Eximia journal

Eximia Journal

(ISSN 2784-0735)

Vol. 5

2022

Eximia Journal
Vol. 5, 524-539, July, 2022
ISSN: 2784-0735
www.eximiajournal.com

The role of executive functions and ICTs in anxiety management of children with ASD

Zografou Maria, Agathi Stathopoulou
mar.coeur93@gmail.com, agathi.stathopoulou@yahoo.com

Abstract

The role of executive dysfunction in autism spectrum disorders (ASD) is critical for guiding diagnosis and intervention. Autism spectrum disorder (ASD) is a neurodevelopmental disorder defined by deficits in social communication and interaction and restricted and repetitive patterns of behavior. Evidence show that ICTs contribute to the reduction of stress in children with ASD because of their adaptive, playful and predictable digital environment. Mobile apps and robots have been found to work beneficially by helping with stressful situations.

Keywords: executive functions, ASD, autism, anxiety management, ICTs, mobile devices, mobile apps, robots

Introduction

The role of executive functions in anxiety management of children with ASD

EF refers to physical, cognitive, and emotional control and regulatory processes necessary to plan and maintain effective goal-directed behavior (Pennington & Ozonoff, 1996; Corbett et al., 2009). Executive functioning (EF) deficits are prevalent in children with ASD (Wang et al., 2017; Corbett, Constantine, Hendren, Rocke, & Ozonoff, 2009). EF consist of a wide range of skills, including inhibition,
mental flexibility, self-control, shifting of attention, initiation, impulsivity, working memory and planning (Garon et al., 2008; Gioia et al., 2002; McLean et al., 2014).

Moreover, EF deficits are related to developmental disorders, including Attention Deficit Hyperactivity Disorder, Autism Spectrum Disorder, and Intellectual Disability (Barkley & Murphy, 2011; Happé et al., 2006; Memisevic & Sinanovic, 2014).
In addition to social-communicative deficits and repetitive/restricted behaviors and interests, individuals with ASD often have executive functioning (EF) impairments (Hill, 2004).

EF have been found to relate to Theory of Mind (ToM) and emotion-recognition. Dorsolateral pre-frontal cortical regions include faculties of inhibition, planning, working memory, behavioral monitoring, and cognitive flexibility (Sivaratnama, C., L. Newmanb, C. , Rineharta, N., 2018). In particular, anxiety has been noted to have a strong association with poor EF performance in ASD populations. (Demetriou et al. ,2018).

Anxiety and behavioral disorders are among the most common psychiatric comorbidities in ASD (Simonoff et al., 2008). In ASD, anxiety was also shown to correlate with impaired performance on neuropsychological measures of inhibition, mental flexibility, and shifting (Demetriou, DeMayo, & Guastella, 2019). Previous studies of TD children and young adults have found strong associations between poor EF and externalizing and internalizing behaviors. Furthermore, several studies indicate that early EF difficulties predict later internalizing and externalizing problem behavior (Riggs et al., 2003; Martel et al., 2007), and social competence (Vogan et al., 2018).

Anxiety is one of the most common co-occurring disorder in individuals with ASD, with 40 % meeting criteria for at least one anxiety disorder (Van Steensel, Bögels, & de Bruin, 2012). According to a meta-analysis, people with ASD show more anxiety symptoms and have higher rates of anxiety disorders than their typically developing peers, suggesting a prevalence rate of ∼40%. Furthermore, anxiety in ASD may be driven by difficulties in executive, top-down control of attention. In addition, the severity of anxiety symptoms in people with an ASD has been associated with the extent of both restricted interests and repetitive behaviors (Gotham et al., 2012; Rodgers, Glod, Connolly, & McConachie, 2012).

For instance, Toren et al. (2000) found that children with either overanxious disorder or separation anxiety performed more poorly on WCST, a test of executive functioning. Problems with verbal working memory have been identified in depression but not anxiety, and possible problems with attention and executive functioning have been found in those with OCD. Evidence suggests that social skill deficits and perhaps social cognitive deficits may relate to elevated symptoms of anxiety in individuals with ASD.

On the other hand, neuropsychological studies in people with anxiety disorder and/or depression indicate problems with attention and executive functioning compared with controls. (Hollocks, Jones, Pickles, Baird, Happé, Charman, & Simonoff, 2014). Executive functions play an important role in the mental health of young people with ASD, with reported prevalence rates as high as 84% for anxiety (White, Oswald, Ollendick, & Scahill, 2009) and 38% for depression (Magnuson & Constantino, 2011).

Also, increased EF deficits and greater levels of comorbid anxiety symptoms was found in a large group of adolescents with ASD. In this study, poorer performance on neuropsychological measures of inhibition, cognitive flexibility, and attentional shifting, specifically the Opposite Worlds Task and the

Trail Making Task was differentially associated with anxiety, but not depression. (Hollocks et al., 2014). Comorbid anxiety is associated with depression, self-injurious behavior, parental stress, interference with social interactions, and worsening of core symptoms of ASD (Dieckhaus, Hardy, Gutermuth, Verbalis, Kenworthy, & Pugliese,2021).

