

Contributions to the Research on the Relationship of Language Skills and Literacy Acquisition in the Czech Literature

The first special issue of *Literacy, Preliteracy and Education* resulted in a wide-open call to Czech, Slovak, and international authors in relation to the broader examination of the relationship between language skills and the development of literacy, especially reading.

Linkages between language and typical and/or atypical literacy development have attracted an enormous amount of research attention throughout recent decades. While there is actually huge and comprehensive knowledge about the relationship between the development of language and literacy in English-speaking populations, research from other languages, especially Slavic ones, tends to develop slowly and with less attention from the international audience.

When considering the research on early literacy development in Czech – one of the West Slavic languages – this is just the case. Though interest in early literacy and research into it has a long tradition, with the first research article dealing with reading difficulties being published back in 1904 (Heveroč, 1904),

it is only recently that the close relationship between the development of language and literacy started to be emphasised and investigated. As already mentioned, Heveroč (1904) was the first to focus on the issue of reading impairments in his article, where he introduced a case study of an eleven-year-old boy suffering from reading difficulties despite possessing adequate intelligence. Actually, Heveroč was also among the first to point out the connection between language and reading – he was convinced that the reading problems of the boy were caused by minor brain anomalies in the language area of the left hemisphere.

Another influential Czech psychologist famous for his extensive clinical work with dyslexic children in the late 'eighties, Matějček (1974) mentions the high comorbidity between delayed and unbalanced language development and dyslexia. Also, a highly regarded speech therapist, Zdeněk Žlab, noticed as early as in 1960 and later, together with his colleagues, documented (Žlab, Šturma & Šotolová, 1983) a connection between

certain specific speech impairments (clumsiness in articulation and specific sound assimilation) and dyslexia and dysorthographia. Moreover, Matějček (1995) recommended using simple phoneme awareness tasks (blending and phoneme detection) to be used when screening children's very early reading skills or difficulties related to early reading development. He mentioned the predictive role of phonemic skills with respect to reading development (*ibid.*, p. 117). However, he kept stressing the essential role of neuropsychological processes in reading development (1995, p. 76), and for a relatively long time he considered phonemic awareness to be just an aspect of the symptomatology of reading difficulties related to auditory perception (Matějček & Vágnerová, 2006). The integration of Matějček's view on the role of phonological skills and reading development within the current cognitive and psycholinguistic models of reading (and dyslexia) was recently provided by Jošt (2011). His excellent review shows the surprising closeness of Matějček's typology of subtypes of dyslexia to what are termed phonological theories of dyslexia in the current international literature (*ibid.*, p. 65).

When reflecting on the overall approach in Czech research, educational, and counselling practice in relation to the development of literacy, it has to be said that traditionally the visual and auditory processes were believed to be of primary importance for the understanding of reading development and reading diff-

iculties. This probably has its roots in the very strong clinical backgrounds to the study of literacy in Czech Republic. Matějček and his collaborators were mainly practising clinical or counselling psychologists (e.g. Šturma, Zelinová, Jucovičová, Žáčková) with a very strong reliance on clinical experience. This clinically-based approach exerted a great influence on generations of educational psychologists in Czech Republic. There was almost no feeling that it was important for the research to contribute to the understanding of the development of literacy. This, however, slowly started to change in the late 'nineties under the influence of: 1) psycho-linguistically-oriented speech therapists, mainly from the Slovak Republic (Mikulajová, 2008); 2) international research results being translated into the Czech literature (for example, Pokorná, 1997 from German-speaking communities); 3) international researchers studying literacy from what is termed a cross-linguistic perspective (Caravolas & Bruck, 1993; Mertin, 2001), and 4) constructivist approaches in Czech developmental psychology, especially what is known as school ethnography (Kučera, 1992).

School ethnographers influenced by constructivist approaches (mainly Ferrero) conducted what were probably the first systematic longitudinal studies on the development of literacy in the Czech Republic (Kučera & Viktorová, 1998). The papers published by this research group provided detailed qualitative analyses of children's production and literacy-

related behaviour in schools, or rather classrooms, and provided an understanding of the principles of the interrelationships between cognition and culture and socio-cultural background (Pražská skupina školní etnografie, 2005) However, a specific feature of school ethnography papers is that they report almost no concrete comparable developmental data, so it is very difficult to transfer or generalise the results into counselling practice or assessment procedures.

