



PSYCHOLOGICAL PRINCIPLES OF LEARNING LANGUAGE IN CHILDREN WITH ADHD AND DYSLLEXIA

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Abstract

Recent epidemiological data show that Attention Deficit and Hyperactivity Disorder (ADHD) and Dyslexia are highly prevalent in children population which needs to focus on research of special forms of education that are specifically different for various learning disciplines. Major problems of these children with ADHD and dyslexia that were found in developmental and school psychology research are high occurrence of reading and spelling errors and attentional deficits. Serious problem in special education that play very important role in school environment of these children represent also various forms of behavioral disorders that in typical forms may manifest as uncontrolled and involuntary speech and movements. In many cases these deficits are developmentally influenced and may be specifically linked to increased fatigue and decreased attention that may lead to manifestation of cognitive tiredness or exhaustion and various forms primary reflex behavior related to involuntary movements. In addition these children with ADHD and dyslexia are highly sensitive to various psychosocial stressors that make school environment highly specific with respect to relaxed atmosphere in the classroom. In addition these children need a high level of acceptance and special learning regimes as for time schedules and classroom arrangement which is inconsistent with majority of traditional forms of teaching and learning in the classroom. These specific regimes of teaching and learning in children with ADHD and dyslexia, although they have certain general rules, need to be specifically applied to various learning disciplines and in teaching and learning language the main focus is on non stressful environment and communicative atmosphere of acceptance.

Key words: ADHD; Dyslexia; Learning language; Spelling deficits; Self-regulation

1. INTRODUCTION

According to current epidemiological data Attention Deficit and Hyperactivity Disorder (ADHD) and Dyslexia are highly prevalent in children population (at about 10% have ADHD and prevalence of dyslexia is 5-10%) and altogether prevalence of ADHD and dyslexia because of frequent comorbidities may be at about 15% (Germano et al., 2010; Sexton, et al., 2012). This represents almost epidemic occurrence which needs to focus on research of special forms of education that are specifically different for various learning disciplines.

Major problems of these children with ADHD and dyslexia that were found in developmental and school psychology research are high occurrence of reading and spelling

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errors, attentional deficits, various behavioral problems such as involuntary and uncontrolled speech and movements, and high sensitivity to psychosocial stress. For example, spelling errors under dictation or in text production and difficulties to develop an appropriate orthographic representation of words (Goswami, 1999; Re & Cornoldi, 2010, 2013; Re, Pedron, & Cornoldi, 2007; Re, Caeran, & Cornoldi, 2008).

Current findings also indicate that these spelling difficulties most likely are related to attentional and self-regulatory problems, even in children with ADHD and dyslexia may have different neurocognitive mechanisms (Kroese et al., 2000; Re & Cornoldi, 2013). In general context, Ehri (1986, 1995) proposed a stage theory of reading and writing development which suggests qualitatively different stages of learning to spell that is mainly based on visual and morphological information that may be disturbed from various reasons. Well known model for learning of reading and writing developed also Frith (1985), who proposed that associative learning of a particular graphic configuration in which children discover phonemes may lead to errors due to incorrect association between a grapheme and the corresponding phoneme.

According to recent findings spelling and reading errors occur in both dyslexia and ADHD, and may have different forms due to specific deficits in phonology and orthographic representation in the case of dyslexia and to attentional control in the case of ADHD (Re & Cornoldi, 2013). All these problems in children with ADHD and dyslexia typically occur in learning native language but have also specific consequences for learning additional/foreign language and methods of special education may differ also with respect to specific qualities of various languages. In the case of learning English as major international language it is specifically influenced by frequent differences in written and spoken form of words that need alternative methods of special education different from usually applied forms of teaching and learning. In this context, main focus of this work is to review research findings that were focused on special forms of learning language especially with focus on learning English as additional/foreign language.

2. BASIC PRINCIPLES OF LEARNING LANGUAGE

According to recent findings there is a controversy regarding most effective way of learning language as additional (or foreign) language which is mainly based on unclear criteria how to define learning outcome and what is optimal goal of limited time in a classroom (Gipps, 1994; Cameron and Bygate, 1997; Brady & Shinohara, 2000). The term "additional language" is used to replace the more commonly used term "foreign language" to take into account that term foreign may be misleading due to its association "as being outside and having no relation, or not belonging" (Gika, 1996, p. 14). Therefore the term additional language learning is likely more appropriate designation because it acknowledges that nonnative users also need to "own" it and incorporate into their social and cultural identity which mainly is important in the case learning English as an international language (Widdowson, 1994). This "redefinition" in current transcultural conditions also suggests that learning additional language needs to respect basic individual needs instead of artificial "objective criteria" what should be learned and defined as learning outcome.

