

**'Specialization in ICTs and Special Education: Psychopedagogy of Integration'
Postgraduate Program**
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in collaboration with
NCSR DEMOKRITOS Informatics and Telecommunications Institute

APPLICATIONS FOR DYSLEXIA RELATED TO EXECUTIVE FUNCTIONS

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POSTGRADUATE
THESIS

Komotini/Athens

2020

ABSTRACT

In recent years, researchers have shown great interest in studying children's skills in executive functions, as their deficiency has been linked to neurodevelopmental disorders, such as dyslexia. Executive functions are considered an important element of academic success, as they support cognitive processes that are fundamental to learning. And since it has been proven that the use of new technologies is a very supportive method of intervention for people with dyslexia and that the use of appropriate software programs and applications significantly improves the academic performance and self-confidence of dyslexic people, the purpose of this study is investigation and recording of computer applications for people with dyslexia related to executive functions. The findings of the research revealed a direct correlation between dyslexia and Executive Functions (EF), as well as connection of EF with the pyramid of consciousness-intelligence-knowledge and metacognitive skills, necessitating their inclusion in intervention of dyslexia and in intervention of each learning disorder. Finally, the findings recorded a variety of ICT applications for the subject, but not a thorough and extensive research on many of them. Therefore, there were a number of useful applications, which due to non-reporting of the results of their pilot application, were not included in the research.

Keywords: Dyslexia, Executive Functions, ICT, Applications, Software, Mobile Applications, Virtual Reality.

References

- Adebisi, R. O., Liman, N. A., & Longpoe, P. K. (2015). Using Assistive Technology in Teaching Children with Learning Disabilities in the 21st Century. *Journal of Education and Practice*, 6(24), 14-20.
- Agrell, B., & Dehlin, O. (1998). The clock-drawing test. *Age and Ageing*, 27(3), 399–403.
- Akyurek, G., Bumin, G. (2019). An Investigation of Executive Function in Children with Dyslexia. *Psychiatry and Behavioral Sciences*, 9(1-2), 10-7
- Alexopoulou, A., Batsou, A., Drigas, A.S., (2019). Effectiveness of Assessment, Diagnostic and Intervention ICT Tools for Children and Adolescents with ADHD. *iJES*, 7(3), 51-63.
- Alloway, T. P., Wootan, S., & Deane, P. (2014). Investigating working memory and sustained attention in dyslexic adults. *International Journal of Educational Research*, 67, 11–17.
- Altemeier, L. E., Abbott, R. D., & Berninger, V. W. (2008). Executive functions for reading and writing in typical literacy development and dyslexia. *Journal of Clinical and Experimental Neuropsychology*, 30(5), 588–606.
- Alvarez, J., & Emory, E. (2006). Executive Function and the Frontal Lobes: A MetaAnalytic Review. *Neuropsychology Review*, 16(1), 17-42.
- Αναγνωστόπουλος, Κ.Δ., (2000), Η αιτιοπαθογένεια των μαθησιακών διαταραχών, *Αρχεία Ελληνικής Ιατρικής*, 17(5), 506-517.
- Αναστασίου Δ. (2008), Διαγνωστική προσέγγιση της Δυσλεξίας: Προβλήματα με τα κριτήρια και τις διαδικασίες ταυτοποίησης, *Εκπαίδευση & Επιστήμη*, 4, 387-410.

Anderson, N., Steele, J., O'Neill, L.-A., & Harden, L. A. (2016). Pokémon Go: mobile app user guides. *British Journal of Sports Medicine*, 51(20), 1505–1506.

Anderson, P. (2002). Assessment and Development of Executive Function (EF) During Childhood. *Child Neuropsychology*, 8(2), 71-82.

Anderson, S. W., Damasio, H., Jones, R. D., & Tranel, D. (1991). Wisconsin Card Sorting Test Performance as a Measure of Frontal Lobe Damage. *Journal of Clinical and Experimental Neuropsychology*, 13(6), 909–922.

Anderson, V. (1998). Assessing Executive Functions in Children: Biological, Psychological, and Developmental Considerations. *Neuropsychological Rehabilitation*, 8(3), 319-349.

Anderson, V., Anderson, P. J., Jacobs, R., & SpencerSmith, M. (2008). Development and assessment of executive function: From preschool to adolescence. In P. Anderson, Vicki; Jacobs, Rani; Anderson (Ed.), *Executive functions and the frontal lobes: A lifespan perspective* (pp. 123 – 155). New York, USA: Psychology Press.

Andreou G. & Segkla M. (2017), Learning Difficulties in First and Second Language: Preliminary Results from a Cross-linguistic Skills Transfer, Sciedu Press, 6(3), 62-71

Anestis, E. (2015). The Effects of Using Information and Communication Technologies Instead of Traditional Paper Based Test, During the Examination Process, on Students with Dyslexia. *Procedia Computer Science*, 65, 168–175.

Asbjørnsen, A., & Helland, T. (2000). Executive Functions in Dyslexia. *Child Neuropsychology (Neuropsychology, Development and Cognition: Section C)*, 6(1), 37–48.

Baddeley, A. (1992). Working memory. *Science*, 255(5044), 556–559.

Baddeley, A. (2010). Working memory. *Current Biology*, 20(4), R136–R140.

Baddeley, A. D. (1983). Working Memory. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 302(1110), 311–324.

Baddeley, A. D., & Hitch, G. (1974). Working Memory. *Psychology of Learning and Motivation*, 47–89.

Bakker D. J., (2006), Treatment of developmental dyslexia: A review, *Pediatric Rehabilitation*, 9(1), 3–13.

Barkley, R. A. (1997). Behavioral inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin*, 121(1), 65–94.

Barkley, R. A. (2012). Executive functions: What they are, how they work, and why they evolved. New York, NY: *Guilford Press*.

