

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

**UTILISATION OF INFORMATION AND COMMUNICATION
TECHNOLOGY IN THE INTERVENTION FOR STUDENTS WITH AUTISM
SPECTRUM DISORDERS BY OCCUPATIONAL THERAPISTS**

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POSTGRADUATE
THESIS

SUPERVISOR – COMMITTEE

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Review

Contemporary Occupational Therapy intervention, and especially intervention for students with Autistic Spectrum Disorder, has undoubtedly been influenced by the current technological advances. The aim of this study is to examine the utilization of Information and Communication Technology in the intervention for students with Autism Spectrum Disorder by professional Occupational Therapists who practice Occupational Therapy in Greece. The main research questions address the issue of the degree and the frequency of the use of ICTs in regard to the intervention goals, the reasons why Occupational Therapists choose (or not) to utilize technology and the attitudes of Occupational Therapists towards ICTs. A sample survey was conducted and the data were collected via an online questionnaire. The research process included designing the questionnaire, defining the sample choosing method, distributing the questionnaire, having it filled and coding the data. The documentation, management and processing of the data was performed through the SPSS 23 platform. One hundred occupational therapists took part in the study, 52% of whom stated that they utilize ICTs. The results of the study showed that tablet applications are the most popular technological tool in use and edutainment is the goal regarding which technology is mostly utilized with the aim of offering incentives to students, while the main obstacle considered to avert Occupational Therapists from utilizing ICTs is the lack of material-technical infrastructure. Additionally, Occupational Therapists are inclined to educate themselves on the subject and are open to the idea of ICTs being used more widely in intervention. Concluding, it is documented that Occupational Therapists in Greece tend to show interest towards the utilization of ICTs in the intervention for students with ASD, though not to the extent that widespread and well-established use of ICTs could be reported.

Key-words: Information and Communications Technology, Autism Spectrum Disorder, Occupational Therapy, intervention

References

- Αθανασίου, Λ. (2000). *Μέθοδοι και τεχνικές έρευνας στις επιστήμες της αγωγής*, Ιωάννινα.
- Αλεβίζος, Β., Αμπάτζογλου, Γ. κ.ά. (2001). Παιδικός αυτισμός. Στο Γ. Τσιάντης (Επιμ.), *Εισαγωγή στην Παιδοψυχιατρική*. Αθήνα: Καστανιώτη, 189-199.
- Αντύπα, Σ. (2008). Η εκπαίδευση εκπαιδευτικών στη διδασκαλία με τις Τεχνολογίες της Πληροφορίας και της Επικοινωνίας: η περίπτωση του προγράμματος εξειδίκευσης του Πανεπιστημίου Μακεδονίας. Αδημοσίευτη Μεταπτυχιακή Διατριβή, Αριστοτέλειο Πανεπιστήμιο, Θεσσαλονίκη.
- Artoni, S., Bastiani, L., Buzzi, M. C., Buzzi, M., Curzio, O., Pelagatti, S., Senette, C. (2017). Technology-enhanced ABA intervention in children with autism: a pilot study. *Univ Access Inf Soc*. DOI 10.1007/s10209-017-0536-x.
- Ayres, A. (2010). *Sensory Integration and the Child: 25th Anniversary Edition*. United States of America: Western Psychological Services.
- Βάρβογλη, Λ. (2007). *Η Διάγνωση του Αυτισμού. Πρακτικός οδηγός*. Αθήνα: Καστανιώτη.
- Βλοτινού, Π. (2009). Η ανάλυση βάδισης ως μέθοδος αξιολόγησης παιδιών με Διαταραχή Αυτιστικού Φάσματος. *Εργοθεραπεία*, 38, 49-51.
- Baranek, G., Barnett, C., Adams, E. M., Wolcott, N. A., Watson, L. R., Craias, E. R. (2005). Object play in infants with autism: Methodological issues in Retrospective video analysis. *American Journal of Occupational therapy*, 1, 20-30.
- Baron-Cohen, S., Ashwin, E., Ashwin, C., Tavassoli, T., Chakrabarti, B. (2009). Talent in autism: hyper-systemizing, hyper-attention to detail and sensory hypersensitivity. *Philosophical Transaction. The Royal Society of Biological Sciences*, 1522, 1377- 1383.