The psycholinguistic and cognitive approach to studying literacy could be understood as using and appreciating studies on the development of language and cognitive skills to gain an understanding of the principles of the development of literacy. European research within this approach has been shared in English-speaking communities for more than 30 years. The psycholinguistic and cognitive approaches opened up interest in systematic longitudinal research on the development of literacy and on what are called pre-literacy, very often language-related, skills. As a result of this research, the prerequisites for the development of reading and spelling in various European languages were studied and described intensively and hugely and gradually were also compared across languages (cross-linguistic comparisons). This approach actually made language skills for research within literacy important – for example, the essential role played by the quality of phonological skills during preschool age for early reading and spelling development was gradually proven

in many research studies in European countries, Australia, and North America (see, for example, the classic studies by Goswami & Bryant, 2016 or earlier editions).

Concerning the Czech research within this psycholinguistic and cognitive approach, the specific contribution of Markéta Caravolas has to be mentioned at this point. The first research papers publishing developmental data on the development of literacy in Czech children were published by her or her research teams (Caravolas & Bruck, 1993; Caravolas & Volín, 2001). She actually succeeded in bringing together phoneticians, psychologists, speech therapists, and linguists in the Czech (and also Slovak) Republic to invest in essential developmental research, both exploratory and confirmatory, to gain an understanding of the development of literacy. Her papers and papers she wrote with her collaborators in the Czech Republic should be understood as being truly influential for research on literacy in the Czech language (Caravolas et al., 2012; Caravolas et al., 2013; Caravolas, Volín, & Hulme, 2005; Hulme, Caravolas, Málková, & Brigstocke, 2005; Caravolas & Volín, 2005; Seidlová Málková & Caravolas, 2013; Seidlová Málková & Caravolas, 2016).

Let us now take a closer look at some of the most important findings of psycholinguistically-oriented research conducted in Czech. In 2005 Caravolas, Volín, and Hulme examined the role of phonemic awareness in relation to other

possible concurrent predictors of literacy skills in a cross-linguistic study of Czech and English children in the second to fifth grades (or the seventh grade in the case of the English ones). Though the central role of phonemic awareness in the development of reading and spelling was well established in the case of languages with inconsistent orthography, such as English, at that time, the generality of the claim was being questioned. To summarise the results, we can conclude that both study 1 (investigating typically developing Czech and English readers) and study 2 (comparing the deficits of Czech and English children with dyslexia) supported the view of phonemic awareness as a core component skill of alphabetic literacy, equally important across orthographies. Additionally, in the case of reading comprehension the path analysis illustrated the strong influence of another oral language skill - vocabulary knowledge.

The importance of various language skills for literacy development in the Czech language was further elaborated as a part of a cross-linguistic longitudinal study assessing the possible predictive role of various language and cognitive skills for early literacy development (Cavolas et al., 2012). Children speaking four different European languages (English, Spanish, Czech, and Slovak) were followed from preschool age to the second grade of primary school (approx. five to eight years of age). The importance of three prerequisite skills - phonemic awareness, letter-sound knowledge,

and rapid automatised naming - for the beginning of reading and spelling was confirmed as being applicable to all four languages that were assessed (in reading development by using parallel cross-linguistic comparative longitudinal studies in English, Spanish, and Czech). The results of this study show that children learning to read in more consistent orthographies acquire reading more rapidly than children in less consistent orthographies. However, the cognitive prerequisites for learning to read seem to be universal for alphabetic languages (e.g. English, Spanish, and Czech).