Baron S. I. (2004). Delis-Kaplan Executive Function System. *Child Neuropsychology*, 10(2), 147–152.

Bechara, A., Damasio, A., Damasio, H. and Anderson, S. (1994). Insensitivity to future consequences following damage to human prefrontal cortex. *Cognition*, 50(1-3), 7-15.

Beneventi, H., Tonnessen, F. E., Ersland, L., & Hugdahl, K. (2010). Executive working memory processes in dyslexia: Behavioral and fMRI evidence. *Scandinavian Journal of Psychology*, 51(3), 192–202.

Benmarrakchi, F., Kafi, J. E., & Hore, A. E. (2015). A Different Learning Way For Pupils With Specific Learning Disabilities. *Int. J. Comput. Technol*, 14, 6157-6162.

Bental, B., & Tirosh, E. (2007). The relationship between attention, executive functions and reading domain abilities in attention deficit hyperactivity disorder and reading

disorder: a comparative study. *Journal of Child Psychology and Psychiatry*, 48(5), 455–463.

Benton, A. L. (1991). The prefrontal region: Its early history. In H. S. Levin, H. M. Eisenberg, & L. Benton (Eds.), *Frontal lobe function in dysfunction* (pp. 3–31). New York, NY: Oxford University Press.

Berninger, V., Abbott, R., Cook, C. R., & Nagy, W. (2016). Relationships of Attention and Executive Functions to Oral Language, Reading, and Writing Skills and Systems in Middle Childhood and Early Adolescence. *Journal of Learning Disabilities*, 50(4), 434–449.

Best, J. R., Miller, P. H., & Naglieri, J. A. (2011). Relations between executive function and academic achievement from ages 5 to 17 in a large, representative national sample. *Learning and Individual Differences*, 21(4), 327–336.

Bishop D. V. (2015), The interface between genetics and psychology: lessons from developmental dyslexia, *Proceedings of the Royal Society B: Biological Sciences*, 282(1806).

Βλάχος, Φ. (2010). Δυσλεξία: Μια συνθετική προσέγγιση αιτιολογικών θεωριών. Προσκεκλημένη ομιλία, «Η ειδική αγωγή αφετηρία εξελίξεων στην επιστήμη και στην πράξη», 2ο Πανελλήνιο Συνέδριο Ειδικής Αγωγής: 15-18 Απριλίου 2010.

Βλάχος, Φ. (2015). Η συνεισφορά των νευροεπιστημών στο πεδίο της Ειδικής Αγωγής. *Πανελλήνιο Συνέδριο Επιστημών Εκπαίδευσης*, 2015(1), 5-13.

Borsting E., Ridder W., Dudeck K., Kelley C., Matsui L. & Motoyama J. (1996), The presence of a magnocellular defect depends on the type of dyslexia, *Elsevier Science*, 36(7), 1047-1053.

Bowers, P. G., & Wolf, M. (1993). Theoretical links among naming speed, precise timing mechanisms and orthographic skill in dyslexia. *Reading and Writing, 5*(1), 69-85.

Bowie, C. R., & Harvey, P. D. (2006). Administration and interpretation of the Trail Making Test. *Nature Protocols, 1*(5), 2277–2281.

Bradley, R., Danielson, L., & Hallahan, D. P. (Eds.). (2002). *The LEA series on special education and disability. Identification of learning disabilities: Research to practice*. Lawrence Erlbaum Associates Publishers.

Broadbent, D. E. (1958). Perception and communication. London: *Pergamon*.

Brock, L., Rimm-Kaufman, S., Nathanson, L., & Grimm, K. (2009). The contributions of 'hot' and 'cool' executive function to children's academic achievement, learning-related behaviors, and engagement in kindergarten. *Early Childhood Research Quarterly, 24*(3), 337-349.

Brodin, J. (2010). Can ICT give children with disabilities equal opportunities in school? *Improving Schools, 13*(1), 99–112.

Brodin, J., & Lindstrand, P. (2008). ICT and inclusive education in primary schools - pupils with motor disabilities. *Journal of Assistive Technologies, 2*(3), 16–23.

Brooks, B. L., Sherman, E. M. S., & Strauss, E. (2009). NEPSY-II: A Developmental Neuropsychological Assessment, Second Edition. *Child Neuropsychology, 16*(1), 80–101.

Bruno, R. M., & Walker, S. C. (1999). Comprehensive Test of Phonological Processing (CTOPP). *Diagnostique, 24*(1-4), 69–82.

Bul, K. C. M., Franken, I. H. A., Van der Oord, S., Kato, P. M., Danckaerts, M., Vreeke, L. J., Willems, A., Oers, H. J. J., Heuvel, R., Slagmaat, R., Maras, A. (2015). Development and User Satisfaction of “Plan-It Commander,” a Serious Game for Children with ADHD. *Games for Health Journal*, 4(6), 502–512.

Bull, R., & Scerif, G. (2001). Executive Functioning as a Predictor of Children’s Mathematics Ability: Inhibition, Switching, and Working Memory. *Developmental Neuropsychology*, 19(3), 273–293.

Campbell T. (2011), From aphasia to dyslexia, a fragment of a genealogy: An analysis of the formation of a ‘medical diagnosis’, *Health Sociology Review*, 20(4), 450-461.

Carlock, R. (2011). *Executive functions: A review of the literature to inform practice and policy*. Cambridge, MA: The Harvard Center on the Developing Child.

Carlson, S. M., Moses, L. J., & Breton, C. (2002). How specific is the relation between executive function and theory of mind? Contributions of inhibitory control and working memory. *Infant and Child Development*, 11(2), 73–92.

Carlson, S. M., Moses, L. J., & Claxton, L. J. (2004). Individual differences in executive functioning and theory of mind: An investigation of inhibitory control and planning ability. *Journal of Experimental Child Psychology*, 87(4), 299–319.

