's writing prior to formal education is the approach to teaching literacy. Work on methodology and pedagogy recommend against encouraging children to write too early, to avoid strengthening potentially improper graphic models. The opinion prevails that young children do not have the ability to code language. Nonetheless, children now make their first contact with written language very early, long before they formally start to learn to read and write. A multitude of TV programmes and educational games for young children and the ubiquity of writing (also in the children's world e.g. logos of popular products) result in the fact that some children start to acquire alphabetic language spontaneously before they are instructed by their guardians.

Polish five- or six-year-olds hardly ever write on their own, as they are rather discouraged from doing this. A different approach prevails in Western countries: children are encouraged to write and their work full of departures from the standard orthography is displayed in pre-schools. Five-year-olds in English infant schools may write texts phonetically, not according to the rules of spelling. They play with written language and writing, while teachers praise their creativity and appreciate their attempts. It is considered that invented spelling helps understand the

¹ Other terms present in English literature: developmental spelling, emergent spelling, early writing (the latter is most frequently used in relation to children writing their own names). The Polish translation of this term is not stable, and its meaning is close to the following descriptive terms: *pismo małych dzieci* (early writing), *kreatywna (spontaniczna, niekonwencjonalna) pisownia małych dzieci* (invented spelling), *rodząca się pisownia dzieci w wieku przedszkolnym* (emergent spelling).

² The term "stage of mastery of written technique" (*etap opanowania techniki pisania*) existed in Polish literature (c.f. Małkowska-Zegadło, 1983), but it was applied in relation to children starting to learn at first-grade.

essence of alphabetic writing. Children pose certain hypotheses (e.g. names of big animals such as “elephant” contain more letters than names of small animals such as “mouse”) which they then test through contact with written language and receiving proper feedback. The aim of this article is to outline the range of research on writing acquisition in different language systems by children at preschool age, described also as “preliterate writing” in Poland. The review of studies will allow explanation of the development of early writing abilities and differentiate factors determining it, such as early morphological and graphotactic awareness³ or teaching methods. The review of literature was confined to work on healthy children, showing typical language development and learning to write in native European alphabetic languages. The focus was on studies of linguistic conditioning for early writing abilities.

Invented spelling from the developmental perspective

The majority of the older models related to writing acquisition (published in 1980s and 1990s in English), despite the differences in terms, describe a similar course through subsequent stages (Ehri, 2000; Gentry, 1982; Henderson, 1985). At the earliest stage (preliterate writing, pre-communicative stage), the initial experiences of holding a pencil, a child understands that writing is not the same as drawing, but does not yet appreciate that writing relates to speaking. At the following stage (letter-name spelling, semi-phonetic stage, partial alphabetic level) the child, striving to understand the essence of an alphabetic system, becomes acquainted with letters and realises that they represent

sounds in writing. In the most general terms, this stage is characterised by difficulties in phonological segmentation of the words, visible in writing. A typical error occurs in confusion of the phonetic value of a letter with its name, e.g. writing the word “you” as U, and the word “help” as HLP, interpreting the letters U and L in spoken language through the sound form of their names. Once the children are able to write the phonological structure of the word, they have reached the next stage (the phonetic stage at full alphabetical level). At this stage, similarly to the earlier stage, while writing, children apply a mainly phonological strategy but they do not yet use knowledge of spelling or orthography (e.g. the accepted letter connections in a given language) nor of morphology. In the course of time, mainly by learning to read, children learn that the relationship between a grapheme and a phoneme is not automatic and unambiguous. They also start to use morphological knowledge and recognise semantic relationships between words and spelling regularities.

Models with stages have been criticised, as they described reading and writing acquisition as a sequence of adoption of different types of knowledge (from phonological to orthographical and morphological) and thus, they underestimate the abilities and aptitude of children. Children may simultaneously employ different strategies and types of information while learning (Bourassa and Treiman, 2001; Gombert, 2003; Treiman and Cassar, 1997)⁴. Recent studies provided a more exact view of how children learn to write. They proved that characteristic errors of omission of certain letters are justified linguistically. Children omit vowel letters because they assign them to the phonetic value of the script

³ Graphotactic awareness involves recognition of acceptable letter clusters and constraints of connectivity of graphic segments (e.g. in Polish there are no words that would start with letter Y; letters Ö and A never appear together).