- Benneto, L., Hyman, S. (2007). Olfaction and Taste Processing in Autism. *Biological Psychiatry*, 9, 1015-1021.
- Bereznak, S., Ayres, K. M., Mechling, L. C., Alexander, J. L. (2012). Video Self-Prompting and Mobile Technology to Increase Daily Living and Vocational Independence for Students with Autism Spectrum. *DisordersJ Dev Phys Disabil*, 24, 269–285. DOI 10.1007/s10882-012-9270-8.
- Bertenthal, B.I. (1996). Origins and early development of perception, action, and representation. *Annual Review of Psychology*, 47, 431-459.
- Bharatharaj, J., Huang, L., Mohan, R. E., Al-Jumaily, A., Krägeloh, C. (2017). Robot-Assisted Therapy for Learning and Social Interaction of Children with Autism Spectrum Disorder. *Robotics*, 6, 4. DOI: 10.3390/robotics6010004.
- Billard, A., , Robins, B., Nadel, J., Dautenhahn, K. (2007). Building Robota, a Mini-Humanoid Robot for the Rehabilitation of Children With Autism. *Assistive Technology*, 19, 1, 37-49. DOI: 10.1080/10400435.2007.10131864.
- Boucenna, S., Narzisi, A., Tilmont, E., Muratori, F., Pioggia, G., Cohen, D., Chetouani, M. (2014). Interactive Technologies for Autistic Children: A Review. *Cogn Comput*. DOI 10.1007/s12559-014-9276-x.
- Breines, C., B. (2006). *Occupations and activities from clay to computers*. Philadelphia: F. A. Davis.
- Γενά, Α. (2002). *Αυτισμός και Διάχυτες Αναπτυξιακές Διαταραχές*. Αθήνα: εκδ. ιδίας.
- Γκονελά, Ε. (2006). *Αυτισμός: αίνιγμα και πραγματικότητα*. Αθήνα: Οδυσσέας.
- Cabibihan, J., Javed, H., Marcelo A. Jr., Aljunied, S. M., (2013). “Why Robots? A Survey on the Roles and Benefits of Social Robots for the Therapy of Children with Autism”. *International Journal of Social Robotics*, 5, 4, 593-618. DOI: 10.1007/s12369-013-0202-2.
- Cascio, C., McGlone, F., Stephen Folger, S., Tannan, V., Baranek, G., Case-Smith, J., Arbesman, M. (2008). Evidence-Based Review of Interventions for Autism

Used in or of Relevance to Occupational Therapy. *American Journal of Occupational therapy*, 4, 416-429.

Charitaki, G. (2015). The effect of ICT on emotional education and development of young children with Autism Spectrum Disorder. *Procedia Computer Science*, 65, 285-293. DOI: 10.1016/j.procs.2015.09.081.

Chedid, R., J., Dew, A., Veitch, C. (2013). Barriers to the use of Information and Communication Technology by occupational therapists working in a rural area of New South Wales, Australia. *Australian Occupational Therapy Journal*, 60, 197–205. DOI: 10.1111/1440-1630.12016.

Chen, C. H., Lee, I. H., Lin, L. Y. (2015). Augmented reality-based self-facial modeling to promote the emotional expression and social skills of adolescents with autism spectrum disorders. *Research in developmental disabilities*, 36, 396-403. DOI: 10.1016/j.ridd.2014.10.015.

Clark, M., Austin, D., Craike, M. (2015). Professional and Parental Attitudes Toward iPad Application Use in Autism Spectrum Disorder. *Focus on Autism and Other Developmental Disabilities*, 30, 3, 174 –181. DOI: 10.1177/1088357614537353.