Cartwright, K. B. (2012). Insights From Cognitive Neuroscience: The Importance of Executive Function for Early Reading Development and Education. *Early Education & Development*, 23(1), 24–36.

Castles & Friedmann (2014), Developmental Dyslexia and the Phonological Deficit Hypothesis. *Mind & Language*, 29(3), 270–285.

Chacko A., Bedard A.C., Marks D.J., Feirsen N., Uderman J.Z., Chimiklis A., Rajwan E., Cornwell M., Anderson L., Zwilling A., Ramon M. (2014), A randomized clinical trial

of Cogmed Working Memory Training in school-age children with ADHD: A replication in a diverse sample using a control condition., *J Child Psychol Psychiatry*, 55(3), 247-55.

Chan, R., Shum, D., Touloupou, T., & Chen, E. (2008). Assessment of executive functions: Review of instruments and identification of critical issues. *Archives Of Clinical Neuropsychology*, 23(2), 201-216.

Chan, R., Wang, L., YE, J., Leung, W., & Mok, M. (2008). A psychometric study of the Test of Everyday Attention for Children in the Chinese setting. *Archives of Clinical Neuropsychology*, 23(4), 455–466.

Chicchi Giglioli, I. A., Bermejo Vidal, C., & Alcañiz Raya, M. (2019). A Virtual Versus an Augmented Reality Cooking Task Based-Tools: A Behavioral and Physiological Study on the Assessment of Executive Functions. *Frontiers in Psychology*, 10.

Cutting, L. E., Materek, A., Cole, C. A. S., Levine, T. M., & Mahone, E. M. (2009). Effects of fluency, oral language, and executive function on reading comprehension performance. *Annals of Dyslexia*, 59(1), 34–54.

Dahle, K. B., Gargiulo, R. M. (2004). Understanding Asperger disorder: A primer for early childhood educators. *Early Childhood Education Journal*, 32(3), 199-203.

Dahlin K.I.E., (2011). Effects of working memory training on reading in children with special needs., *Spinger*, 24, 479–491.

Demetriou, K. (2014). Using Ict For Word Mathematical Problem Solving For Students With Dyslexia In Cyprus. *Future of Education*.

Démonet J. F., Taylor M. J., Chaix Y. (2004), Developmental dyslexia, *The Lancet*, 363, 1451–1460.

Denckla, M. B., & Rudel, R. G. (1976). Rapid “automatized” naming (R.A.N.): Dyslexia differentiated from other learning disabilities. *Neuropsychologia*, 14(4), 471–479.

Dimitriadi Y. (2001), Evaluating the use of multimedia authoring with dyslexic learners: a case study, *British Journal of Educational Technology*, 32(3), 265–275.

Drigas A. S., Pappas M.A., Lytras M. (2016). Emerging Technologies for ICT based Education for Dyscalculia: Implications for Computer Engineering Education. *International Journal of Engineering Education*, 32(4), 1604–1610.

Drigas, A. S., & Batziaka, E. (2016). Dyslexia and ICTs, assessment and early intervention in kindergarten. *International Journal of Emerging Technologies in Learning (iJET)*, 11(02), 53-56.

Drigas, A. S., & Ioannidou, R. E. (2011, September). ICTs in special education: A review. In World Summit on Knowledge Society (pp. 357-364). Springer, Berlin, Heidelberg.

Drigas, A. S., Mitsea, E. (2020). A Metacognition Based 8 Pillars Mindfulness Model and Training Strategies. *International Journal of Recent Contributions from Engineering Science (iJES)*, 8 (4), 4-17.

Drigas, A. S., Mitsea, E. (2020). The 8 Pillars of Metacognition. *International Journal of Emerging Technologies in Learning (iJET)*, 15 (21), 162-178.

Drigas, A. S., Pappas, M. A. (2017). The Consciousness-Intelligence-Knowledge Pyramid: An 8x8 Layer Model. *International Journal of Recent Contributions from Engineering Science (iJES)*, 5 (3), 14-25.

Drigas, A., & Petrova, A. (2014). ICTs in speech and language therapy. *International Journal of Engineering Pedagogy (iJEP)*, 4(1), 49-54.

Egenfeldt-Nielsen, S. (2007). *Educational Potential of Computer Games*. London: Continuum.

Fabio R. A., Caprì T. (2017). The executive functions in a sample of Italian adults with ADHD: attention, response inhibition and planning/organization. *Mediterranean Journal of Clinical Psychology MJCP.*, 5(3).

Facoetti, A., & Molteni, M. (2001). The gradient of visual attention in developmental dyslexia. *Neuropsychologia*, 39(4), 352-357.

Facoetti, A., Paganoni, P., & Lorusso, M. L. (2000). The spatial distribution of visual attention in developmental dyslexia. *Experimental Brain Research*, 132(4), 531–538.

Faria, C. de A., Alves, H. V. D., & Charchat-Fichman, H. (2015). The most frequently used tests for assessing executive functions in aging. *Dementia & Neuropsychologia*, 9(2), 149–155.

Φλωράτου, Μ.-Μ. (1998). *Μαθησιακές Δυσκολίες και όχι Τεμπελιά. Διδακτικά προγράμματα για την αντιμετώπιση προβλημάτων στο σχολείο και στο σπίτι σε Ανάγνωση, Γραφή, Ορθογραφία*. Τέταρτη έκδοση, Εκδόσεις Οδυσσέας, Αθήνα.

Foy, J. G., & Mann, V. A. (2012). Executive function and early reading skills. *Reading and Writing*, 26(3), 453–472.

Frith U. (1999), Paradoxes in the Definition of Dyslexia, *DYSLEXIA*, 5, 192–214.

Gathercole, S. E., Alloway, T. P., Willis, C., & Adams, A. (2006). Working memory in children with reading disabilities. *Journal of Experimental Child Psychology*, 93 (26528).