A special contribution to the understanding of the relationship of language skills and reading in Czech should be attributed to Anna Kucharská, who conducted the first longitudinal study of children with specific speech and language impairments (called developmental dysphasia in the Czech literature - Richterová & Seidlová Málková, 2017) and with a group of children with a familial risk of dyslexia (Kucharská, 2014; Moll et al., 2016). First, one hundred and forty-nine children with various risk language- and family-related factors, together with typically developing children of preschool age, were followed for three years, from five to approx. eight years of age (reaching the first or second grade of primary school at the end of the study) and the prerequisite skills for literacy in the case of children at risk of dyslexia were investigated. Data analysis for a combined Czech and Slovak research sample (Moll et al., 2016) revealed a similar pat-

tern of results to that found earlier in a study of typically developing children (Caravolas et al., 2012) and confirmed the key role of phonemic awareness, letter-sound knowledge, and rapid automatized naming for the early development of literacy. Finally, a cohort of 98 children from the original sample of children was further repeatedly assessed till the third grade through an extended follow-up. An alarming result of this study (Kucharská, 2014) points out that throughout the study the language-impaired children were gradually facing more and more serious difficulties in literacy skills (especially in reading comprehension and writing), despite the fact they were identified within the Czech counselling system (and thus received some interventions targeting their difficulties).

Following the study of Caravolas et al. (2012, 2013), systematic research on reading comprehension within Czech primary schoolchildren was gradually conducted by researchers from the Faculty of Education of Charles University from 2013 to 2016 (for example Kucharská et al., 2015; Špačková et al., 2016). Reading comprehension and reading-related skills were investigated in a group of 515 first-to-fourth-graders using several measures of reading comprehension. Regression analysis for two different types of reading comprehension tests revealed the key role of implicit grammatical (especially morpho-syntactic) skills for the development of reading comprehension throughout the first five years of primary school (Seidlová Mál-

ková & Kucharská, 2016). Besides the investigation of the typical development of reading comprehension, the research project also examined word-level reading and reading comprehension skills in groups of children who were at risk in terms of their development of literacy (Sotáková et al., 2014; Špačková et al., 2016). Specifically, children in the fourth grade with dyslexia, specific language impairment, and autism spectrum disorders were assessed. What are termed poor comprehenders (children with a low level of oral language and reading comprehension skills), a category relating to reading difficulties that is almost totally neglected in the Czech research literature, were introduced and studied in comparison with a sample of typical developing children (Presslerová, 2016). The results of the study of the at-risk groups point out the fact that in order to characterise the reading profile of a child with a clinical diagnosis the traditional clinical procedures, which include almost no psychometric assessment, are not very helpful. Direct differentiation of at-risk profiles according to the level of word decoding skills and oral language proficiency (listening comprehension) was shown to be very effective, not only for the precise and functional description of reading comprehension difficulties within the assessment procedures but also for the process of setting up the design of tailored interventions.

Concurrently, Seidlová Málková (2015) and Seidlová Málková and Caravolas (2016) studied the developmental rela-

tionship of letter knowledge and phonemic awareness by implementing experimental training designs in the real-world setting of Czech kindergartens. Functional and effective forms of very early systematic educational support for both these important pre-reading skills were provided as a result of the training activities included in the experimental design. In relation to the developmental interaction between phoneme awareness and letter knowledge, phonemic awareness was described in this research study as being an ability that arises separately (not as a result of the development of letter knowledge) and furthermore, an independent predictor of growth in letter knowledge.

As we have been trying to show, the relationship between language skills and the development of reading as an attractive topic in Czech research now has a stable basis and is slowly beginning to show its importance and efficiency for the practice of psychology, speech therapy, and special education counselling too. For now we can rely on research results (including Czech samples) proving the importance of phonological skills, letter knowledge, and rapid automatised naming in the set of skills that are prerequisites for early literacy and the role played by the interaction between phonemic awareness and letter knowledge in the development of literacy. However, there is a growing body of evidence that indicates the importance of broader language skills (lexical and grammatical) for the development of text comprehen-

sion skills. The findings also support the conviction that is widely accepted today (e.g. Scarborough, 2005; Keenan & Meehan, 2014) that reading ability cannot be treated as a unitary construct and that reading tests should not be used interchangeably. That is why more interest should be paid to the specific nature of the interaction between phonological (including phonemic awareness) skills and other language skills during preschool age. Of course, the specific role played by other language skills at the beginning and also throughout the development of various literacy skills should be further researched with Czech pupils.