In this context, main principles that seem to be useful to take into account are based on learning model of "transculturation" (Crystal, 1997; Zamel, 1997; Brady & Shinohara, 2000; Haneda & Wells, 2012). This model enables to define basic stages of learning that occur in classroom community with main purpose to develop them in a practical sense of using language outside the classroom which is based on respect to individual "culture" of communication. The transcultural model of additional language has its main purpose in individuation of learning which means self-actualization of learning and connecting of learned content with subjective experience and inner-directed world view (Zamel, 1997; Brady & Shinohara, 2000). In agreement with this model of transculturation also other authors maintain that norms and standards for teaching and learning need to be more locally context

sensitive, which in the case of English is especially important (Bowers, 1986; Kachru, 1992, 1996; Kramsch & Sullivan, 1996; Nayar, 1997; Haneda & Wells, 2008, 2010).

In general, this concept of study of additional language is based on the principles of transculturation and individuation which needs substantial re-evaluation of traditionally used principles of learning and teaching that were mainly based on information acquisition and memorizing without clear purpose, goal and context. In contrast to classical principles of learning additional language for example Haneda and Wells (2008, 2010) proposed that classroom discourse plays an important social role as a semiotic mediator of knowledge construction with respect to curriculum content. In this concept the content mainly is focused on autonomous and interdependent decision making and acquisition of knowledge and skills, which in practice means to concentrate the in-class communication to out-of-class activities with emphasis on knowledge of uses of the language, and personal application of language use.

3. LEARNING ADDITIONAL LANGUAGE IN CHILDREN WITH ADHD AND DYSLEXIA

In general, all these basic conceptualizations of teaching and learning additional language have specific consequences for children with learning difficulties. For the purpose of applicable methods of teaching these children is in addition needed to take into account their difficulties to learn native language (Mattes & Omark, 1984; Hall, 1995; Cline, 1998).

Important applicable concept for learning children with ADHD and dyslexia are in principle in agreement with the general concept of "transculturation" that needs to respect child's individuality (Tressoldi et al., 2012). In context of previous studies they applied a method of spontaneous learning in which children may copy as many words as possible from a text within a limited time of 5 minutes that involves a number of cognitive processes related to reading, retrieving orthographic representations from long-term memory, using working memory and attentional control. The authors and other studies found that the rate of spelling errors in the copy task gradually declines with training (Parker, McMaster, Medhanie, & Silbergitt, 2011; Candela, Cornoldi, & Re, 2012; Re & Cornoldi, 2013).

These findings documented by Tressoldi et al. (2012) have significant implications for comparison of the text copying task and spelling performance not only for children with dyslexia and ADHD but also for normally developing children. Recent results confirm that children are facilitated by correct spelling of available words but nevertheless children with dyslexia and ADHD have significantly more mistakes than healthy control group of children (Re & Cornoldi, 2013). The similarities between the both clinical groups of children and dyslexia are particularly evident as for errors concerning duplicates and accents, especially when words include double letters or accents in agreement with findings reported by Re et al. (2007). Tressoldi et al. (2012) also suggested that both the orthographic representation and the ability to retain the sequence of phonemes are crucial especially for copying of orthographically complex words.

These results in principle have important educational implications. For example, a copy task might be included in spelling batteries mainly in circumstances where dictation is not enough to establish a child's spelling ability (Tressoldi et al., 2012; Re & Cornoldi, 2013). As for school curriculum, greater attention needs be devoted to school activities requiring children to focus attention during various exercises of copying written material. In addition the intervention involving the use of copy tasks might be adapted to the specific characteristics of children with spelling difficulties, for example focusing attention of children with dyslexia on phonological errors and in ADHD children focusing attention on errors with accents and duplicates (Tressoldi et al., 2012; Re & Cornoldi, 2013).

4. BASIC CONDITIONS OF LEARNING IN CHILDREN WITH ADHD AND DYSLEXIA

Implications of these findings about basic similarities between ADHD and dyslexia are especially important with respect to currently applied methods of learning language and their appropriate modifications. Usual educational strategies in children with ADHD and dyslexia in general recommend to practice motor and linguistic skills, and to train children in various kinds of social behavior predominantly in small groups (Lloyd et al., 2006).