Gayan J. & Olson R.K. (2001), Genetic and environmental influences on orthographic and phonological skills in children with reading disabilities, *Developmental Neuropsychology*, 20, 483-507.

Gayan J. & Olson R.K. (2003), Genetic and environmental influences on individual differences in printed word recognition, *Journal of Experimental Child Psychology*, 84, 97-123.

Gilbert, S., & Burgess, P. (2008). Executive function. *Current Biology*, 18(3), 110-114.

Gioia, G. A., & Isquith, P. K. (2004). Ecological Assessment of Executive Function in Traumatic Brain Injury. *Developmental Neuropsychology*, 25(1-2), 135–158.

Goldberg, E. (2001). The executive brain: frontal lobes and the civilized mind. New York: *Oxford University Press*.

Goldstein, S., Naglieri, J. A., Princiotta, D., & Otero, T. M. (2013). Introduction: A History of Executive Functioning as a Theoretical and Clinical Construct. *Handbook of Executive Functioning*, 3–12.

Guare, R. (2014). Context in the Development of Executive Functions in Children. *Applied Neuropsychology: Child*, 3(3), 226–232.

Gustafson, S. & Samuelsson, S. (1999). Intelligence and dyslexia: Implications for diagnosis and intervention. *Scandinavian Journal of Psychology*, 40, 127–134.

Hammill, D.D. (1990). A brief history of learning disabilities. Στο P. Myers & D.D. Hammill (Επιμ.) “*Learning disabilities: Basic concepts, assessment practices and instructional strategies*”. Austin. TX: Pro-Ed.

Happaney, K., Zelazo, P. D., & Stuss, D. T. (2004). Development of orbitofrontal function: current themes and future directions. *Brain and cognition*, 55(1), 1–10.

Harrison, G. L. (2005). A Review of the Early Reading Diagnostic Assessment, Second Edition (ERDA-2). *Canadian Journal of School Psychology*, 20(1-2), 111–116.

Healy, J. M. (2004). Young children don't need computers. *Education Digest: Essential Readings Condensed for Quick Review*, 69(5), 57–8.

Heaton, S. C., Reader, S. K., Preston, A. S., Fennell, E. B., Puyana, O. E., Gill, N., & Johnson, J. H. (2002). The Test of Everyday Attention for Children (TEA-Ch): Patterns of Performance in Children With ADHD and Clinical Controls. *Child Neuropsychology (Neuropsychology, Development and Cognition: Section C)*, 7(4), 251–264.

Hester, R., & Garavan, H. (2005). Working memory and executive function: The influence of content and load on the control of attention. *Memory & Cognition*, 33(2), 221–233.

Hofmann, W., Schmeichel, B. J., & Baddeley, A. D. (2012). Executive functions and self-regulation. *Trends in Cognitive Sciences*, 16(3), 174–180.

Holmes J., Gathercole S.E., (2014). Taking working memory training from the laboratory into schools, *Educational Psychology*, 34(4), 440-450.

Hsieh, C.-Y., & Chen, T. (2019). Effect of Pokémon GO on the Cognitive Performance and Emotional Intelligence of Primary School Students. *Journal of Educational Computing Research*, 0(0), 1–26.

Huriyah, S. (2018). Using ICT Programs to Support Students with Dyslexia in Aquiring Literacy. *English Teaching Journal*, 9(2), 68-82.

Hynd G.W., Semrud-Clikeman M., Lorys A.R., Novey E.S. & Eliopoulos D. (1990), Brain morphology in developmental dyslexia and attention deficit disorder / hyperactivity, *Archives of Neurology*, 47, 919-926.

Ionescu, T. (2012). Exploring the nature of cognitive flexibility. *New Ideas in Psychology*, 30(2), 190–200.

Jeffries, S., & Everatt, J. (2004). Working memory: Its role in dyslexia and other specific learning difficulties. *Dyslexia*, 10(3), 196–214.

Jurado, M., & Rosselli, M. (2007). The Elusive Nature of Executive Functions: A Review of our Current Understanding. *Neuropsychology Review*, 17(3), 213-233.

Kapa, L., Plante, E., Doubleday, K. (2017 August 18). Applying an Integrative Framework of Executive Function to Preschoolers With Specific Language Impairment. *Journal of Speech, Language, and Hearing Research*, 60, 2170–2184.

Keates A (2002), *Dyslexia and Information and Communications Technology: A Guide for Teachers and Parents*.

Καυκούλα Ε. (2010), Ψυχοπαιδαγωγική αντιμετώπιση των μαθησιακών δυσκολιών, 5ο Πανελλήνιο Συνέδριο με θέμα: «Μαθαίνω πώς να μαθαίνω», 7-9.

Kerr, A., & Zelazo, P. D. (2004). Development of “hot” executive function: The children’s gambling task. *Brain and Cognition*, 55(1), 148–157.

Klingberg T., Fernell E., Olesen P.J., Johnson M., Gustafsson P, Dahlstrom K., Gillberg C.G., Forssberg H., Westerberg H., (2005). Computerized Training of Working Memory in Children With ADHD - A Randomized, Controlled Trial., *Child Adolesc. Psychiatry*, February; 44(2), 177–186.

Klingberg T., Forssberg H., Westerberg H., (2002). Training of Working Memory in Children With ADHD, *Journal of Clinical and Experimental Neuropsychology*, 24 (6), 781-791.

Klingberg T., Hudechus M., Temple E., Salz T., Gabrieli J.D., Moseley M.E. & Poldrack R.A. (2000), Microstructure of temporo-parietal white matter as a basis for reading ability: Evidence from diffusion tensor magnetic resonance imaging, *Neuron*, 25, 493-500.

Lantrip, C., Isquith, P. K., Koven, N. S., Welsh, K., & Roth, R. M. (2015). Executive Function and Emotion Regulation Strategy Use in Adolescents. *Applied Neuropsychology: Child*, 5(1), 50–55.