⁴ Children learning to read demonstrate similar flexibility in the selection of style of information processing (c.f. Eme and Golder, 2005; Sochacka and Krasowicz-Kupis, 2003; Goswami and Bryant, 1990).

names⁵, but certain linguistic properties of the letter names (e.g. composition of phonemes) have an influence on the frequency of these omissions. Furthermore, the omission of consonant letters is influenced by the presence of consonant clusters, the place of a consonant in a word (e.g. initial consonants are represented more frequently than final consonants, e.g. in the word *motyl* (“butterfly”) children less rarely omit letter M than L) and its phonemic value (e.g. sonorant consonants like *m*, *n*, *r*, *l* are omitted more frequently than obstruent consonants such as *f*, *t*, *s*, *p*) (c.f. Bourassa and Treiman, 2001; Werfel and Schuele, 2012). Several studies on the influence of linguistic factors in children’s writing will be discussed in more detail to demonstrate the methodology.

Treiman and Cassar (1997) reported experiments with American first-graders (children’s ages not given) concerning the writing of monosyllables containing sequences of phonemes which are included in the letter names such as: *war* → /r/, *pem* → /m/, *kef* → /f/. If the children applied the previously mentioned strategy, writing the letter names, they would write these words in the following way: WR, PM, KF. Children most frequently made such mistakes in non-words containing the letter name /r/. The difference in tendency to use letter names only arose in certain cases. Most commonly children omitted vowels in sequences containing R and L. Some sequences were easier to divide into segments than others for the reasons of articulation and frequency. The vowel /a/, present only in

the name of letter R, thus the sequence /ar/ is more difficult for a child to segment, whereas the repetitive nature of the phonological structure of other letter names (e.g. *bi*, *pi*, *di*, *ti*) helps children to understand their sequencing better, i.e. letters that represent different consonants and not the repeated vowels.

Morin (2007) described the studies of errors made by young French-speaking Canadians (202 children at preschool age; average age 6.0) in a task consisting of writing six words. She analysed how linguistic features of the words (the number of syllables, frequency of graphemes and means of coding of morphological information), influenced ability to select the proper graphemes to represent the phonological information in words. 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 the norms regarding the relationships between graphemes and phonemes). The most common reasons for departures from the norms were the following:

- children applied the strategy of using the letter name (as revealed by English-speaking children writing word “help” as HLP);
- phonological distortions (acoustic and articulation similarity of two phonemes may lead to the selection of an improper grapheme, as in the case of writing letter E instead of O to mark a vowel in the third syllable of word “macaroni”);
- graphical distortions (related to confusing letters with similar characteristics) and processing complex graphemes (production of complex graphemes requires memorising their complex shape). For example, Polish children, confuse the sequence of letters in diphthongs. They write ZS instead of SZ or DIZ instead of DZI.

⁵ The strategy of letter name spelling also appears in children beginning to write in other scripts (Awramiuk, 2006; Hannouz, 2005; Levin, Patel, Margalit and Barad, 2002; Morin, 2007), but it presents specific conditioning. Polish children use this strategy and so write RBA – fish, attributing to the letter R a phonetic value of its name, but in this case “the letter name” has a slightly different meaning. For the Polish letters, there are two sets of names: the official, introduced relatively late to school (*a*, *be*, *ce*, etc.), and the unofficial, resulting from the method of teaching (*a*, *by*, *cy*, etc.).

The results confirmed that the majority of mistakes made by children did not occur accidentally, but illustrated their attempts to manipulate the language in the course of writing according to phonological processing. The research confirmed not only the necessity to include the characteristics of written language (in this case – written French) when developing children's ability to write, but also a view departing from the norms that frequently reflect the difficulties of the writing system being learnt.