In comparison to traditional methods of teaching and learning language the main focus is on spontaneous process that is emphasized in certain empirically proposed methods of non-traditional learning. For the purpose of learning children with ADHD and dyslexia especially important examples of non-traditional methods of teaching seem to be the method of "Silent Way", the method of "Total Physical Response" and the method of "Communicative Language Teaching".

The Silent way method was proposed by Caleb Gattegno (Gattegno, 1972; Richards & Rodgers, 1986) and it is mainly based on the postulate that the teacher in the classroom should be silent as much as possible and on the other hand that the learner should be encouraged in language production as much as possible. This implicates that within framework of this method learning language is basically defined as a problem-solving, creative, discovering activity, in which the learner is a principal actor rather than a passive listener. Gattegno had predominantly skeptical view about the role of linguistic theory for learning practice of language and its teaching methodology. He suggested the importance of grasping the unique sound system and melody of the language and their association with specific meanings. In this context, an efficient form of learning language cannot be separated from its social context and learned through artificial situations. Learning tasks and activities in the Silent Way typically have their main function to encourage interest using simple linguistic tasks in which the teacher models a word phrase, or sentence and then elicits learners to respond. The teacher also facilitates students' self-correction activities and helps them to develop self-reflection and awareness about their own learning. The Silent Way lesson typically follows a standard format in which the first part of the lesson is focused on pronunciation and work with sounds, phrases or sentences. After the practice with sounds of the language learning continues with focus on vocabularies highlighted by colors which facilitates spontaneous activities of learners.

Similarly the process of creative activity during learning language supports also the method of Total Physical Response. The method was developed by James Asher (Asher, 1996; Richards & Rodgers, 1986) and is mainly based on coordination of speech and action through various forms of physical activities which support motor system. In his view of general concept, Asher sees successful adult second language learning as a parallel process to child first language acquisition which is closely linked to physical activities that facilitate learning.

Asher conceptualized three basic processes as central for the process of language acquisition. The first is based on developing listening competence before the ability to speak is developed. In the second period the ability of listening comprehension is linked to physical response to spoken language which enables to create cognitive maps. In the third period, the learning is focused on spontaneous speech production.

Based on psychological data about general conditions of learning, Asher also conceptualized that an important condition for successful language learning is the stress-free environment and clear focus on meaning and its interpretation through movement. The teacher's role is mainly to provide opportunities for learning. In this process the teacher is responsible for exposure to the language that enables to internalize basic rules of the language and enable creating of cognitive maps.

Specific and interesting interactive method of learning additional language is also method of Communicative Language Teaching (Richards & Rodgers, 1986). The origins of the Communicative Language Teaching method (CLT) is in late 1960s and it was related to structural linguistic theory by Noam Chomsky published in his classical book "Syntactic

Structures" (Chomsky, 1957). Chomsky demonstrated that the current standard structural theories of language is not capable to understand fundamental characteristic of language which is related to creativity and uniqueness of individual sentences and their communicative potential. Preliminary document for this learning concept was prepared by Wilkins (1979), who proposed a functional or communicative definition of language useful as a basis for developing communicative language teaching. His contribution was mainly based on an analysis of the communicative meanings that a language learner needs to understand and express. Wilkins divided meanings into two types as notional categories (concepts such as time, sequence, quantity, location, frequency) and categories of communicative function (requests, denials, offers, complaints), and proposed that one of the most characteristic features of communicative language teaching is attention to functional as well as structural aspects of language. This communicative approach in language teaching starts with a theory of language as communication and with its goal of language teaching leading to communicative competence focused on functional communication activities and social interaction activities. In this context the teacher's role is mainly to facilitate the communication process between all participants in the classroom through various activities and texts which have to facilitate spontaneous activities in creative and pleasant atmosphere (Richards & Rodgers, 1986).