Cobb, S. V., Millen, L., Glover, T., Weiss, P. L., Gal, E., Zancanaro, M., Giusti, L., Bauminger, N., Parsons, S., Garid-Penna, S. (2010). An integrative approach for designing collaborative technologies for social competence training in children with autism spectrum conditions. In *Proc. 8th Intl Conf. Disability, Virtual Reality & Associated Technologies*. Paper presented at the 8th International Conference of Disability, Virtual Reality & associated Technologies, Viña del Mar/Valparaíso, Chile, 31 Aug. – 2 Sept.

Collia-Faherty, C. (1999). *Αυτισμός: Ένας ύμνος για την επικοινωνία. Κατανόηση του αυτισμού και των εκπαιδευτικών στρατηγικών*. (Χ. Χατζηδημητρίου, μεταφρ.). Αθήνα: Ελληνική εταιρία αυτιστικών ατόμων.

- Da Silva, M. L., Simões, C., Gonçalves, D., Guerreiro, T., Silva, H., Botelho, F. (2011). TROCAS: Communication Skills Development in Children with Autism Spectrum Disorders via ICT. In Campos et al. (Eds.): INTERACT 2011, (pp. 644–647). © IFIP International Federation for Information Processing 2011.
- De Giacomo, A., Portoghese, C., Martinelli, D., Fanizza, I., Luciano, L., Abate, L., Margari, L. (2009). Imitation and communication skills development in children with pervasive developmental disorders. *Neuropsychiatric Disease and Treatment*, 5, 355-362.
- Doyle, T. & Arnedillo-Sanchez, I. (2011). Using multimedia to reveal the hidden code of everyday behavior to children with autistic spectrum disorders (ASDs). *Computers & Education*, 56, 357-369. DOI: 10.1016/j.compedu.2010.08.016.
- Drigas, A. & Papoutsis, C. (2015). Empathy, Special Education and ICTs. *iJES*, 3, 4, 37-42. DOI: 10.3991/ijes.v3i4.5192.
- Drigas, A. & Papoutsis, C. (2015). ICTs for Assessment and Intervention on Cultivation of Empathy *iJET*, 10, 5, 10-15. DOI: 10.3991/ijet.v10i5.4731.
- Drigas, A. & Vlachou, J. (2016). Information and Communication Technologies (ICTs) and Autistic Spectrum Disorders (ASD). *iJES*, 4, 1. DOI: 10.3991/ijes.v4i1.5352.
- Drigas, A. S. & Ioannidou, R. E. (2012). Artificial Intelligence in Special Education: A Decade Review. *International Journal of Engineering Education*, 28, 6, 1366–1372.
- Drigas, A. S. & Papanastasiou, G. (2014). Interactive White Boards' Added Value in Special Education. *ijOE*, 10, 6, 58-62. DOI:10.3991/ijoe.v10i6.4004.
- Duquette, A., Michaud, F., Mercier, H. (2008). Exploring the use of a mobile robot as an imitation agent with children with low-functioning autism. *Auton Robot*, 24, 147–157. DOI 10.1007/s10514-007-9056-5.

- Dziuk, M. A., Gidley-Larson, J. C., Apostu, A., Mahone, E. M., Denckla, M. B., Mostofsky, S. H. (2007). Dyspraxia in autism: association with motor, social, and communicative deficits. *Developmental medicine and child neurology*, 10, 734-739.
- Fachantidis, N., Dimitriou, A. G., Pliasa, S., Dagdilelis, V., Pnevmatikos, D., Perlantidis, P., Papadimitriou, A. (2018). Android OS Mobile Technologies Meets Robotics for Expandable, Exchangeable, Reconfigurable, Educational, STEM-Enhancing, Socializing Robot. In M. E. Auer & T. Tsiatsos (Eds.), Springer Nature, 487–497. Springer International Publishing. DOI: 10.1007/978-3-319-75175-7_48.
- Faherty, C. (2003). *Τι σημαίνει για μένα; Ένα βιβλίο εργασίας που εστιάζει στην αυτογνωσία και σε μαθήματα ζωής για το παιδί ή το νέο άτομο με Αυτισμό Υψηλής λειτουργικότητας ή σύνδρομο Asperger*. (Β. Παπαγεωργίου, μεταφρ). Αθήνα: Ελληνικά Γράμματα.
- Feil-Seifer, D. & Mataric, M. (2008, June 11-13). Robot-assisted therapy for children with Autism Spectrum Disorders. Paper presented at Workshop on Special Needs, (pp. 29-52), Chicago, IL, USA.
- Frith, U. (1999). *Αυτισμός: Εξηγώντας το αίνιγμα*. (3^η έκδ.). (Γ. Καλομοίρης, μεταφρ.). Αθήνα: Ελληνικά γράμματα.
- Gal, E., Dyck, Murray J. Dyck, Passmore, A. (2010). Relationships between stereotyped movements and sensory processing disorders in children and without developmental of sensory disorders. *American Journal of Occupational therapy*, 3 , 453-461.
- Gardner, K., Bundy, A., Dewb, A. (2016). Perspectives of rural carers on benefits and barriers of receiving occupational therapy via Information and Communication Technologies. *Australian Occupational Therapy Journal*, 63, 117–122. DOI: 10.1111/1440-1630.12256.