In search of evidence for universality in the way children at preschool age (average age between 4.7 and 6.0) conceptualise writing, Tantaros (2007) reviewed recent studies on acquisition on writing skills in Greece. He discussed work that described how children differentiated drawing from writing and factors (linguistic, semantic, educational) influencing invented spelling of preschoolers. The results were convergent with the results of similar studies carried out in other countries and in other languages, confirming universality in the way children at preschool age conceptualise writing. While learning to write in languages with different alphabets, children undergo similar stages of development: from ideographic signs (drawings) representing words, through pseudo-signs and their combinations, isolated letters (at first without relating to sound, then representing the whole word), letter combinations, phonetic writing (at first partial, then phonetically complete) to orthographic writing. Tantaros also discussed Greek research on the knowledge of letters. Greek preschoolers, as compared with English-speaking children, could more frequently utter the sound than the name of the letter, and similarly as in many other languages, could sometimes use these signs to write their own names, even without knowledge of the letter names or the sounds they represented.

Pelletier and Lasenby (2007) analysed developmental and psychometric

characteristics of early writing. The research was conducted in Toronto (Canada) over four years with children whose first language was English. Two groups of preschoolers, who had started preschool at the age of 3 were observed until they had finished the first grade as six-year-olds. Children performed the same task four times and were subject to standardised measurement of early reading ability. The task required writing particular words, figures and word combinations. They examined how preschoolers moved from understanding print as an object to understanding print as a representation of sounds. The adopted methodology also allowed investigation of the extent to which early writing abilities in preschool (children aged 3–4) could predict literacy skills in the first grade (at the age of 6). The results of preschool writing tasks were a significant factor for prediction of later reading ability, which was also confirmed in other studies (c.f. Caravolas, Hulme and Snowling, 2001; National Early Literacy Panel, 2008).

Research on the development of early writing permitted construction of various tools for the assessment of development of these abilities on the basis of errors that children made while writing single words (c.f. Pelletier and Lasenby, 2007; Oldrieve, 2011; Young, 2007). These tools are used for diagnosis, increasing the effectiveness of teaching through its individualisation, early intervention as well as for predicting later reading and writing ability.

Early language awareness

Literacy acquisition, especially at the initial stage, is determined by characteristics of a given language and varies according to the rules of spelling or orthography (Awramiuk, 2006; Bourassa and Treiman, 2001; Spencer and Hanley, 2003; Sprenger-Charolles, 2004). Differences occurring between language systems result from differing preliterate child

phonemic sensitivity⁶. Over the course of time, this sensitivity changes depending on the language system a child learns, since this has a major impact on shaping awareness of the basic linguistic units. Comparative research on reading acquisition in thirteen European languages (Seymour et al., 2003) confirmed that differences in the acquisition process depended mainly on the characteristics of oral language and orthography. Deep orthography⁷ caused more difficulty in learning to read and write than shallow orthography. Language awareness also developed differently in these two types of orthography. When children learn to write, they have to ask themselves two questions about which part of language is represented in writing and how it is achieved. Their answers are factors determining invented spelling. Research on how children differentiate phonemes, what knowledge they have of the way they are represented in writing and how children's writing reflects the morphological structure of the acquired language, allow a closer look at the development of early language awareness and assess its role in writing acquisition process.

Numerous works proved that morphological awareness developed together with literacy. It was more developed in eight-year-olds than in six-year-olds, and in twelve-year-olds – more than in eight-year-olds (Ehri 2000; Nunes, Bryant and Bindman, 1997; Rispens, McBride-Chang and Reitsma, 2008; Sangster and Deacon, 2011; Treiman, 2004). Despite this natural development, children can use knowledge of orthographic patterns of their

mother tongue relatively early (e.g. they know which letters are double and which never occur at the beginning of a word). They use morphological knowledge to support their spelling (Bourassa and Treiman, 2001; Gombert, 2003; Treiman, 2004).

Treiman and Cassar (1997), while studying the spelling of English words with different morphological structure, demonstrated that morphological awareness developed relatively early. It was found that while writing final consonant clusters, children made fewer mistakes in two-morpheme words (such as “tuned”, “bars”) than in single-morpheme words (such as “brand”, “Mars”). To some extent, children used morphological knowledge. If they did, letter omissions would be similarly frequent owing to the identical phonological structure of the pairs of words (e.g. “tuned – brand”, “bars – Mars”). These authors claimed that morphological knowledge improved with experience but was also present at a very early stage.