Though some data on literacy and language skills in Slavic languages such as Czech is available, we are still almost at the beginning in understanding the relations and development. Czech research and counselling practice lacks a full set of reliable, sensitive, and standardised assessment tools for many aspects of language and literacy. For the Czech language samples, there is still a lack of longitudinal developmental data covering older primary school readers and many at-risk (clinical) groups of children. Last but not least, there is a need for more intervention studies to test the putative causal links between language and literacy skills.

We think that this special issue could play some role in promoting further interest in various research topics touching on the relationship between the development of language and literacy. The

papers submitted for this special issue truly show a broadness of this topic.

The first paper, a review by Marja Volemanová and Lea Květoňová, provides an insight into the current knowledge concerning the relationship between specific language impairment (SLI), motor development, and the acquisition of literacy in children. Specifically, these authors address the issue of difficulties in balance, general static coordination, and general dynamic coordination often observed in children with speech/language impairments and consider the value of specific movement intervention programmes in order to mitigate the speech/language impairment.

Zuzana Hoždorová and Olga Kučero-ová focus on the issue of silent reading in their research study. Though silent reading is a common activity performed by Czech pupils in class, not much attention is paid to silent reading in the counselling and diagnostic processes. The main aim of the present study is to evaluate a modified version of a reading comprehension test based on reading a story (Kucharská & Vykoukalová, in preparation) as a possible assessment tool for the explicit and implicit silent reading comprehension skills of fifth-grade pupils. It is important to mention that the study reacts promptly to the current situation in the education system and presents the data analysis in relation to the two main instructional methods for writing used in contemporary Czech elementary schools.

Gabriela Seidlová Malková explores

the development of phonological, reading, and spelling skills in preschool children who are precocious (very early) readers. She is actually following the almost forgotten original studies of early readers by Prof. Matějček, the founder of reading research in Czech Republic. The results of this paper show the superiority of precocious readers in terms of the phonemic awareness skills of very early readers and the boosting and stabilising role played by phonological skills in fluency in early reading. This paper is truly an invitation to perform further research on precociously reading children by stressing the importance of family background for early reading development and by pointing out the methodological issues related in conducting research on very early readers.

In the fourth study, Anna Kucharská and Helena Podpěrová introduce a validation study of a pilot adaptation of the Children's Communication Checklist-2 questionnaire (Bishop, 2003) conducted with a group of Czech preschool children. Besides other important results, the study confirms the potential of the Czech version of the tool regarding distinguishing children with Specific Language Impairment from children with typical development.

Finally, two reports introduce the aims and key activities of EU-funded projects concerning literacy and literacy practice in schools. Klára Špačková and Anna Kucharská provide information on the activities and current state of the project "Increasing quality in the education of

pupils and the development of key competencies, educational areas, and literacies". Gabriela Seidlová Málková introduces the European Literacy Network (ELN) and its activities. She also invites us to an interesting upcoming event organised by the ELN network, the first European summit on literacy in Porto, November 2018.

Throughout the whole special issue we can track the effort of the authors to contribute to the understanding of the development of literacy and the associ-

ated risks in order to be able to help any child in need. We hope that this special issue can be a source of inspiration for those interested in both literacy and language research. We wish our readers pleasant and thoughtful reading!

The preparation of this paper was supported by the Ministry of Education, Youth, and Sports - Institutional Support for Long-term Development of Research Organizations - Charles University, Faculty of Education (2017, Q17).