- Grandin, T. (2009). How does visual thinking work in the mind of a person with autism? A personal account. *Philosophical Transactions of the Royal Society Biological Sciences*, 1522, 1437-1442.
- Green, D., Charman, T., Pickles, A., Chandler, S., Loucas, T., Simonoff, E., Baird, G. (2009). Impairment in movement skills of children with autistic spectrum disorders. *Developmental Medicine Child Neurology*, 4, 311-316.
- Greenberg, J. (2008). *Νευροαπεικόνιση. Αρχές νευρολογίας*. (2^η εκδ.). (Β. Ζούβελου, μεταφρ.). Αθήνα: Παρισιάνου.
- Groba, B., Pereira, J., Nieto, L., Pousada, T., Falcón, S., Munteanu, C. R., Pazos, A. (2015). ASD Module: A Software to Support the Personal Autonomy in the Daily Life of Children with Autism Spectrum Disorder. *Mol2Net*, 1, 1-8. <http://sciforum.net/conference/mol2net-1>.
- Grynzspan, O., Martin, J. C., Nadel, J. (2008). Multimedia interfaces for users with high functioning autism: An empirical investigation. *Int. J. Human-Computer Studies*, 66, 628-639. DOI: 10.1016/j.ijhcs.2008.04.001.
- Hansbol, M. (2015). Robot technologies, autism and designs for learning. *Læring & Medier (LOM)*, 14, 1-24.
- Happé, F. (2003). *Αυτισμός*. (Δ. Στασινός, μεταφρ.). Αθήνα: Gutenberg.
- Haswell, C. C., Izawa, J. Dowell, L. R., Mostofsky, S. H., Shadmehr, R. (2009). Representation of internal models of action in the autistic brain. *Nature Neuroscience*, 8, 970 – 972.
- Hetzroni, O. E. & Tannous, J. (2004). Effects of a Computer-Based Intervention Program on the Communicative Functions of Children with Autism. *Journal of Autism and Developmental Disorders*, 34, 2, 95-113.
- Hopkins, I. M., Gower, M. W., Perez, T. A., Smith, D. S., Amthor, F. R., Wimsatt, F. C., Biasini, F. J. (2011) Avatar Assistant: Improving Social Skills in Students with

an ASD Through a Computer-Based Intervention. *J Autism Dev Disord*, 4, 1543–1555. DOI 10.1007/s10803-011-1179-z.

<http://www.wfot.org/aboutus/aboutoccupationaltherapy/definitionofoccupationaltherapy.aspx>

<http://www.wfot.org/wfot2006/pdf/Microsoft%20Word%20%20180806%20%20ICT OT.pdf>

Humaira, J. & Gangrade, J. (2016). Information communication technologies in special education needs environment-a review. *International Journal of Research in Engineering, Technology and Science*, 5, 1-6.

Jasmin, E., Couture, M., McKinley, P., Reid, G., Fombonne E., Gisell, E. (2009). Sensorimotor and Daily Living Skills of Preschool Children with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders*, 39, 231-41.