Titos et al. (Titos, Defior, Alegria and Martos, 2003) tried to establish to what extent morphological information was used in shallow orthography. They investigated Spanish children during their first three years of school (255 children aged 6 to 8) and analysed how they wrote silent parts of words (written but not uttered). Their experiments proved that children more often wrote the silent part of the word if it conveyed morphological information (e.g. final -s as second person singular of a verb) than if it is did not contain such information. These results have countered the widespread belief that morphological information is not used in transparent orthography.

As in the case of morphological awareness, children can use knowledge of orthographical patterns of their mother tongue relatively early. This use is related to the acceptability of letter clusters and graphical means of representing certain phonemes depending on their position in a word in a given language.

⁶ This concerns ability to distinguish sounds relevant to a particular language, perception of functional differences between the spoken elements.

⁷ In shallow, transparent orthography the relationship between graphemes and phonemes is coherent and consistent, while deep, opaque orthography describes more irregular relationships in which the same grapheme may represent several different phonemes, and numerous exceptions from the basic rules of correspondence between grapheme and phoneme occur.

In experiments assessing non-word pairs (e.g. “ckun – nuck”), Treiman and Cassar (1997) demonstrated that children recognised words which were more likely in English and they could also recognise which letters were doubled or which never occurred at the beginning of words. First-grader invented spelling revealed that letters which are doubled in English (e.g. *e* or *l*) were more frequently doubled than those which are never doubled in a conventional system (e.g. *u* or *h*). The sequence of letters CK, representing phoneme /k/, which children used in their writing, occurred very rarely at the beginning of a word, which corresponded to the general regularity in English, in which the sequence of letters CK never represents initial sounds.

Gombert (2003) conducted experiments with French-speaking children at preschool age. In one experiment children assessed which non-words presented to them were similar to real words. Almost 70% of five-year-olds indicated units with clear morphological structure, which prompted Gombert to claim that research on reading and writing should also include knowledge of print, writing and metalinguistic knowledge acquired spontaneously by a child before started to learn to read and write.

While conducting experiments with writing non-words, Hayes, Treiman and Kessler (2006) proved that the transcription of consonants is influenced by the neighbouring sounds as early as in the first grade. For example, transcription of the sound /k/ depends on the vowel which follows it. The letter K is more often written before I and C than before A, which reflects the regularities of English spelling. Similar results were obtained in the study of transcription of non-words by French-speaking children (Pacton, Fayol and Perruchet, 2005).

Deacon, Conrad and Pacton (2008) reviewed numerous studies about the learning of acceptable letter combinations (graphotactic rules) and how children recognise

morphemes. Studies have regarded gradual use of graphotactic and morphological information as an outcome from learning based on rule acquisition. However, according to the authors, this thesis was not confirmed by evidence from relatively early (even by five-year-olds) use of this information and evidence that adults also do not always apply them. The authors demonstrated that both graphotactic and morphological patterns influence spelling by small children who learnt correct spelling of a word by observing letters and neighbouring sounds in a word, linking them with its meaning, as well as by applying their knowledge of observed regularities while writing new words.

Teaching methods

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.

Alves Martins (2007) examined 160 five-year-old Portuguese preschool children and their 16 teachers and described the relationship between the type of reading and writing activities introduced in Portuguese preschools and children’s conceptualisations of the functions and nature of written language. The observation form covered two aspects of the teacher’s work: reading, writing and meta-linguistic exercises, and ways of supporting children’s attempts to read and write. The form was used by two observers who for two weeks looked at the chosen groups in preschools. Following data analysis, preschool teachers were divided into three groups on the basis of the teaching methods of reading and writing they applied. Children were divided into groups on the basis of their invented spelling. Preschoolers wrote opposite pairs of words such as: a word and its diminutive (*gato – gatinho*; “cat – kitten”), names of objects which differed in size (*formiga – cavalo*;

“ant – horse”), a two-syllable word and a word of at least three syllables (*urso – elefante*; “bear – elephant”) and a singular noun and its plural (*aguia – auigas*; “eagle – eagles”). The results indicated a close relationship between teaching methods for reading and writing applied by teachers and children’s conceptualisations of written language. It was found that the variety of texts (e.g. literary, informative, enumerative, expository and prescriptive) and a high frequency of activities relating to reading and writing (e.g. discussing texts with children, reflection on written and oral language, initiating attempts to read and write independently, in pairs or in groups) positively influenced how children understood functions of written language, its relationship to oral language, as well as their early writing abilities.

