

**‘Specialization in ICTs and Special Education: Psychopedagogy
of Integration’ Postgraduate Program
DEMOCRITUS UNIVERSITY OF THRACE Department of Greek
Philology in collaboration with
NCSR DEMOKRITOS Informatics and Telecommunications
Institute**

**INTERVENTION TECHNIQUES FOR THE DEVELOPMENT OF
COGNITIVE SKILLS IN CHILDREN WITH HIGH – FUNCTIONING
AUTISM**

KALANTZAKI KALLIOPI

**POSTGRADUATE
THESIS**

Athens
2020

ABSTRACT

A special category of students are those who have a diagnosis of High Functioning Autism due to the high heterogeneity of the symptoms of this disorder. Their education is a challenge for the teacher, who is called upon to find ways to cover these pupil's cognitive deficits in order to improve their learning image. The purpose of this study is to examine whether the strategy of concept maps improves HFA pupil's cognitive skills and, if it does, which cognitive skill is most enhanced. The results of the literature review showed that concept maps enhance the cognitive skills of children with a diagnosis of ASD. More specifically, the skills that appear to benefit the most are those of memory, attention and perception.

Keywords: Autism, High Functioning Autism, Educational Intervention, Conceptual Maps

References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders*, 4th Edition (DSM-IV). Washington: American Psychiatric Association.
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5)*. Washington: American Psychiatric Association.
- Αναλυτικά Προγράμματα Σπουδών για Παιδιά με Αυτισμό.(2004). Αθήνα. Παιδαγωγικό Ινστιτούτο.
- Asperger, H. (1944). Die „Autistischen Psychopathen“ im Kindesalter. *European Archives of Psychiatry and Clinical Neuroscience*, 117(1), 76-136.
- Asperger, H. (1991). 'Autistic psychopathy' in childhood. In U. Frith (Ed.), *Autism and Asperger Syndrome* (pp. 37–92). chapter, Cambridge: Cambridge University Press. <http://doi.org/10.1017/CBO9780511526770.002>
- Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control processes. In *Psychology of learning and motivation* (Vol. 2, pp. 89-195). Academic Press.
- Attwood, T. (2003). Is there a difference between Asperger's syndrome and high functioning autism. *Sacramentoasis.com*.
- Attwood, T. (2012). *Σύνδρομο Asperger : Ένας πλήρης οδηγός*. (μτφ) Λυμπεροπούλου Χαρά. Αθήνα: Πεδίο.
- Baio, J., Wiggins, L., Christensen, D. L., Maenner, M. J., Daniels, J., Warren, Z., ... & Durkin, M. S. (2018). Prevalence of autism spectrum disorder among children aged 8 years—autism and developmental disabilities monitoring network, 11 sites, United States, 2014. *MMWR Surveillance Summaries*, 67(6), 1.
- Βαλαμουτοπούλου, Χ., & Κουτελέκος, Ι. (2010). Θεωρητική προσέγγιση του συνδρόμου Asperger στα παιδιά. *ΤΟ ΒΗΜΑ ΤΟΥ ΑΣΚΛΗΠΙΟΥ*, 9(3), 308-322.
- Barbarese, W. J., Katusic, S. K., & Voigt, R. G. (2006). Autism: a review of the state of the science for pediatric primary health care clinicians. *Archives of pediatrics & adolescent medicine*, 160(11), 1167-1175.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"? *Cognition*, 21(1), 37-46.

Βερβέρη, Α. (2014). *Η συμβολή των σωματοαισθητικών προκλητών δυναμικών στην εκτίμηση των αισθητηριακών διαταραχών και στη συνολική πρόγνωση παιδιών με διαταραχές του φάσματος του αυτισμού*. Αδημοσίευτη Διδακτορική Διατριβή, Αριστοτέλειο Πανεπιστήμιο, Θεσσαλονίκη, Ελλάδα.

Bethune, K. S., & Wood, C. L. (2013). Effects of wh-question graphic organizers on reading comprehension skills of students with autism spectrum disorders. *Education and Training in Autism and Developmental Disabilities*, 236- 244.

Βλαχόπουλος, Λ. (2015). Οδηγός εξατομικευμένου προγράμματος οικογενειακής υποστήριξης. Ινστιτούτο Εκπαιδευτικής Πολιτικής.