Joosten, A. V., Bundy, A. C., Stewart, L. (2009). Intrinsic and Extrinsic Motivation for Stereotypic and Repetitive Behavior. *Journal of Autism and Developmental Disorders*, 39, 521-531.

Κάκουρος, Ε., Μανιαδάκη, Κ. (2006). *Ψυχοπαθολογία παιδιών και εφήβων - αναπτυξιακή προσέγγιση*. Αθήνα: Τυπωθήτω - Γιώργος Δαρδάνος.

Κραγιόπουλος, Ν. (2012). Η χρήση των νέων τεχνολογιών από τους εκπαιδευτικούς των θετικών επιστημών στη δευτεροβάθμια εκπαίδευση. Αδημοσίευτη Μεταπτυχιακή Διατριβή, Αριστοτέλειο Πανεπιστήμιο, Θεσσαλονίκη.

Κωστανταρέα, Μ. (1988). Παιδικός αυτισμός. Στο Γ. Μαυρόπουλος, Γ. Τσιάντης (Επιμ.), *Σύγχρονα θέματα παιδοψυχιατρικής - Ψυχοπαθολογία*. Αθήνα: Καστανιώτη, 153-193.

Kandalaft, M. R., Didehbani, N., Krawczyk, D. C., Allen, T. T., Chapman, S. B. (2013). Virtual Reality Social Cognition Training for Young Adults with High-

- Functioning Autism. *J Autism Dev Disord*, 43, 34–44. DOI 10.1007/s10803-012-1544-6.
- Karyotaki, M. & Drigas, A. (2015). Online and other ICT Applications for Cognitive Training and Assessment. *ijOE*, 11, 2, 36-42. DOI:10.3991/ijoe.v11i2.4360.
- Keay-Bright, W. & Howarth, I. (2012). Is simplicity the key to engagement for children on the autism spectrum? *Pers Ubiquit Comput*, 16, 129–141. DOI 10.1007/s00779-011-0381-5.
- Keay-Bright, W. (2009). ReacTickles: playful interaction with information communication technologies. *Int. J. Arts and Technology*, 2, 1/2, 133 -150.
- Kokkalia, G. K. & Drigas, A. S. (2016). Mobile Learning for Special Preschool Education. *ijIM*, 10, 1, 60-67. DOI: 10.3991/ijim.v10i1.5288.
- Kokkalia, G. K., Drigas, A. S., Economou, A. (2016). The Role of Games in Special Preschool Education. *ijET*, 11, 12, 30-35. DOI: 10.3991/ijet.v11i12.5945.
- Kokkalia, G., Drigas, A., Economou, A., Roussos, P., Choli, S. (2017). The Use of Serious Games in Preschool Education. *ijET*, 12, 11, DOI:10.3991/ijet.v12.i11.6991.
- Konstantinidis, E. I., Luneski, A., Frantzidis, C. A., Nikolaidou, M., Hitoglou-Antoniadou, M., Bamidis, P. D. (2009). Information and communication technologies (ICT) for enhanced education of children with autism spectrum disorders. *The Journal on Information Technology in Healthcare*, 7, 5, 284-292. http://www.hl7.org.tw/jith/pdf/JITH_Volume_7,_Issue_5.pdf.
- Koomar, J. A., Bundy, A. C. (2002). Creating Direct Intervention from Theory. In A.C. Bundy, S.J., Lane., E.A., Murray (Eds.), *Sensory Integration Theory and Practice* (2nd ed.). Philadelphia: F.A. Davis Company, 261-308.
- Lacava, P., G., Rankin, A., Mahlios, E., Cook, K., Simpson, R., L. (2010). A single case design evaluation of a software and tutor intervention addressing emotion recognition and social interaction in four boys with ASD. *SAGE Publications*

and The National Autistic Society, 14, 3, 161–178. DOI: 10.1177/1362361310362085.