All these non-traditional methods, similarly as specifically proposed learning procedures for children with ADHD and dyslexia (Tressoldi et al., 2012; Re and Cornoldi, 2013), to a great extent focus on spontaneous creative processes that involve also significant sensory stimuli and physical activities. Taken together applicable and useful methods of learning language need especially to take into account specific core deficits in dyslexia related to a phonological deficit related to mental representation and processing of speech sounds, and attentional difficulties that disturb mapping between letters and sounds and similarly in ADHD children who mainly have difficulties with attentional control and impulsive behavior. Typically children with ADHD and dyslexia have difficulties with the meaning of words and syntactic rules which complicate understanding and also process of mapping between sounds and written form of words (Butterworth & Kovas, 2013). In context of these symptoms main focus on creativity and activities involving sensory and physical processes on various levels significantly help to these children to have a lot of time for empathically moderated spontaneous learning in non-stressful environment. In addition these findings may have positive implications in general and due to understanding limits of learning and teaching in children with disabilities may help to improve learning and teaching methods of language and in other disciplines also for healthy children and adults.

5. CONCLUSIONS

Above referred and other cognitive deficits which usually occur in children without other learning disabilities implicate that many of them have high intelligence and specific talent for various disciplines. Serious problem in special education that play very important role in school environment of these children represent various forms of behavioral disorders that in typical forms mainly manifest as uncontrolled and involuntary speech and movements. In many cases these deficits are developmentally influenced and may be specifically linked to increased fatigue and decreased attention that may lead to manifestation of cognitive tiredness or exhaustion and various forms primary reflex behavior related to involuntary movements (Koncarova & Bob, 2013; McPhillips et al., 2000). In addition these children with ADHD and dyslexia are highly sensitive to various psychosocial stressors that make school environment highly specific with respect to relaxed atmosphere in the classroom. In addition these children need a high level of acceptance and special learning regimes as for time schedules and classroom arrangement. Specific problems especially in children with ADHD and dyslexia are also their needs to involuntary move and walk, most frequently due to manifestation of

primary reflex behavior deficits, which is inconsistent with majority of traditional forms of teaching and learning in the classroom.

These specific regimes of teaching and learning in children with ADHD and dyslexia, although they have certain general rules, need to be specifically applied for various learning disciplines. In teaching and learning language these special needs of children with ADHD and dyslexia are specifically linked to non stressful environment creating communicative atmosphere of acceptance that enables to include also non traditional forms of teaching including various forms of physical exercises in the classroom.

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REFERENCES

- Asher, J. (1996). *Learning Another Language Through Actions* (5th ed.). Los Gatos, CA: Sky Oaks Productions.
- Brady, A. & Shinohara, Y. (2000). Principles and activities for a transcultural approach to additional language learning. *System*, 28, 305-322.
- Butterworth, B. & Kovas, Y. (2013). Understanding neurocognitive developmental disorders can improve education for all. *Science*, 340, 300-5.
- Cameron, L., & Bygate, M. (1997). Key issues in assessing progression in English as an additional language. In C. Leung & C. Cable (Eds.), *English as an Additional Language: Changing Perspectives* (pp. 40 - 52). Watford, Herts: NALDIC.
- Chomsky, N. (1957). *Syntactic Structures*. The Hague: Monton.
- Cline, T. (1998). The assessment of special educational needs for bilingual children. *British Journal of Special Education*, 25, 159-163.
- Crystal, D. (1997). *English as a Global Language*. Cambridge University Press, Cambridge.
- Ehri, L. C. (1986). Sources of difficulty in learning to spell and read. In M. L. Wolraich & D. Routh (Eds.), *Advances in developmental and behavioral pediatrics* (vol. 7, pp. 121-195). Greenwich, CT: JAI.
- Ehri, L. C. (1995). Phases of development in learning to read by sight. *Journal of Research in Reading*, 18, 116-125.
- Frith, U. (1985). Beneath the surface of surface dyslexia. In J. C. Marshall, M. Coltheart & K. Patterson (Eds.), *Surface dyslexia and surface dysgraphia* (pp. 310-330). London, UK: Routledge.
- Gattegno, C. (1972). *Teaching Foreign Languages in Schools: The Silent Way*. New York: Educational Solutions.
- Germano, E., Gagliano, A., Curatolo, P. (2010). Comorbidity of ADHD and dyslexia. *Developmental Neuropsychology*, 35, 475-93.
- Gika, S. (1996). Foreign in English language teaching: meaning, role, and appropriateness. *IATEFL Newsletter*, 130, 14-17.
- Gipps, C.V. (1994). *Beyond Testing: Towards a theory of educational assessment*. London: Falmer Press.
- Goswami, U. (1999). The relationship between phonological awareness and orthographic representation in different orthographies. In M. Harris & G. Hatano (Eds.), *Learning to reading and write: A cross-linguistic perspective* (pp. 134-156). Cambridge, UK: Cambridge University Press.
- Hall, D. (1995). *Assessing the Needs of Bilingual Pupils: Living in Two Languages*. London: David Fulton.
- Haneda, M. & Wells, G. (2008). Learning an additional language through dialogic inquiry. *Language and Education*, 22, 114-136.
- Haneda, M. & Wells, G. (2010). Learning science through dialogic inquiry: Is it beneficial for English-as-additional-language students? *The International Journal of Educational Research*, 49, 10-21.
- Haneda, M. & Wells, G. (2012). Some key pedagogic principles for helping ELLs to succeed in school. *Theory into Practice*, 51, 297-304.
- Kachru, B.B. (1992). *The Other Tongue: English Across Cultures*. University of Chicago Press, Chicago.
- Kachru, B.B. (1996). *The paradigms of marginality*. *World Englishes*, 15, 3.
- Kramsch, C. & Sullivan, P. (1996). Appropriate pedagogy. *ELT Journal*, 50, 199-211.