Cañas, A. J., Carff, R., Hill, G., Carvalho, M., Arguedas, M., Eskridge, T. C., ... & Carvajal, R. (2005). Concept maps: Integrating knowledge and information visualization. In *Knowledge and information visualization* (pp. 205-219). Springer, Berlin, Heidelberg.

Γενά, Α. (2002). *Αυτισμός και Διάχυτες Αναπτυξιακές Διαταραχές. Αξιολόγηση- διάγνωση- αντιμετώπιση*. Αθήνα: Έκδοση συγγραφέως.

Connelly, J. (2016). Effect of Wh-question graphic organizer on reading comprehension in students with autism spectrum disorders.

Cowan, N. (2010). The magical mystery four: How is working memory capacity limited, and why? *Current directions in psychological science*, 19(1), 51-57.

Desoete, A., Roeyers, H., & Buysse, A. (2001). Metacognition and mathematical problem solving in grade 3. *Journal of learning disabilities*, 34(5), 435-447.

Detcheva, E. (1993). A MODEL FOR VISUAL LEARNING IN AUTISM. *INFORMATION THEORIES & APPLICATIONS*, 269.

Drasgow, E., Yell, M. L., & Robinson, T. R. (2001). Developing legally correct and educationally appropriate IEPs. *Remedial and Special Education*, 22(6), 359-373.

Efklides, A. (2008). Metacognition: Defining its facets and levels of functioning in

relation to self-regulation and co-regulation. *European Psychologist*, 13(4), 277- 287.

Επιπολασμός. (2018). Βικιλεξικό, Η Ελεύθερη Εγκυκλοπαίδεια. Ανακτημένο από <https://el.wiktionary.org/wiki/%CE%B5%CF%80%CE%B9%CF%80%CE%BF%CE%BB%CE%B1%CF%83%CE%BC%CF%8C%CF%82>

Estes, A., Rivera, V., Bryan, M., Cali, P., & Dawson, G. (2011). Discrepancies between academic achievement and intellectual ability in higher-functioning school-aged children with autism spectrum disorder. *Journal of autism and developmental disorders*, 41(8), 1044-1052.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American psychologist*, 34(10), 906.

Flavell, J., Green, F. & Flavell, E. (1995). *Young children' s knowledge about thinking*. Monographs of the society for research in child development, 60 (1).

Frith, U., & Happé, F. (1994). Autism: Beyond “theory of mind.” *Cognition* 50, 115-132.

Frith, U., & Happé, F. (1999). Theory of mind and self-consciousness: What is it like to be autistic?. *Mind & language*, 14(1), 82-89.

Gately, S. E. (2008). Facilitating reading comprehension for students on the autism spectrum. *Teaching Exceptional Children*, 40(3), 40-45.

Geurts, H. M., Corbett, B., & Solomon, M. (2009). The paradox of cognitive flexibility in autism. *Trends in cognitive sciences*, 13(2), 74-82.

Grainger, C., Williams, D. M., & Lind, S. E. (2014). Metacognition, metamemory, and mindreading in high-functioning adults with autism spectrum disorder. *Journal of Abnormal Psychology*, 123(3), 650.

Happé, F. (1999). Autism: cognitive deficit or cognitive style?. *Trends in cognitive sciences*, 3(6), 216-222.

Happe, F. (2003). *Αυτισμός: Σύγχρονη Ψυχολογική Θεώρηση*. Αθήνα: Gutenberg.

Happé, F. G. (1997). Central coherence and theory of mind in autism: Reading homographs in context. *British journal of developmental psychology*, 15(1), 1-12.

Happé, F., & Frith, U. (2006). The weak coherence account: detail-focused cognitive style in autism spectrum disorders. *Journal of autism and developmental disorders*, 36(1), 5-25.