Lezak M.D. (1995), Executive functions and motor performance, *Neuropsychological assessment*, 650-685.

Lima, R. F., Azoni, C. A. S., & Ciasca, S. M. (2011). Attentional performance and executive functions in children with learning difficulties. *Psicologia: Reflexão e Crítica*, 24(4), 685–691.

Lindsay, R., Tomazic, T., Levine, M., & Accardo, P. (1999). Impact of attentional dysfunction in dyscalculia. *Developmental Medicine & Child Neurology*, 41(9), 639-642.

Λιβανίου, Ε. (2004). *Μαθησιακές Δυσκολίες και Προβλήματα Συμπεριφοράς στην κανονική τάξη*. (Χ.Τ), Δεύτερη έκδοση, Εκδόσεις Κέδρος.

Livingstone W.J., Rosen G.D., Drislane F.W. & Galaburda A.M. (1991), Physiological and anatomical evidence for a magnocellular deficit in developmental dyslexia, *Proceedings of the National Academy of Sciences of the USA*, 88, 7943-7947.

Lloyd, Margaret (2006). Towards a Definition of the Integration of ICT in the Classroom. In Jeffrey, P (Ed.) AARE '05 *Education Research Creative Dissent: Constructive*. Australian Association of Research in Education, Australia, pp. 1-18.

Lo Priore, C., Castelnovo, G., Liccione, D., & Liccione, D. (2003). Experience with V-STORE: Considerations on Presence in Virtual Environments for Effective Neuropsychological Rehabilitation of Executive Functions. *CyberPsychology & Behavior*, 6(3), 281–287.

Logue, S. F., & Gould, T. J. (2014). The neural and genetic basis of executive function: Attention, cognitive flexibility, and response inhibition. *Pharmacology Biochemistry and Behavior*, 123, 45–54.

Loveless, A. (2003). Creating spaces in the primary curriculum:ICT in creative subjects. *The Curriculum Journal*, 14(1), 5–21.

Lyon, G. R., Shaywitz, S. E., & Shaywitz, B. A. (2003), A definition of dyslexia, *Annals of Dyslexia*, 53(1), 1-14.

Madeira, J., Silva, C., Marcelino, L., & Ferreira, P. (2015). Assistive Mobile Applications for Dyslexia. *Procedia Computer Science*, 64, 417–424.

Makray C. & Hope G. (2009), Test Review: Wide Range Achievement Test (WRAT4), *Journal of Occupational Psychology, Employment and Disability*, 11(1), 49-55.

Μαρκοβίτης, Μ.-Τζουριάδου, Μ. (1991) *Μαθησιακές Δυσκολίες. Θεωρία και πράξη*. Εκδόσεις Προμηθεύς, Θεσσαλονίκη.

Μαυρομάτη, Δ. (1995). *Η κατάρτιση του προγράμματος της αντιμετώπισης της δυσλεξίας*. Αθήνα: Ελληνικά Γράμματα.

Μαυρομάτη, Δ. (2004). *Δυσλεξία-Φύση του προβλήματος και αντιμετώπιση*, 1η έκδοση, Αθήνα : Ελληνικά Γράμματα.

Mavrommatis, T. D., & Miles, T. R. (2002). A pictographic method for teaching spelling to Greek dyslexic children. *Dyslexia*, 8(2), 86-101.

McCrimmon, A. W., & Climie, E. A. (2011). Test Review: Test of Written Language—Fourth Edition (TOWL-4). *Journal of Psychoeducational Assessment*, 29(6), 592–596.

Miyake, A., Friedman, N., Emerson, M., Witzki, A., Howerter, A., & Wager, T. (2000). The Unity and Diversity of Executive Functions and Their Contributions to Complex "Frontal Lobe" Tasks: A Latent Variable Analysis. *Cognitive Psychology*, 41(1), 49-100.

Morgan P., (1986), A case of congenital word blindness, *The British medical journal*, pp. 1378.

Moura, O., Simões, M. R., & Pereira, M. (2014). Executive Functioning in Children With Developmental Dyslexia. *The Clinical Neuropsychologist*, 28(sup1), 20–41.

Μουζάκη, Α., Πρωτόπαπας, Α. (2010). *Ορθογραφία. Μάθηση και διαταραχές*. Gutenberg. Αθήνα.

MR Watson, S. (2016). The Role of Executive Functions in Classroom Instruction of Students with Learning Disabilities. *International Journal of School and Cognitive Psychology*, 03(01).

Nelwan M., Kroesbergen E.H., (2016). Limited Near and Far Transfer Effects of Jungle Memory Working Memory Training on Learning Mathematics in Children with Attentional and Mathematical Difficulties, *Frontiers in Psychology*, 7 (1384).

Nicolson R.(2001), Introduction στο Fawcett A. (ed.), *Dyslexia: Theory and Good Practice*, Whurr Publishers, UK.

Nkwoagba, O. S. (2011). Independent living for persons with special needs through assistive technology. In A. Olabisi (Ed.), *Child Care and Special Needs Education in Nigeria*, (Vol.3(1), Pp. 16 – 25). Jos: Centre for Learning Disabilities and Audiology.

Nugent M. (2008), Services for children with dyslexia – the child's experience, *Educational Psychology in Practice*, 24(3), 189-206.

Obradović, S., Bjekić, D., & Zlatić, L. (2015). Creative Teaching with ICT Support for Students with Specific Learning Disabilities. *Procedia - Social and Behavioral Sciences*, 203, 291–296.

Orton Dyslexia Society (1994), *A new definition of dyslexia*, Bulletin of the Orton Dyslexia Society.

Otero, T. M., Barker, L. A., & Naglieri, J. A. (2014). Executive Function Treatment and Intervention in Schools. *Applied Neuropsychology: Child*, 3(3), 205–214.