Pasa and Morin (2007) examined the influence of linguistic and instruction factors on writing competence of French first-graders (average age 6.5). Two teaching methods were analysed: an integrated and a code-oriented approach in two countries (France and Quebec, Canada). The code-oriented approach was described as methodological teaching, based on prepared texts and the previously established programme explaining the precise relationships between sounds and letters. The contrasting integrated approach exposed children to authentic written and oral texts, used in natural communication situations and teaching based on the strategy already in place, adjusted to learners’ needs. Children had to write eight words belonging to one semantic field (names of animals), differing in linguistic features such as: number of phonemes, syllabic structure, phonemic polyvalence, complexity of graphemes or the presence of silent letters. The most important finding of the research was that French and Canadian children who are taught in an integrated way had a more complete vision of the writing system. Their conceptualisations covered both graphemes,

coding phonological information and graphemes coding morphological information.

De Vasconcelos Horta and Alves Martins (2011) discussed two interventions introducing children to the principles of alphabetic writing on the development of early writing abilities, especially on phonetisation of their writing. 56 children (average age 5.4) with similar literacy skills were divided into two experimental groups and one control. The initial and final tests assessed children’s writing on the basis of non-words containing fricative and stop consonants in the initial and final position discussed during the intervention and other phonemes which were not discussed. Between the tests, one group (G1) discussed graphophonetic relationships of fricatives and another group (G2) of stops, while the control group intervention was to help with development of the knowledge of geometric figures. Both experimental groups made significant progress with writing compared with the control group, however, without significant difference between the results of the experimental groups. Both groups could correctly write the phonemes (discussed and not discussed) in the initial and final positions. Group G1 achieved significantly better results in phonetisation of the discussed fricative phonemes in the initial position than in the final position, while group G2 correctly wrote sounds in both positions. The findings demonstrated that the number of known letters in the initial test showed significant correlation with the number of phonetisations in the final test, whereas phonological awareness did not show such correlation. The results also confirmed the value of the interventions to child development of early writing, helping them to understand the principles of writing and stimulate their phonetisation ability, including writing phonemes not covered by the programme.

Sénéchal with her team (Sénéchal, Oullette, Pagan and Lever, 2012) examined whether introduction to writing through guided invented spelling could help children at risk of school failure at preschool

age (with diagnosed low phonological awareness). A preliminary diagnostic test compared initial abilities of the participants and 56 preschool children, whose abilities were comparable and who were chosen for further tests. They were divided into three groups with different approaches for introduction to writing: the first focused on development of phonological awareness, the second practised invented spelling and the third concentrated on storytelling. All children participated in 16 training sessions over 8 weeks and in each group knowledge of letters was developed by working on the same 40 words created from 14 letters. The findings clearly indicated that children in the invented spelling group learnt to read more words than children in the other groups. As expected, the children in groups practicing phoneme segmentation and invented spelling performed better in tasks assessing phonological awareness than children in the storytelling group. More importantly, in the two first groups an increase in phonological awareness was observed with the invented spelling group showing a significant improvement in reading and writing abilities. The results confirmed that invented spelling facilitated introduction to writing and appropriate assistance from the teacher, ensuring feedback during experiment with writing, helped to develop early literacy, creating the right conditions for discovering the relationships between oral and written language.

Conclusions

The writing of small children proves to be a valuable subject for research. The analysis of children's writing provides insight into phonological representations of words, reflects strategies of phonological segmentation and the process of acquisition of graphotactic and orthographical and morphological rules of a given language by preschoolers. Invented spelling helps a child to understand

the principles of writing, encourages them to reflect on language structure and to look for suitable methods of representing the relationships between grapheme and phoneme, whereas errors in writing are conditioned by problems caused by phonological segmentation and categorisation of heard sounds.