- Konicarova, J. & Bob, P. (2013). Asymmetric tonic neck reflex and symptoms of attention deficit and hyperactivity disorder in children. *International Journal of Neuroscience*, 123, 766-9.
- Kroese, J. M., Hynd, G. W., Knight, D. F., Hiemenz, J. R., & Hall, J. (2000). Clinical appraisal of spelling ability and its relationship to phonemic awareness (blending, segmenting, elision, and reversal) phonological memory, and reading in reading disabled, ADHD, and normal children. *Reading and Writing*, 13, 105-131.
- Lloyd, G., Stead, J., & Cohen, D. (2006). *Critical New Perspectives on ADHD*. Routledge, New York.
- Mattes, L. J., & Omark, D. R. (1984). *Speech and Language Assessment for the Bilingual Handicapped*. San Diego, California: College Hill Press.
- McPhillips, M., Hepper, P.G., Mulhern, G. (2000). Effects of replicating primary-reflex movements on specific reading difficulties in children: a randomised, double-blind, controlled trial. *Lancet*, 355, 537-41.
- Nayar, P.B. (1997). ESL/EFL Dichotomy Today: language Politics or Pragmatics? *TESOL Quarterly*, 31, 9-37.
- Re, A. M., & Cornoldi, C. (2010). Expressive writing difficulties of ADHD children: When good declarative knowledge is not sufficient. *European Journal of Psychology of Education*, 25(3), 315-323.
- Re, A.M. & Cornoldi, C. (2013). Spelling errors in text copying by children with dyslexia and ADHD symptoms. *Journal of Learning Disabilities*, doi: 10.1177/0022219413491287
- Re, A.M., Caeran, M., & Cornoldi, C. (2008). Improving expressive writing skills of children rated for ADHD symptoms. *Journal of Learning Disabilities*, 41, 535-544.
- Re, A.M., Pedron, M., & Cornoldi, C. (2007). Expressive writing difficulties in children described by their teacher as exhibiting ADHD symptoms. *Journal of Learning Disabilities*, 40, 244-255.
- Richards, J.C. & Rodgers, T.S. (1986). *Approaches and Methods in Language Teaching: A Description and Analysis*. Cambridge, New York: Cambridge University Press.
- Sexton, C.C., Gelhorn, H.L., Bell, J.A., Classi, P.M. (2012). The co-occurrence of reading disorder and ADHD: epidemiology, treatment, psychosocial impact, and economic burden. *Journal of Learning Disabilities*, 45, 538-64.
- Tressoldi, P. E., Cornoldi, C., & Re, A.M. (2012). Batteria per la valutazione della scrittura e della competenza ortografica nella scuola dell'obbligo. [Battery for the assessment of writing skills of children from 7 to 13 years old] (3rd ed.). Florence, Italy: Organizzazioni Speciali.
- Widdowson, H.S. (1994). The ownership of English. *TESOL Quarterly* 28 (2), 377-398.
- Wilkins, D. A. (1979). Notional syllabuses and the concept of a minimum adequate grammar. In C. J. Brumfit and K. Johnson (eds.), *The Communicative Approach to Language Teaching*. Oxford: Oxford University Press.
- Zamel, V. (1997). Toward a model of transculturation. *TESOL Quarterly*, 31, 341-352.