Klára Špačková, Gabriela Seidlová Málková
editors

- Bishop, D. V. M. (2003). *The Children's Communication Checklist version 2 (CCC-2)*. London: Psychological Corporation.
- Bryant, P., & Goswami, U. (2016). *Phonological skills and learning to read*. Oxon: Routledge.
- Caravolas, M., & Bruck, M. (1993). The effect of oral and written language input on children's phonological awareness: A cross-linguistic study. *Journal of Experimental Child Psychology*, 55(1), 1-30.
- Caravolas, M., Lervag, A., Mousikou, P., Efrim, C., Litavský, M., Onochie-Quantillas, E., Salas, N., Schöffelová, M., Defior, S., Mikulajová, M., Seidlová Málková, G., Hulme, CH. (2012). Common Patterns of Prediction of Literacy Development in Different Alphabetic Orthographies. *Psychological Science*, 23(6), 678-686.
- Caravolas, M., Lervág, A., Defior, S., Seidlová Málková, G., & Hulme, Ch. (2013) Different patterns, but equivalent predictors, of growth in reading in consistent and inconsistent orthographies. *Psychological Science*, 2013, 24, 8, 1398-1407.
- Caravolas, M., & Volín, J. (2001). Phonological spelling errors among dyslexic children learning a transparent orthography: the case of Czech. *Dyslexia*, 7(4), 229-245.
- Caravolas, M., & Volín, J. (2004). *Baterie diagnostických testů gramotnostních dovedností pro žáky 2. až 5. ročníku ZŠ. [The Battery for the Assessment of Literacy Skills in Children from the Second to the Fifth Grades of Primary School]*. Praha: Institut pedagogicko-psychologického poradenství.
- Caravolas, M., Volín, J., & Hulme, C. (2005). Phoneme awareness is a key component of alphabetic literacy skills in consistent and inconsistent orthographies: Evidence from Czech and English children. *Journal of Experimental Child Psychology*, 92(2), 107-139.

- Heveroch, A. (1904). O jednostranné neschopnosti naučiti se čísti při znamenité paměti. [About one-sided inability in learning to read along with an excellent memory] *Česká škola*, 1904/1905.
- Hulme, C., Caravolas, M., Málková, G., & Brigstocke, S. (2005). Phoneme isolation ability is not simply a consequence of letter-sound knowledge. *Cognition*, 97(1), B1-B11.
- Jošť, J. (2011). *Čtení a dyslexie*. [Reading and dyslexia]. Praha: Grada.
- Keenan, J. M., & Meenan, C. E. (2014). Test Differences in Diagnosing Reading Comprehension Deficits. *Journal of Learning Disabilities*, 47(2), 125-135.
- Kučera, M. (1992). Školní etnografie: přehled problematiky. [School ethnography: state of the art]. *Studia Paedagogica*, 8.
- Kučera, M., & Viktorová, I. (1998). *Čtení/psaní v první třídě* [Reading/writing in the first grade]. In: Pražská skupina školní etnografie (Ed.). *První třída* (pp. 61-168). Praha: Univerzita Karlova v Praze.
- Kucharská, A. (2014). *Riziko dyslexie. Pregramotnostní schopnosti a dovednosti a rozvoj gramotnosti v rizikových skupinách* [Risk of dyslexia. Preliteracy skills and abilities and literacy development in at-risk groups]. Praha: PedF UK.
- Kucharská, A. et al. (2016). *Porozumění čtenému III. Typický vývoj porozumění čtenému - metodologie, výsledky a interpretace výzkumu* [Reading Comprehension III. Typical Reading Comprehension Development - methodology, results and interpretation of the research.]. Praha: PedF UK.
- Matějček, Z. (1974). *Vývojové poruchy čtení*. [Developmental disorders of reading]. Praha, SPN.
- Matějček, Z. (1995). *Dyslexie - specifické poruchy čtení*. [Dyslexia - specific reading disability]. Praha: H+H (third edition).
- Matějček, Z. (1997). Early Readers in Czech. *Dyslexia*, 3(1), 48-54.
- Matějček, Z., & Vágnerová, M. (2006). *Sociální aspekty dyslexie*. [Social aspects of dyslexia]. Praha: Karolinum.
- Mertin, V. (2001). *Fonologický model poruch čtení* [Phonological model of reading disabilities]. In *Psychologické problémy člověka v měnícím se světě I*. Acta universitatis carolinae. Philosophica et historica. *Studia psychologica IX*. Praha : Karolinum, 165-174.
- Mikulajová, M. (2008). Možnosti ranej predikcie vývinových porúch písanej reči. [Possibilities of early prediction of developmental disorders in written language]. *Československá psychologie*, 52, 59-69.
- Moll, K., Thompson, P. A., Mikulajova, K., Jagercikova, Z., Kucharska, A. Franke, H., Hulme, C., & Snowling, M. J. (2016). Precursors of Reading Difficulties in Czech and Slovak Children at Risk of Dyslexia. *Dyslexia*, 22, 2, 120-136, doi: <https://doi.org/10.1002/dys.1526>
- Pokorná, V. (1997). *Teorie, diagnostika a náprava specifických poruch učení* [Theory, assessment and interventions of specific learning difficulties]. Praha: Portál.
- Presslerová, P. (2016). Slabý čtenář s deficitem porozumění [Poor reader with comprehension deficit]. In Špačková, K. et al. *Porozumění čtenému IV. Porozumění čtenému u dětí s rizikem čtenářských obtíží - metodologie, výsledky a interpretace výzkumu*. [Reading Comprehension