Knowledge about development of literacy allows: early identification of children's existing and potential literacy difficulties, use of appropriate pre-emptive measures and effective help with the mother tongue system. Analysis of preschoolers' invented spelling and a more thorough examination of linguistic and cognitive conditionings of their attempts allow 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 knowledge of letters, invented spelling is a significant factor predicting future literacy skills. Teachers can monitor development at this early stage, support those who have not yet encountered writing and show signs of delay, intervening using tools suitable for children at risk of learning difficulties.

Reading and writing are basic to determining future success in school. Any deficit will have major repercussions on career prospects. Modern communication technology not only facilitates communication with writing, but also places literacy in a vital role.

Literature

- Awramiuk, E. (2006). *Lingwistyczne podstawy początkowej nauki czytania i pisania po polsku* [Linguistic basis for initial learning to read and write in Polish]. Białystok: Trans Humana.
- Bogdanowicz, M. (1989). *Trudności w pisaniu u dzieci* [Difficulties in children's writing]. Gdańsk: Wydawnictwo Uniwersytetu Gdańskiego.
- Bourassa, D. C. and Treiman, R. (2001). Spelling development and disability: the importance of linguistics factors. *Language, Speech and Hearing Services in Schools*, 32(3), 172–181.

- Brzezińska, A. (ed.). (1987). *Czytanie i pisanie – nowy język dziecka* [Reading and writing – the new language of the child]. Warszawa: Wydawnictwa Szkolne i Pedagogiczne.
- Cackowska, M. (1984). *Nauka czytania i pisania w klasach przedszkolnych* [Learning to read and write in kindergarten groups]. Warszawa: Wydawnictwa Szkolne i Pedagogiczne.
- Caravolas, M., Hulme, C. and Snowling, M. J. (2001). The foundations of spelling ability: evidence from a 3-year longitudinal study. *Journal of Memory and Language*, 45(4), 751–774.
- Deacon, S. H., Conrad, N. and Pacton, S. (2008). A statistical learning perspective on children's learning about graphotactic and morphological regularities in spelling. *Canadian Psychology*, 49(2), 118–124.
- Ehri, L. (2000). Learning to read and learning to spell: two sides of a coin. *Topics in Language Disorders*, 20(3), 19–36.
- Eme, E. and Golder, C. (2005). Word-reading and word-spelling styles of French beginners: do all children learn to read and spell in the same way? *Reading and Writing*, 18, 157–188.
- Gentry, J. R. (1982). An analysis of developmental spelling in GNYS AT WRK. *The Reading Teacher*, 36, 192–200.
- Gombert, J. E. (2003). Learning to read: which codes are concerned? At which level of cognitive control? In R. M. Joshi, Ch. K. Leong and B. L. J. Kaczmarek (eds.), *Literacy acquisition. The role of phonology, morphology and orthography* (pp. 3–14). Amsterdam–Berlin–Oxford–Tokyo–Washington: IOS Press, NATO Science Series.