Lewis, L., Trushell, J., Woods, P. (2005). Effects of ICT group work for a pupil with Asperger's Syndrome. *British Journal of Educational Technology*, 36, 5, 739–755.

Liu, K. Y., King, M. and Bearman, P. S. (2010). Social Influence and the Autism Epidemic. *American Journal of Sociology*, Volume 115 Number 5, 1387–1434.

Lozano, J., Baresta, J., Alcaraz S. M. (2011). Software for Teaching Emotions to Students with Autism Spectrum Disorder. *Scientific Journal of Media Literacy*, 36, 139-147. DOI:10.3916/C36-2011-03-05.

Mailloux, Z., Mulligan, S., Roley, S., Blance, E., Cermak, S., Coleman, G.G. (2011). Verification and Clarification of Patterns of Sensory Integrative Dysfunction. *American Journal of Occupational Therapy*, 65, 143-151.

Mangafa, C., Moody, L., Woodcock, A., Woolner, A. (2015). Teachers' experiences of developing joint attention skills in children with autism using iPads. In *EDULEARN15 Proceedings*. Paper presented at the 7th International Conference on Education and New Learning Technologies, 6-8 July, 2015, Barcelona, Spain.

Mantziou, O., Vrellis, I., Mikropoulos, Y. A. (2015). Do children in the spectrum of autism interact with real-time emotionally expressive human controlled avatars? *Procedia Computer Science*, 67, 241 – 25. DOI: 10.1016/j.procs.2015.09.268.

Marchi, E., Baron-Cohen, S., O'Reilly, H., Schuller, B. W., Lassalle, A., O'Reilly, H., Pigat, D., Robinson, P., Davies, I. W., Baltrusaitis, T., Mahmoud, M. (2015). Recent developments and results of ASC- Inclusion: An Integrated Internet-Based Environment for Social Inclusion of Children with Autism Spectrum Conditions. Paper presented at IDGEI, 1st International workshop, 2013, Chania, Crete, Greece.

- Marco, E., Hinkley, L., Hill, S., Nagarajan, S. (2011). Sensory Processing in autism: A review of neurophysiologic findings. *International Pediatric Research foundation Inc*, 5, 48-54.
- Mintz, J. (2013). Additional key factors mediating the use of a mobile technology tool designed to develop social and life skills in children with Autism Spectrum Disorders: Evaluation of the 2nd HANDS prototype. *Computers and Education*, 63, 17-27. DOI: 10.1016/j.compedu.2012.11.006.
- Mintz, J., Branch, C., March, C., Lerman, S. (2012). Key factors mediating the use of a mobile technology tool designed to develop social and life skills in children with Autistic Spectrum Disorders. *Computers and Education*, 58, 53-62. DOI: 10.1016/j.compedu.2011.07.013.
- Moore, D., Cheng, Y., McGrath, P., Powell, N. J. (2005). Collaborative Virtual Environment Technology for People with Autism. *Focus Autism Other Dev Disabl*, 20, 231-243. DOI: 10.1177/10883576050200040501.
- Oetter, P., Richter, E., Frick, S. (1995). *M.O.R.E Integrating the mouth sensory and postural functions*. (2nd ed.). Minnesota: PDP Press.
- Παπαγεωργίου, Β. (2005α). *Ψυχιατρική παιδιών και εφήβων*. Θεσσαλονίκη: University Studio Press.
- Παπαγεωργίου, Β. (2005β). Αυτισμός: Βασικά στοιχεία της προσέγγισης TEACCH. Στο Β. Παπαγεωργίου (Επιμ.), *Αυτισμός Διεπιστημονική Προσέγγιση*. Κρήτη: Ζωοδόχος Πηγή, 17-31.
- Papanastasiou, G., Drigas, A., Skianis, C., Lytras, M. D. (2017). Serious games in K-12 education: benefits and impacts on students with attention, memory and developmental disabilities. *Program*. DOI: 10.1108/ PROG-02-2016-0020.
- Papoutsis, C. & Drigas, A. (2016). Games for Empathy for Sensitive Social Groups. *IJES*, 4, 3, 36-43. DOI: 10.3991/ijes.v4i3.5923.