- IV. Reading comprehension in children at risk of reading difficulties - methodology, results and interpretation of the research*]. Praha: PedF UK.
- Pražská skupina školní etnografie (2005). *Psychický vývoj dítěte od 1. do 5. třídy*. [Children's psychic development from the first till the fifth grade]. Praha: Karolinum.
- Richterová, E., & Seidlová Málková, G. (2017). Specific language impairment in the long-term perspective - the importance of assessment procedures, reading skills, and communicative competence. *Health Psychology Report*, 3(1).
- Scarborough, H. S. (2005). Developmental relationship between language and reading: reconciling a beautiful hypothesis with some ugly facts. In H. G. Catts & A. K. Kamhi (Eds.) *The Connections Between Language and Reading Disabilities*, 3-24. New York: Lawrence Erlbaum Associates.
- Seidlová Málková, G. (2015). *Vývojový vztah fonemického povědomí a znalosti písmen*. [The developmental relationship of phonemic awareness and letter knowledge]. Praha: Togga.
- Seidlová Málková, G., & Caravolas, M. (2013). *Baterie testů fonologických schopností, BTFS*. [The Test Battery for the Assessment of Phonological Awareness]. Praha: Národní ústav pro vzdělávání.
- Seidlová Málková, G., & Caravolas, M. (2016). The development of phoneme awareness and letter knowledge: A training study of Czech preschool children. In *Actes du Symposium international sur la literacie ř l'école/International Symposium for Educational Literacy (SILE/ISEL) 2015* (pp. 31-56). Les Éditions de l'université de Sherbrooke, 2016.
- Seidlová Málková, G., & Kucharská, A. (2015). Porozumění čtenému a jeho prekurzory, dílčí studie [Reading comprehension and its precursors, a partial study] In Kucharská, A. et al., *Porozumění čtenému III. Typický vývoj porozumění čtenému - metodologie, výsledky a interpretace výzkumu* (Reading Comprehension III. Typical Reading Comprehension Development - methodology, results and interpretation of the research]. 127-140. Praha: PedF UK.
- Sotáková, H., Špačková, K., Presslerová, P., Richterová, E., Kucharská, A., & Seidlová Málková, G. (2015). *Porozumění čtenému II. Porozumění čtenému u dětí s rizikem čtenářských obtíží - východiska, témata, zdroje - kritická analýza a návrh výzkumu*. [Reading Comprehension II. Reading comprehension in children at risk of reading difficulties - theoretical background, topics, sources - critical analysis and research design]. Praha: PedF UK.
- Špačková, K. et al. (2016). *Porozumění čtenému IV. Porozumění čtenému u dětí s rizikem čtenářských obtíží - metodologie, výsledky a interpretace výzkumu*. [Reading Comprehension IV. Reading comprehension in children at risk of reading difficulties - methodology, results and interpretation of the research]. Praha: PedF UK.
- Žlab, Z. (1960). Soubor vyšetřování zvláštností v motorice a percepci u dětí s lehkou dětskou encefalopatií. [The battery for the assessment of motor and perception impairment in children with minimal brain dysfunction]. *Otázky defektologie*, 2, 71-76.
- Žlab, Z., Šturma, J., & Šotolová, E. (1983). Specifické poruchy výslovnosti a jejich symptomová hodnota. [Specific articulation impairment and its symptomatological value]. *Psychológia a patopsychológia dieťaťa*, 17, 207-213, 319-332.