Hart, J. E., & Whalon, K. J. (2008). Promote academic engagement and

- communication of students with autism spectrum disorder in inclusive settings. *Intervention in School and Clinic*, 44(2), 116-120.
- Hayashi, Y., & Hirashima, T. (2015). Analysis of the relationship between metacognitive ability and learning activity with Kit-Build concept map. In *International Conference on Human Interface and the Management of Information* (pp. 304-312). Springer, Cham.
- Holtmann, M., Bölte, S., & Poustka, F. (2005). ADHD, Asperger syndrome, and high-functioning autism. *Journal of the American Academy of Child and Adolescent Psychiatry*, 44(11), 1101. Ανακτημένο από <https://dsm.psychiatryonline.org/doi/pdf/10.1176/appi.books.9780890420614.dsm-iv>
- Hyman, S. L. (2013). New DSM-5 includes changes to autism criteria. *AAP News*, 4, 20130604-1.
- ICD-10. (1992). *Ταξινόμηση Ψυχικών Διαταραχών και Διαταραχών της Συμπεριφοράς*. Παγκόσμιος Οργανισμός Υγείας, Γενεύη. Απόδοση στα Ελληνικά και Επιμέλεια: Κ. Στεφανής, Κ. Σολδάτος, Β. Μαυρέας, Κέντρο Συνεργασίας για την Εκπαίδευση και την Ερεύνα στην Ψυχική Υγεία. Αθήνα: Εκδόσεις Βήτα.
- Jackson, E. M., & Hanline, M. F. (2019). Using a Concept Map With RECALL to Increase the Comprehension of Science Texts for Children With Autism. *Focus on Autism and Other Developmental Disabilities*, 1088357619889933.
- Kanner, L. (1968). Autistic disturbances of affective contact. *Acta paedopsychiatrica*, 35(4), 100.
- Κατσουγκρή, Α. (2014). Οδηγός Εξατομικευμένου Εκπαιδευτικού Προγράμματος για Μαθητές με Αυτισμό. Ινστιτούτο Εκπαιδευτικής Πολιτικής.
- Knight, V. F., Spooner, F., Browder, D. M., Smith, B. R., & Wood, C. L. (2013). Using systematic instruction and graphic organizers to teach science concepts to students with autism spectrum disorders and intellectual disability. *Focus on autism and other developmental disabilities*, 28(2), 115-126.
- Kolvin, I. (1971). Studies in the childhood psychoses I. Diagnostic criteria and classification. *The British Journal of Psychiatry*, 118(545), 381-384.

- Κυπριωτάκη, Μ. Α., Μαρκοδημητράκη, Μ. Ε., (2011). Μίμηση και αυτισμός: μια σύγχρονη θεωρητική προσέγγιση. *ΨΥΧΟΛΟΓΙΑ*, 18 (1), 54-72.
- Lai MC, Lombardo MV, Baron-Cohen S., (2014) *Autism*. *Lancet*, 383:896-910.
- Mashal, N., & Kasirer, A. (2011). Thinking maps enhance metaphoric competence in children with autism and learning disabilities. *Research in Developmental Disabilities*, 32(6), 2045-2054.
- Μαυροπούλου, Σ. (2011). Αποτελεσματικές εκπαιδευτικές προσεγγίσεις και διδακτικές στρατηγικές για τα παιδιά στο φάσμα του αυτισμού. *Ειδική Αγωγή: Από την έρευνα στη διδακτική πράξη*, 83-134.
- McLeod, S. A. (2015). *Cognitive psychology. Simply psychology*. Ανακτημένο από <https://www.simplypsychology.org/cognitive.html>
- Minshew, N. J., Meyer, J., & Goldstein, G. (2002). Abstract reasoning in autism: A disassociation between concept formation and concept identification. *Neuropsychology*, 16(3), 327.
- Moran, J. M., Young, L. L., Saxe, R., Lee, S. M., O'Young, D., Mavros, P. L., & Gabrieli, J. D. (2011). Impaired theory of mind for moral judgment in high-functioning autism. *Proceedings of the National Academy of Sciences*, 108(7), 2688-2692.
- Νότας, Σ. (2005). *Το φάσμα του αυτισμού, διάχυτες αναπτυξιακές διαταραχές: Ένας οδηγός για την οικογένεια*. Εκδοσεις «έλλα» Λάρισα.
- Novak, J. D. (2010). *Learning, creating, and using knowledge: Concept maps as facilitative tools in schools and corporations*. Routledge.
- Novak, J. D., & Gowin, D. B. (1984). *Learning how to learn*. Cambridge University Press.
- Osman, M. E., & Hannafin, M. J. (1992). Metacognition research and theory: Analysis and implications for instructional design. *Educational Technology Research and Development*, 40(2), 83-99.
- Owen, A. M. (1997). Cognitive planning in humans: neuropsychological, neuroanatomical and neuropharmacological perspectives. *Progress in neurobiology*, 53(4), 431-450.
- Ozonoff, S., Cook, I., Coon, H., Dawson, G., Joseph, R. M., Klin, A., ... & Rogers, S. J. (2004). Performance on Cambridge Neuropsychological Test Automated Battery