- Phares, V. (2003). *Understanding Abnormal Child Psychology*. University of South Florida: John Wiley & Sons, Inc.
- Rajendran, G. (2013). Virtual environments and autism: a developmental psychopathological approach. *Journal of Computer Assisted Learning*. DOI: 10.1111/jcal.12006.
- Raso, R., Città, G., Crifaci, G., Prenjasi, E., Gentile, M., Allegra, M. (2015). A new educational methodology to research and observe behaviours and outcomes in autism with robotic teaching and edutainment. *EDULEARN15 Proceedings*, 2322-2330.
- Rayner, C., Denholm, C., Sigafoos, J. (2009). Video-based intervention for individuals with autism: Key questions that remain unanswered Christopher. *Research in Autism Spectrum Disorders*, 3, 291–303. DOI: 10.1016/j.rasd.2008.09.001.
- Ricks, D., J. & Colton, M., B. (2010). Trends and Considerations in Robot-Assisted Autism Therapy. *IEEE Xplore*. Paper presented at the Robotics and Automation (ICRA) IEEE International Conference, June 2010. DOI: 10.1109/ROBOT.2010.5509327.
- Robins, B. & Dautenhahn, K. (2014). Tactile Interactions with a Humanoid Robot: Novel Play Scenario Implementations with Children with Autism. *Int J of Soc Robotics*, 6, 3, 397–415. DOI: 10.1007/s12369-014-0228-0.
- Rutter, M. (1990). *Νηπιακός Αυτισμός*. (Γ. Καραντάνος, μεταφρ.). Αθήνα: Ελληνικά Γράμματα.
- Schaper, K. & Pervan, G., P. (2007). ICT and OTs: A model of information and communication technology acceptance and utilisation by occupational therapists. *International Journal of Medical Informatics*, 76, 1, 212-221. DOI: 10.1016/j.ijmedinf.2006.05.028
- Schopler, E. (1995). *Εγχειρίδιο επιβίωσης γονέων. Ένας οδηγός για την επίλυση κρίσεων στον αυτισμό και τις συναφείς αναπτυξιακές διαταραχές*. (Γ.

Καλομοίρης, μεταφρ.). Αθήνα: Ελληνική Εταιρία Προστασίας Αυτιστικών ατόμων.

Serret, S., Hun, S., Iakimova, G., Lozada, J., Anastassova, M., Santos, A., Vesperini, S., Askenazy, F. (2014). Facing the challenge of teaching emotions to individuals with low- and high-functioning autism using a new Serious game: a pilot study. *Molecular Autism*, 5, 37. <http://www.molecularautism.com/content/5/1/37>.

Sher, B. (2009). *Early Intervention Games*. San Fransisco: Josssey Bass (Willey)

Shoener, R. F., Kinnealey, M., Koenig, K. P. (2008). You can know me now if you listen: sensory, motor, and communication issues in a nonverbal person with autism. *American Journal of Occupational Therapy*, 5, 547-753.

Sigafoos, J., Lancioni, G., E., O'Reilly, M. F., Achmadi, D., Stevens, M., Roche, L., Kagohara, D. M., Van Der Meer, L., Sutherland, D., Lang, R., Marschik, P. B., McLay, L., Hodis, F., Green, V. A. (2013). Teaching two boys with autism spectrum disorders to request the continuation of toy play using an iPad (R)-based speech-generating device. *Research in Autism Spectrum Disorders*, 7, 8, 923-930. DOI10.1016/j.rasd.2013.04.002.

Strickland, D. (1997). Virtual Reality for the Treatment of Autism. *Stud Health Technol Inform.*, 44, 81-86. DOI: 10.3233/978-1-60750-888-5-81.

Τσίμπος, Κ. & Γεωργιακώδης, Φ. (2010). *Περιγραφική & διερευνητική στατιστική ανάλυση δεδομένων (τόμος Α')*. Αθήνα: Αθ. Σταμούλης.