Ozonoff, S., & Strayer, D. L. (1997). Inhibitory Function in Nonretarded Children with Autism. *Journal of Autism and Developmental Disorders*, 27(1), 59–77.

Παντελιάδου, Σ. (2011). *Μαθησιακές Δυσκολίες και Εκπαιδευτική Πράξη. Τι και Γιατί;*. Αθήνα: Πεδίο.

Pallavicini, F., Pepe, A., & Minissi, M. E. (2019). Taking Neuropsychological Test to the Next Level: Commercial Virtual Reality Video Games for the Assessment of Executive Functions. *Lecture Notes in Computer Science*, 133–149.

Panesi, S., Ferlino, L. (2020). Using Apps in Formal Education to Improve Executive Functions in Preschoolers. *Editorial Universitat Politècnica de València*. 169-177.

Pappas M., Drigas A. (2016). Incorporation of Artificial Intelligence Tutoring Techniques in Mathematics. *International Journal of Engineering Pedagogy (iJEP)*. 6(4), 12-16.

Παρασκευόπουλος, Ι. Ν., Καλαντζή-Αζίζι, Α., & Γιαννίτσας, Ν. Δ. (1999). *Αθηνά Τεστ Διάγνωσης Δυσκολιών Μάθησης*. Αθήνα: Ελληνικά Γράμματα.

Paulesu, E., Danelli, L., & Berlingeri, M. (2014). Reading the dyslexic brain: multiple dysfunctional routes revealed by a new meta-analysis of PET and fMRI activation studies. *Frontiers in Human Neuroscience*, 8, 830.

Pennington B.F., Gilger J.W., Pauls D., Smith S.A., Smith S.D. & Defries J.C. (1991), Evidence for major gene transmission of developmental dyslexia, *Journal of the American Medical Association*, 266, 1527-1534.

Peterson, E., & Welsh, M. C. The Development of Hot and Cool Executive Functions in Childhood and Adolescence: Are We Getting Warmer? In S. Goldstein & J. A. Naglieri (Eds.), *Handbook of Executive Functioning* (pp. 45 – 69). 2014, New York, USA: Springer.

Poland, S. E., Monks, C. P., & Tsermentseli, S. (2015). Cool and hot executive function as predictors of aggression in early childhood: Differentiating between the function and form of aggression. *British Journal of Developmental Psychology*, 34(2), 181–197.

Prensky, M. (2006). Listen to the natives. *Educational Leadership, Journal Articles*, 63(4), 8–13.

Πολυχρονοπούλου Σ. (2001), *Παιδιά και Έφηβοι με Ειδικές Ανάγκες και Δυνατότητες*, Τόμος Α', Άτραπος, Αθήνα.

Πόρποδας, Κ. (1993). *Γνωστική Ψυχολογία. Η διαδικασία της μάθησης. Επεξεργασία πληροφοριών αντίληψη, μνήμη, αναπαράσταση της γνώσης*. Αθηνά : Ελληνικά γράμματα.

Πόρποδας, Κ. (1997). *Δυσλεξία. Η ειδική διαταραχή στη μάθηση του γραπτού λόγου, Ψυχολογική Θεώρηση*. Δεύτερη έκδοση, εκδόσεις Μορφωτική, Αθήνα.

Πόρποδας, Κ. (1997). *Δυσλεξία. Η ειδική διαταραχή στη μάθηση του γραπτού λόγου, Ψυχολογική Θεώρηση*. 2 η έκδοση, Αθήνα: Μορφωτική.

Πόρποδας, Κ.Δ. (2003). *Διαγνωστική Αξιολόγηση και Αντιμετώπιση των Μαθησιακών Δυσκολιών στο Δημοτικό σχολείο (Ανάγνωση, Ορθογραφία, Δυσλεξία, Μαθηματικά)*. Πάτρα: Υπουργείο Εθνικής Παιδείας και Θρησκευμάτων.

Pribram K. H. (1973), The primate frontal cortex – executive of the brain, *Phychophysiology of the frontal lobes*, Elsevier, 293-314.

Πρωτόπαπας Α., Σκαλούμπακας Χ., Νικολόπουλος Δ. (2003), Αυτόματη ανίχνευση μαθησιακών δυσκολιών με το λογισμικό Εμαδύς: εγκυρότητα και προοπτικές, *Συνέδριο Πανελλήνιου Συλλόγου Λογοπεδικών*, 1-12.

Radencich, M. C. (1986). Book Review: Detroit Tests of Learning Aptitude (DTLA-2). *Journal of Psychoeducational Assessment*, 4(2), 173–181.

Ratiu, P., Talos, I.-F., Haker, S., Lieberman, D., & Everett, P. (2004). The Tale of Phineas Gage, Digitally Remastered. *Journal of Neurotrauma*, 21(5), 637–643.

Raver, C. C., & Blair, C. (2016). Neuroscientific Insights: Attention, Working Memory, and Inhibitory Control. *The Future of Children*, 26(2), 95–118.

Reck, S. G., & Hund, A. M. (2011). Sustained attention and age predict inhibitory control during early childhood. *Journal of Experimental Child Psychology*, 108(3), 504–512.

Reid G. (2003), *Δυσλεξία: Εγχειρίδιο για ειδικούς*, (επιμ. Παπαδάτος Γ.), Παρισιάνου ΑΕ, Αθήνα.

Reiter, A., Tucha, O., & Lange, K. W. (2005). Executive functions in children with dyslexia. *Dyslexia*, 11, 116–131.

Richardson S. (1992), Historical Perspectives on Dyslexia, *Journal of Learning Disabilities*, 25(1), 40-47.

Richardson, U., & Lyytinen, H. (2014). The GraphoGame method: The theoretical and methodological background of the technology-enhanced learning environment for learning to read. *Human Technology: An Interdisciplinary Journal on Humans in ICT Environments*, 10(1), 39–60.