- Goswami, U. and Bryant, P. E. (1990). *Phonological skills and learning to read*. London: Erlbaum.
- Hannouz, D. (2005). *Spelling with letter names*. Paper presented at 5th IAIMTE Conference, Albi.
- Hayes, H., Treiman, R. and Kessler, B. (2006). Children use vowels to help them spell consonants. *Journal of Experimental Child Psychology*, 94(1), 27–42.
- Henderson, E. (1985). *Teaching spelling*. Boston: Houghton Mifflin.
- Joshi, R. M., Leong, Ch. K. and Kaczmarek, B. L. J. (eds.). (2003). *Literacy acquisition. The role of phonology, morphology and orthography*. Amsterdam–Berlin–Oxford–Tokyo–Washington: IOS Press, NATO Science Series.
- Kostka-Szymańska, M., Krasowicz-Kupis, G. and Pietras, I. (2009). Przegląd narzędzi diagnostycznych do oceny czytania i pisania stosowanych w polskim poradnictwie [Overview of diagnostic tools used in the Polish counseling to assess reading and writing skills]. In G. Krasowicz-Kupis (ed.), *Diagnoza dysleksji. Najważniejsze problemy* [Diagnosis of dyslexia. The main problems] (pp. 164–186). Gdańsk: Wydawnictwo Harmonia.
- Krasowicz-Kupis, G. (2004). *Rozwój świadomości językowej dziecka. Teoria i praktyka* [The development of children's language awareness. Theory and practice]. Lublin: Wydawnictwo UMCS.
- Lehtonen, A. and Bryant, P. (2004). Length awareness predicts spelling skills in Finnish. *Reading and Writing: An Interdisciplinary Journal*, 17(9), 875–890.
- Leong, C. K. and Joshi, R. M. (eds.). (1997). *Cross-language Studies of learning to read and spell: phonologic and orthographic processing*. Dordrecht: Kluwer Academic Publishers.
- Levin, I., Patel, S., Margalit, T. and Barad, N. (2002). Letter names: effect on letter saying, spelling, and word recognition in Hebrew. *Applied Psycholinguistics*, 23(2), 269–300.
- Maciejewska, A. (ed.). (2007). *Zaburzenia komunikacji językowej w czytaniu i pisaniu* [Language communication disorders in reading and writing]. Siedlce: Wydawnictwo Akademii Podlaskiej.
- Małkowska-Zegadło, H. (1983). *Rozwój języka mówionego i pisanego uczniów w wieku 8–11 lat* [The development of spoken and written language by students of 8–11 years]. Warszawa: Wydawnictwa Szkolne i Pedagogiczne.
- Martins, A. M. (2007). Literacy practises in kindergartens and conceptualisations about written language among Portuguese preschool children. *L1 – Educational Studies in Language and Literature*, 7(3), 147–171.
- Morin, M. F. (2007). Linguistic factors and invented spelling in children: the case of French beginners in children. *L1 – Educational Studies in Language and Literature*, 7(3), 173–189.
- National Early Literacy Panel (2008). *Developing early literacy: report of the National Early Literacy Panel*. Washington, D. C.: National Institute for Literacy. Retrieved from lincs.ed.gov/publications/pdf/NEL-PRReport09.pdf
- Nunes, T., Bryant, P. and Bindman, M. (1997). Spelling and grammar – the necsed move. In Ch. Perfetti, L. Rieben and M. Fayol (eds.), *Learning to spell: research, theory, and practice across languages* (pp. 151–170). Mahwah–New Jersey–London: Lawrence Erlbaum Associates.