Taheria, A. R., Alemiabd, M., Meghdaria, A., PourEtemad, H. R., Holderread, S. L. (2015). Clinical application of humanoid robots in playing imitation games for autistic children in Iran. *Procedia-Social and Behavioral Sciences*, 176, 898-906. DOI: 10.1016/j.sbspro.2015.01.556.

Tinio, V. L. (2003). ICT in Education. United Nations Development Programme-Asia Pacific Development Information Programme.

- Tomchek, S., Dunn, W. (2007). Sensory processing in children with and without autism: A Comparative Study Using the Short Sensory Profile. *American Journal of Occupational therapy*, 2, 190-200.
- Torrente J., Moreno-Ger P., Fernández-Manjón B., del Blanco Á. (2009). Game-Like Simulations for Online Adaptive Learning: A Case Study. In Chang M., Kuo R., Kinshuk, Chen GD., Hirose M. (Eds.). *Learning by Playing. Game-based Education System Design and Development. Edutainment 2009. Lecture Notes in Computer Science*, 5670. Springer, Berlin, Heidelberg. DOI: 10.1007/978-3-642-03364-3_21.
- Torrente, J., Moreno-Ger, P., Fernández-Manjón, B., & del Blanco, A. (2009). Game-like simulations for online adaptive learning: A case study. *Edutainment 2009, Fourth International Conference on ELearning and Games*. Banff, Canada.
- Tsiopela, D. & Jimoyiannis, A. (2014). Pre-Vocational Skills Laboratory: Development and investigation of a Web-based environment for students with autism. *Procedia Computer Science*, 27, 207 – 217. DOI: 10.1016/j.procs.2014.02.024.
- Yack, E., Aquilla, P. Sutton, S. (2002). *Building Bridges Through Sensory Integration*. Canada: Future Horizons.
- Yu-Han, C., Rodgers, J., McConachie, H. (2009). Restricted and Repetitive Behaviours, Sensory Processing and Cognitive Style in Children with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders*, 39, 635-42.
- Vlachou, J. A. & Drigas, A. S. (2017). Mobile Technology for Students & Adults with Autistic Spectrum Disorders (ASD). *IJIM*, 11, 1, 4-17. DOI: 10.3991/ijim.v11i1.5922.
- Wainer A., L. & Ingersoll B. R. (2011). The use of innovative computer technology for teaching social-communication to individuals with autism spectrum

- disorders. *Research in Autism Spectrum Disorders*, 5, 1, 96-107.
DOI10.1016/j.rasd.2010.08.002.
- Wenar, C. & Kerig, P. (2008). *Εξελικτική Ψυχοπαθολογία από τη βρεφική ηλικία στην εφηβεία*. (Δ. Μαρκουλής, Ε. Γεωργάκα, μεταφρ.). Αθήνα: Gutenberg.
- Williams, D. L., Goldstein, G., Minshew, N. J. (2006). Neuropsychologic Functioning in Children with Autism: Further evidence for Disordered Complex Information–Processing. *Child Neuropsychology*, (4-5), 279-298.
- Wing, L. (1993). *Διαταραχές του φάσματος του αυτισμού. Ένας οδηγός για τη διάγνωση*. (Σ. Μαυροπούλου, Β. Παπαγεωργίου, μεταφρ.). Αθήνα: Ελληνική εταιρεία προστασίας αυτιστικών ατόμων.
- Wing, L. (2000). *Το αυτιστικό φάσμα. Ένας οδηγός για γονείς και επαγγελματίες*. (Π. Πρώιος, μεταφρ.). Αθήνα: Ελληνική εταιρία προστασίας αυτιστικών ατόμων.
- Χίτογλου - Αντωνιάδου, Μ. (2003). *Ο Κοινωνικός Εγκέφαλος. Διαταραχές της επικοινωνίας και της εξέλιξης του λόγου στο παιδί*. Θεσσαλονίκη: University Studio Press.
- Zeng, F. G., Kong, Y. Y. (2005). Perceptual Consequences of Disrupted Auditory Nerve Activity. *Journal Neurophysiol*, 93, 3050–3063.