Ritchey, K. D., & Goeke, J. L. (2006). Orton-Gillingham and Orton-Gillingham—Based Reading Instruction. *The Journal of Special Education*, 40(3), 171–183.

Roebers, C. M. (2017). Executive function and metacognition: Towards a unifying framework of cognitive self-regulation. *Developmental Review*, 45, 31–51.

Rothbart, M. K., Posner, M. I., & Kieras, J. (2006). Temperament, Attention, and the Development of Self-Regulation. In K. McCartney & D. Phillips (Eds.), *Blackwell handbooks of developmental psychology. Blackwell handbook of early childhood development* (p. 338–357).

Ruiz-Ariza, A., Casuso, R. A., Suarez-Manzano, S., & Martínez-López, E. J. (2018). Effect of augmented reality game Pokémon GO on cognitive performance and emotional intelligence in adolescent young. *Computers & Education*, 116, 49–63.

Sako, E. (2016). The Emotional and Social Effects of Dyslexia. *European Journal of Interdisciplinary Studies*, 4(2), 233-241.

Saputra, M. R. U., & Nugroho, K. A. (2015). “Learn-to-read” application for remediation of dyslexic children based on multisensory approach. *4th International Conference on Instrumentation, Communications, Information Technology, and Biomedical Engineering (ICICI-BME)*.

Scarborough H. S. (1990), Very early language deficits in dyslexic children, *Child Development*, 61, 1728-1743.

Scarpina, F., & Tagini, S. (2017). The Stroop Color and Word Test. *Frontiers in Psychology*, 8.

Schiffrin, R. M., & Schneider, W. (1977). Controlled and automatic human information processing: Perceptual learning, automatic attending and a general theory. *Psychological Review*, 84(2), 127–190.

Schulte-Körne G. (2010), The Prevention, Diagnosis and Treatment of Dyslexia, *Deutsches Ärzteblatt International*, 107(41), 718–27.

Serino, M., Cordrey, K., McLaughlin, L., & Milanaik, R. L. (2016). Pokémon Go and augmented virtual reality games: a cautionary commentary for parents and pediatricians. *Current Opinion in Pediatrics*, 28(5), 673–7.

Sesma, H. W., Mahone, E. M., Levine, T., Eason, S. H., & Cutting, L. E. (2009). The Contribution of Executive Skills to Reading Comprehension. *Child Neuropsychology*, 15(3), 232–246.

Shaffer, D. W., Squire, K. R., Halverson, R. & Gee, J. P. (2005) *Video games and the future of learning*. WCER Working Paper No. 4, Wisconsin Center for Education Research, University of Wisconsin- Madison, School of Education.

Shaw, R., Grayson, A., & Lewis, V. (2005). Inhibition, ADHD, and Computer Games: The Inhibitory Performance of Children with ADHD on Computerized Tasks and Games. *Journal of Attention Disorders*, 8(4), 160–168.

Shaywitz S. E. (1996), Dyslexia. A new model of this reading disorder emphasizes defects in the language-processing rather than the visual system. It explains why some very smart people have trouble learning to read., *Scientific American*, 98-104.

Shaywitz, B. A., Shaywitz, S. E., Pugh, K. R., Mencl, W. E., Fulbright, R. K., Skudlarski, P., & Gore, J. C. (2002). Disruption of posterior brain systems for reading in children with developmental dyslexia. *Biological Psychiatry*, 52(2), 101-110.

Simmons, L., Crook, A., Cannonier, C., & Simmons, C. (2018) There's an app for that: The impact of reminder apps on student learning and anxiety, *Journal of Education for Business*, 93(5), 185-195.

Singh, N., Singh, S., & Singh, J. (2015). Emotional Disturbances and Discrimination Experienced by Dyslexic Children. *International Journal of Humanities and Social Sciences*, 4(6), 41-52.

Skaloumbakas Ch., Καραβελάκη Μ., Παπαπαναγιώτου Γ. (2016), Ψηφιακό περιβάλλον ΕΠΙΤΕΛΩ. Λογισμικό εξάσκησης της προσοχής και της συγκέντρωσης για παιδιά πρώτης σχολικής ηλικίας, *i-TEACHER*, 12, 318-326.

Σκαλούμπακας, Χ., Πρωτόπαπας, Α. (2017). *Λογισμικό Ανίχνευσης Μαθησιακών Δεξιοτήτων και Αδυναμιών ΛΑΜΔΑ – Τάξεις Β'-Δ' Δημοτικού και Ε' Δημοτικού-Β' Γυμνασίου – ΠΕΡΙΓΡΑΦΗ ΕΡΓΑΛΕΙΟΥ*. ΥΠΟΥΡΓΕΙΟ ΕΘΝΙΚΗΣ ΠΑΙΔΕΙΑΣ ΚΑΙ ΘΡΗΣΚΕΥΜΑΤΩΝ ΕΠΕΑΕΚ.

Smith S.D., Kimberling W.J., Pennington B.F. & Lubs H.A. (1983), Specific reading disability: Identification of an inherited form through linkage analysis, *Science*, 219, 1345-1347.

Smith S.D., Pennington B.F., Kimberling W.J. & Ing P.S. (1990), Familial dyslexia: Use of genetic linkage data to define subtypes, *Journal of the American Academy of Child and Adolescent Psychiatry*, 29, 338-348.

Spiro, R. J., Coulson, R. L., Feltovich, P. J., & Anderson, D. K. (1994). Cognitive flexibility theory: Advanced knowledge acquisition in ill-structured domains. In R. B. Ruddell, M.

R. Ruddell, & H. Singer (Eds.), Theoretical models and processes of reading (p. 602–615). *International Reading Association*.