- Oldrieve, R. M. (2011). Introducing the CVC spelling assessment: helps track gains as kindergarten and first grade students learn the alphabetic principle. *California Reader*, 45(1), 4–14.
- Pacton, S., Fayol, M. and Perruchet, P. (2005). Children's implicit learning of graphotactic and morphological regularities. *Child Development*, 76(2), 324–339.
- Pasa, L. and Morin, M. F. (2007). Beginning spelling and literacy approaches: a comparative study between French and Québécois first-grade classes. *L1 – Educational Studies in Language and Literature*, 7(3), 191–209.
- Pelletier, J. and Lasenby, J. (2007). Early writing development in L1 English speaking children. *L1 – Educational Studies in Language and Literature*, 7(3), 81–107.
- Perfetti, Ch., Rieben, L. and Fayol, M. (eds.). (1997). *Learning to spell: research, theory, and practice across languages*. Mahwah–London: Lawrence Erlbaum Associates.
- Pietras, I. (ed.). (2012). *Trudności w czytaniu i pisaniu – rozważania teoretyczne i praktyczne [Difficulties in reading and writing – theoretical and practical considerations]*. Warszawa: Difin.
- Rispens, J. E., McBride-Chang, C. and Reitsma, P. (2008). Morphological awareness and early and advanced word recognition and spelling in Dutch. *Reading & Writing*, 21(6), 587–607.
- Rocławski, B. (2000). *Nauka czytania i pisanie [Learning to read and write]*. Gdańsk: Glottispol.
- Sangster, L. and Deacon, S. H. (2011). Development in Children's sensitivity to the role of derivations in spelling. *Canadian Journal of Experimental Psychology*, 65(2), 133–139.
- Sénéchal, M., Ouellette, G., Pagan, S. and Lever, R. (2012). The role of invented spelling on learning to read in low-phoneme awareness kindergartners: a randomized-control-trial study. *Reading & Writing*, 25(4), 917–934.
- Seymour, P. H., Aro, M. and Erskine, J. M. (2003). Foundation literacy acquisition in European orthographies. *British Journal of Psychology*, 94, 143–174.
- Sochacka, K. and Krasowicz-Kupis, G. (2003). Reading errors of Polish children during their first two years at school. In M. R. Joshi, Ch. K. Leong and B. L. J. Kaczmarek (eds.), *Literacy acquisition. The role of phonology, morphology and orthography* (pp. 203–209). Amsterdam: IOS Press, NATO Science Series.
- Spencer, L. H. and Hanley, J. R. (2003). Effects of orthographic transparency on reading and phoneme awareness in children learning to read in Wales. *British Journal of Psychology*, 94, 1–28.
- Sprenger-Charolles, L. (2004). Linguistic processes in reading and spelling: the case of alphabetic writing systems: English, French, German and Spanish. In T. Nunes and P. Bryant (eds.), *Handbook of children's literacy* (pp. 43–65). Dordrecht–Boston–New York–London: Kluwer Academic Publishers.
- Sprenger-Charolles, L., Singel, L. and Béchennec, D. (1997). Beginning reading and spelling acquisition in French: a longitudinal study. In Ch. Perfetti, L. Rieben and M. Fayol (eds.), *Learning to spell: research, theory, and practice across languages* (pp. 339–359). Mahwah–London: Lawrence Erlbaum Associates.
- Tantaras, S. (2007). Invented spelling in the Greek context. *L1 – Educational Studies in Language and Literature*, 7(3), 31–62.
- Titos, R., Defior, S., Alegria, J. and Martos, F. (2003). *The use of morphological resources in Spanish orthography: the case of the verb*. In M. R. Joshi, Ch. K. Leong and B. L. J. Kaczmarek (eds.), *Literacy acquisition. The role of phonology, morphology and orthography* (pp. 113–118). Amsterdam: IOS Press, NATO Science Series.
- Treiman, R. (2004). Phonology and spelling. In T. Nunes and P. Bryant (eds.), *Handbook of Children's Literacy* (pp. 31–42). Dordrecht–Boston–New York–London: Kluwer Academic Publishers.
- Treiman, R. and Cassar, M. (1997). *Spelling acquisition in English*. In Ch. Perfetti, L. Rieben and M. Fayol (eds.), *Learning to spell: research, theory, and practice across languages* (pp. 61–80). Mahwah–London: Lawrence Erlbaum Associates.
- Tsukada, Y. (2007). A study of invented spelling and developing orthographic concepts in Japanese. *L1 – Educational Studies in Language and Literature*, 7(3), 5–29.
- Vasconcelos Horta, I. and Alves Martins, M. (2011). Invented spelling programmes and the access to the alphabetic principle in kindergarten. *L1 – Educational Studies in Language and Literature*, 11, 1–23.
- Viise, N. M., Richards, H. C. and Pandis, M. (2011). Orthographic depth and spelling acquisition in Estonian and English: a comparison of two diverse alphabetic languages. *Scandinavian Journal of Educational Research*, 55(4), 425–453.

- Werfel, K. L. and Schuele, C. M. (2012). Segmentation and representation of consonant blends in kindergarten children's spellings. *Language, Speech, and Hearing Services In Schools*, 43, 292–307.
- Wimmer, H. and Landerl, K. (1997). How learning to spell German differs from learning to spell English. In Ch. Perfetti, L. Rieben and M. Fayol (eds.), *Learning to spell: research, theory, and practice across languages* (pp. 81–96). Mahwah–London: Lawrence Erlbaum Associates.
- Wróbel, T. (1979). *Pismo i pisanie w nauczaniu początkowym* [*Scripture and the teaching of writing in early education*]. Warszawa: Wydawnictwa Szkolne i Pedagogiczne.
- Young, K. (2007). Developmental stage theory of spelling: analysis of consistency across four spelling related activities. *Australian Journal of Language and Literacy*, 30(3), 203–220.
- Żytko, M. (2006). *Pisanie – żywy język dziecka* [*Writing – child's vivid language*]. Warszawa: Wydawnictwa Uniwersytetu Warszawskiego.