- subtests sensitive to frontal lobe function in people with autistic disorder: evidence from the Collaborative Programs of Excellence in Autism network. *Journal of autism and developmental disorders*, 34(2), 139-150.
- Παπαγεωργίου, Β. (2005). Θεραπευτικές προσεγγίσεις των διαταραχών του φάσματος του αυτισμού. *Encephalos Journal*. www.encefalos.gr.
- Πετροπούλου, Ο., Κασιμάτη, Α., & Ρετάλης, Σ. (2015). Ο Εννοιολογικός Χάρτης (Concept Map) ως Εργαλείο Αξιολόγησης της Επίδοσης των Εκπαιδευομένων.
- Plotnick, E. (1997). Concept Mapping: A Graphical System for Understanding the Relationship between Concepts. ERIC Digest.
- Rajendran, G., & Mitchell, P. (2007). Cognitive theories of autism. *Developmental review*, 27(2), 224-260.
- Roberts, V., & Joiner, R. (2007). Investigating the efficacy of concept mapping with pupils with autistic spectrum disorder. *British Journal of Special Education*, 34(3), 127-135.
- Robins, D. L., Fein, D., & Barton, M. L. (1999). Modified checklist for autism in toddlers (M-CHAT) follow-up interview. *Publisher: Author*.
- Rutter, M. (1972). Childhood schizophrenia reconsidered. *Journal of Autism and Developmental Disorders*, 2(3), 315-337.
- Rutter, M. (1978). Diagnosis and definition of childhood autism. *Journal of autism and childhood schizophrenia*, 8(2), 139-161.
- Rutter, M., & Schopler, E. (1987). Autism and pervasive developmental disorders: Concepts and diagnostic issues. *Journal of autism and developmental disorders*, 17(2), 159-186.
- Rutter, M., & Schopler, E. (1992). Classification of pervasive developmental disorders: some concepts and practical considerations. *Journal of autism and developmental disorders*, 22(4), 459-482.
- Sengul, S., & Katranci, Y. (2012). Metacognitive aspects of solving function problems. *Procedia-Social and Behavioral Sciences*, 46, 2178-2182.
- Shu, B. C., Lung, F. W., Tien, A. Y., & Chen, B. C. (2001). Executive function deficits in

- non-retarded autistic children. *Autism*, 5(2), 165-174.
- Stringfield, S. G., Luscre, D., & Gast, D. L. (2011). Effects of a story map on accelerated reader postreading test scores in students with high-functioning autism. *Focus on Autism and Other Developmental Disabilities*, 26(4), 218-229.
- Sun, I. Y. I., Varanda, C. A., & Fernandes, F. D. (2017). Stimulation of executive functions as part of the language intervention process in children with autism spectrum disorder. *Folia Phoniatrica et logopaedica*, 69(1-2), 78-83.
- Ταγκούλη, Ε. (2007). Τα δικαιώματα των ατόμων με αυτισμό. *Encefalos Journal*. www.encefalos.gr.
- Torana, H., Yasina, M. H. M., Chiria, F., & Tahara, M. M. (2010). Monitoring progress using the individual education plan for students with autism. *Procedia-Social and Behavioral Sciences*, 7, 701-706.
- Tsai, L. Y. (1992). Diagnostic issues in high-functioning autism. In *High-functioning individuals with autism* (pp. 11-40). Springer, Boston, MA.
- Wilczynski, S. M., Menousek, K., Hunter, M., & Mudgal, D. (2007). Individualized education programs for youth with autism spectrum disorders. *Psychology in the Schools*, 44(7), 653-666.
- Williamson, P., Carnahan, C. R., Birri, N., & Swoboda, C. (2015). Improving comprehension of narrative using character event maps for high school students with autism spectrum disorder. *The Journal of Special Education*, 49(1), 28-38.
- Wing, L. (1981). Asperger's syndrome: a clinical account. *Psychological medicine*, 11(1), 115-129.
- Φρανσίς, Κ. (2007). Διάχυτες Αναπτυξιακές Διαταραχές ή Διαταραχές του Αυτιστικού Φάσματος. *Διαναπηρικός Οδηγός Εξειδίκευσης (ΕΠΕΑΕΚ)*.
- Zakas, T. L., Browder, D. M., Ahlgrim-Delzell, L., & Heafner, T. (2013). Teaching social studies content to students with autism using a graphic organizer intervention. *Research in Autism Spectrum Disorders*, 7(9), 1075-1086.