Σταλίκας, Α., Τριλίβα, Σ., & Ρούσση, Π. (2012). *Τα Ψυχομετρικά Εργαλεία στην Ελλάδα*. Αθήνα: Πεδίο.

Στασινός, Δ. (1999), *Δυσλεξία και σχολείο*, Αθήνα: Gutenberg.

Στασινός, Δ. (2003), *Δυσλεξία και Σχολείο : Η εμπειρία ενός αιώνα*, Αθήνα: Gutenberg.

Στασινός, Δ. (2009), *Ψυχολογία του λόγου και της γλώσσας: Ανάπτυξη και παθολογία, δυσλεξία και λογοθεραπεία*, Αθήνα, Gutenberg.

Stein J. (2017), Does dyslexia exist?, *Language, Cognition and Neuroscience*

Stuss, D. T., & Alexander, M. P. (2000). Executive functions and the frontal lobes: a conceptual view. *Psychological Research*, 63(3-4), 289–298.

Sun, I., Varanda, C., Fernandes, F. (2017). Stimulation of Executive Functions as Part of the Language Intervention Process in Children with Autism Spectrum Disorder. *Folia Phoniatrica et Logopaedica*, 69, 78-83.

Tallal P. & Piercy M. (1974), Developmental aphasia: Rate of auditory processing and selective impairment of consonant perception, *Neuro-psycologia*, 12, 83-93.

Tamm, L., Menon, V., & Reiss, A. L. (2002). Maturation of Brain Function Associated With Response Inhibition. *Journal of the American Academy of Child & Adolescent Psychiatry*, 41(10), 1231–1238.

Toki, E. I. Pange, J. (2014). ICT use in early childhood education: Storytelling. *Tiltai*, 66(1), 183-19.

Tombaugh, T. (2004). Trail Making Test A and B: Normative data stratified by age and education. *Archives of Clinical Neuropsychology*, 19(2), 203–214.

Τρίγκα – Μερτίκα, Ε. (2010), *Μαθησιακές Δυσκολίες Γενικές και Ειδικές Μαθησιακές Δυσκολίες Δυσλεξία*, Εκδόσεις: Γρηγόρη.

Τσερμεντσέλη Σ. & Poland S. (2016), Ψυχρές και θερμές επιτελικές λειτουργίες: ένα νέο πλαίσιο κατανόησης των επιτελικών λειτουργιών, *Εγκέφαλος*, 53, 15-18.

Tunmer W. & Greaney K. (2010), Defining Dyslexia, *Journal of Learning Disabilities* 43(3), 229–243.

Τζουριάδου, Μ. (2011). *Μαθησιακές δυσκολίες – θέματα ερμηνείας και αντιμετώπισης*. Θεσσαλονίκη: Προμηθεύς.

Undheim A. M. (2003), Dyslexia and psychosocial factors. A follow-up study of young Norwegian adults with a history of dyslexia in childhood. *Nord J Psychiatry* 57, 221-226.

Varvara, P., Varuzza, C., Sorrentino, A. C. P., Vicari, S., & Menghini, D. (2014). Executive functions in developmental dyslexia. *Frontiers in Human Neuroscience*, 8.

Vriezen, E. R., & Pigott, S. E. (2002). The Relationship Between Parental Report on the BRIEF and Performance-Based Measures of Executive Function in Children with Moderate to Severe Traumatic Brain Injury. *Child Neuropsychology (Neuropsychology, Development and Cognition: Section C)*, 8(4), 296–303.

Williams, P., Jamali, H. R., & Nicholas, D. (2006). Using ICT with people with special education needs: what the literature tells us. *Aslib Proceedings*, 58(4), 330–345.

Willoughby, M., Kupersmidt, J., Voegler-Lee, M., & Bryant, D. (2011). Contributions of Hot and Cool Self-Regulation to Preschool Disruptive Behavior and Academic Achievement. *Developmental Neuropsychology*, 36(2), 162–180.

Wolf M., Barzillai M., Gottwald S., Miller L., Spencer K., Norton E., Lovett M., Morris R. (2009), The RAVE-O Intervention: Connecting Neuroscience to the Classroom, *International Mind, Brain, and Education Society and Blackwell Publishing*, 3(2), 84-93.

Ζακοπούλου Β. (2005), *Τεστ Πρώιμης Ανίχνευσης Δυσλεξίας*, Ελληνικά Γράμματα, Αθήνα.

Zeffiro T. & Eden G. (2000), The Neural Basis of Developmental Dyslexia, *Annals of Dyslexia*, 50, 3-30.

Zelazo, P. D., & Carlson, S. M. (2012). Hot and Cool Executive Function in Childhood and Adolescence: Development and Plasticity. *Child Development Perspectives*, 6(4), 1-7.

Zelazo, P. D., & Cunningham, W. A. . Executive Function: Mechanisms underlying emotion regulation. In J. J. Gross (Ed.), *Handbook of Emotion Regulation* (pp. 135 – 159). 2007, New York, USA: Springer.

Zelazo, P. D., Craik, F. I. ., & Booth, L. (2004). Executive function across the life span. *Acta Psychologica*, 115(2-3), 167–183.

Zelazo, P. D., Qu, L., & Kesek, A. C. (2010). Hot executive function: Emotion and the development of cognitive control. In S. D. Calkins & M. A. Bell (Eds.), *Human brain development. Child development at the intersection of emotion and cognition* (p. 97– 111). American Psychological Association.

Zelazo, P. D., Qu, L., & Müller, U. Hot and cool aspects of executive function: Relations in early development. In R. Schneider, Wolfgang; Schumann-Hengsteler (Ed.), *Young*

Children's Cognitive Development: Interrelationships Among Executive Functioning, Working Memory, Verbal Ability and Theory of Mind (pp. 71 – 95). 2005, Mahwah, New Jersey: Lawrence Erlbaum Associates Inc.