EDITORIAL TO THE SPECIAL ISSUE ON EXECUTIVE FUNCTIONS AND CHILDREN´S LITERACY DEVELOPMENT

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Many efforts have been undertaken to create better and better developmental conditions for children living in the contemporary world. People try, as best as they can, to do everything to prepare the next generation for happy and successful adulthood. The problem is that living conditions are changing so fast that nobody knows how the children of today will be able to live when they become adults. Is it possible to design contemporary parenthood and education in order to reach the achievements essential for the unknown future?

In recent years, executive functions (EF) have become the subject of intense studies, being approached from different scientific perspectives—mostly neurocognitive, developmental and neuropsychological. These functions are assumed to underlie such skills as: refraining from reflex or impulsive reactions, problem solving, exploiting multiple sources of information, planning, initiating and flexible realization of an action and monitoring the various stages of goal-oriented actions. Thus, they determine one of the most characteristic and key aspects of people's behaviour—rapid and flexible adaptation to the constantly changing conditions of life.

The most important discovery of researchers studying EF is that these functions strongly predict the quality of different aspects of both individual and social life from childhood to the old age. Adele Diamond (2013), who has been studying the development of executive functioning for many years, lists the following aspects of life to which EF are relevant: mental and physical health, quality of life, school readiness and success, marital harmony, job success and public safety. The relations between these aspects and EF were confirmed in the research done between years 2004 and 2011. She also points out that the reduction of EF efficiency coexists with

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such mental disorders as addictions, attention deficit hyperactivity (ADHD), conduct disorder, depression, obsessive compulsive disorder or schizophrenia. Finally, it is known that EF are better predictors of quality of life than the level of intelligence, commonly regarded as a good measure of general mental ability (Diamond, 2013). And, especially for the educational context, the relevant finding is that working memory as one of the key EFs has a direct impact on the ability to learn (Ropovik, 2014).

Because of their importance for the development of intentional behaviours, executive functions can be seen as essential target areas for stimulation during childhood. The importance of EF development was indirectly noticed by experts from different international organizations who worked on the general strategy of education in the 21st century. A special UNESCO commission stated that in order to develop one's personality and to be able to act with growing autonomy, judgment and personal responsibility is one of the four pillars of education (UNESCO, 1996). Also in 2006, the European Parliament introduced key competences for lifelong learning, among which we can find those solely based on EF: learning to learn, social and civic competencies, sense of initiative and entrepreneurship (European Parliament, 2006). The need for developing social-emotional competencies in children was emphasized in the latest OECD summary of international research on the role of education in enhancing social resources (OECD, 2015). All these recommendations suggest shifting the emphasis in general aims of institutional teaching from delivering knowledge to promoting self-management of learning, from showing patterns of behaviour to improving ability to design one's activity. Competences of this kind, based mostly on efficient EF, were found as most universal in the context of quickly changing life conditions and the demands of labour market.

Another important area of contemporary research is literacy. Reading and writing have been known as predictors of quality of life much longer than executive functions (e.g. Beswick, Sloat, 2006; Kwieciński, 2002). The nature of this prediction was recently specified in more details, so we are aware that not only is literacy necessary for knowledge acquisition, but learning to read and write also stimulates and improves brain systems (Horowitz-Kraus, & Hutton, 2015; James, Jao, & Berninger, 2016; Shaywitz, & Shaywitz, 2004), speech (Ardila et al., 2010), organisation of thinking (Jabłoński, 2003) and perspective taking (Shanahan, 2016). The importance of literacy development has been appreciated in many countries. In 2002, in the United States, the Early Reading First and Reading First projects were commenced which focused on preparing new teaching curricula, designing tools of reading and writing assessment, and methods of prevention and revalidation to help children with literacy impairments (*No Child Left Behind Act of 2001*, 2002). In the United Kingdom, since 2003, all children finishing the first stage of education (about 5 years of age) have taken part in screening testing for evaluating the risk of difficulties in language and literacy (Snowling, 2013). Efficient communication in oral and written form is rated as one of the key competences (European Parliament, 2006). International assessment of different skills is being undertaken every

few years. Usually, the most important measurements of literacy include: Progress in International Reading Literacy Study (PIRLS), Programme for International Student Assessment (PISA), and The Programme for the International Assessment of Adult Competencies (PIAAC) (OECD, 2016). It seems that besides EF, literacy could also be regarded as a universal competence in the context of quickly changing life conditions.

The main theme of this Special Issue is dedicated to mutual relations between executive functions' development and literacy. As we have tried to explain above, improving these two competences should be the central question taken into consideration when designing excellent conditions for children´s development. Both EF and literacy are developed considerably during the early periods of life: preschool and school age. Some researchers emphasize that, so far, little is known about developmental interactions between these competences (see: Altemeier, Abbott, Berninger, 2008; Cotrena, Branco, Cardoso, Wong, Fonseca, 2015). This special Issue broadens the knowledge in the field and subsequently aims at helping to find the key qualities of environment that are crucial for progress in both EF and literacy.

The special issue is "special" not only because of the research area and the target age group which the presented articles focus on. The speciality of this special issue dwells also in the cultural and linguistic similarities of the research environments within the conducted research studies. The relations of executive functions and children´s literacy development are studied within reading and writing processes in two very similar West Slavic languages—Polish and Slovak. Although in this special issue the comparative approach is not presented, based on the current cooperation in editing the issue, there are potentialities for future comparative research. However, the research findings of three Polish and one Slovak articles that the special issue consists of show that in both languages it is very relevant to study the influence of EF on reading and writing development of pre-primary and primary school children and the possibilities of using the language curricula as a tool for stimulating executive functions.

The authors of the special issue represent either psychological or educational focus regarding the research on the relation of EF and literacy development. From a psychological and/or psycholinguistic point of view, the relations of working memory and reading ability are studied empirically by the research team Wiejak, Kaczan, Krasowicz-Kupis, & Rycielski from the Educational Research Institute in Warsaw and Maria Curie Sklodowska University in Lublin, Poland. Similarly, empirical psychological research on reading skill but in relation to another EF—inhibitory control in early-school children development—is presented in the article of A. Kamza from the Adam Mickiewicz University in Poznań, Poland. The psychological theory of L. S. Vygotsky on written speech as a higher mental function is the key theoretical starting point for the empirical research of S. Jabłoński (from the Adam Mickiewicz University in Poznań, Poland), who proved hypotheses on the relationship between the impressive and expressive component of written speech and the level

of executive functions in children. And finally, the only Slovak article by the authors Klimovič, Kresila, & Liptáková from the University of Prešov studies the relation of EF and children´s literacy from an educational and theoretical perspective and offers the domain-specific educational model for stimulating executive functions through the processes of text comprehension.

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