Children with autism spectrum disorder (ASD) present higher levels of co-occurring anxiety, attention-deficit/hyperactivity disorder, and intellectual disability than neurotypical children. For example, social skills interventions both improve social skills and reduce social anxiety due to practice or exposure. Anxiety is correlated with reduced EF in autism (Hollocks et al., 2014). Therefore, anxiety may directly affect negatively EF skills like attention, shifting, and working memory and potentially inhibit learning. (Edmunds et al., 2021).

The role of ICTs in anxiety management of children with ASD

Students with autism benefit from the use of ICTs, as they learn to manage the stress for inclusion into society, develop their reading and social skills, and help with their communication. (Ntalindwa, Soron, Nduwingoma, Karangwa, White, 2019). A virtual intervention program leads to improvements in emotion recognition (Papoutsi, Drigas & Skianis, 2021).

It is obvious that activities with social robots effect children positively and encourage them to interact freely, limiting any fear or anxiety in a safe environment (Bakola & Drigas, 2020).

Juan Pablo Hourcade et al. (2013) evaluated weather tablet apps can encourage social interaction in children with autism spectrum disorders. The set of apps - Drawing, Music, Untagle and Photogoo – which are all from Open Autism Software helped children with ASD associate social face-to-face interaction with playing. In fact, children expressed positive feelings when they initiated with tablets because they were not anxious. In particular, the apps have very simple user interfaces with little or no use of words to better appeal. Children can explore the apps, express themselves freely and also reduce anxiety.

Also, the HANDS project strives to develop a set of software components based on Persuasive Technology, which improve social skills and self management skills in order to reduce anxiety of children with ASD (Schärfe, Øhrstrøm & Gyori, 2009).

Research shows that the involvement of children with ASD with robots is accessible and attractive. It creates a predictable environment that allows the children to repeat, reducing the stress and emotional insecurity created by communication with humans. Due to their predictability, computers have a positive effect on reducing stress and self-stimulatory behaviors, improving their concentration and communication.

The applications of mobile digital technologies and tablets contribute to the development and adaptability of people with ASD. In this way, they observe, control, regulate their behavior, and reduce their stress.

Mobile applications can be one of the most satisfying forms of intervention, as they improve communication, language, emotional, and social skills and enrich vocabulary. Furthermore, mobile phones are an attractive learning tool, as they have applications with animation, video, and graphics that entice the interest of children with ASD. Robotics is proven particularly effective in the cognitive, social, and emotional education of children with autism, as they reduce stress by creating a visually appealing, stable, and predictable learning environment.

The use of robots in the learning process seems to alleviate the cognitive and sensory deficits of children with ASD. At the same time, children, through their involvement with robots, develop social-emotional skills such as self-regulation, attention control, and, consequently, consciousness, which are really important for their self-image. (Bamicha & Drigas, 2022). In addition, another study introduced the ParentGuardian application, which provides behavioral strategies for parents of children with ADHD to support them in managing stressful situations. The ParentGuardian system uses changes in skin conductivity by an electro-dermal activity bracelet, to calculate a parent's stress level. When a high level is detected, the application sends a reminder of the use of control strategies to the parent's device. (Anagnostopoulou et al., 2020).

The Mind Reading program aims to identify emotions in people with high-functioning autism. Therefore, these programs seem to help children with autism to improve the recognition of their emotions and develop new skills in a more accurate, interesting and effective way (Vakola, Rizos, & Drigas, 2019).

Moreover, a study in 170 children using the Kaspar robot in children with ASD. From the children's interaction with the robot helped them to develop communication skills and recognition of their emotions as well as to better harmonize with the environment (Zorcec, Robins, & Dautenhahn, 2018).

Discussion

It is a fact that new technologies contribute to the development of the emotional intelligence of children with ASD, as well as the function of cognition. They also contribute to the rise of the knowledge-consciousness pyramid which refers to working memory, personal abilities and self-realization.

Also, it is important to create applications that will focus on making people with autism aware of their emotions and their body language in order to develop their emotional intelligence and cultivate their social interaction.

Thus, teachers and counselors can play a major role in identifying and minimizing stressors before any medication intervention implemented. It is currently impossible to subscribe anti-anxiety medication to children in autism spectrum disorder. In fact, natural products can be used as supplements to improve behavior. (Sideraki, & Maradou, Papageorgiou, Tsiava, & Drigas, 2022).

Conclusion

Concluding we underline the importance of the digital technologies in education domain and anxiety management which are very productive and successful, facilitates and improves the assessment, the intervention and the educational procedures via Mobiles which brings educational activities everywhere [40-57], various ICTs applications which are the core supporters of education [58-114], AI, STEM & ROBOTICS which raise educational procedures into new levers of performance [115-132], and games which transforms the education in a very friendly and enjoyable interaction [133-150]. Additionally the enhancement and combination of ICTs with theories and models of metacognition, mindfulness, meditation and emotional intelligence cultivation [151-223] as well as with environmental factors and nutrition [34-39], accelerates and improves more over the educational practices and results, especially in the anxiety management domain and its practices like assessment and intervention, both in general and special education.

More specifically developmental differences in comparison with typically developing children are evident in the domain of executive functions (Girault & Piven, 2020). Knowing what developmental areas need additional professional attention and support may help in creating more efficient individualized support programs for children with ASD. (Memisevic & Pasalic, 2021). In conclusion, ICTs are very appealing to children with ASD, who prefer playing with a portable device. In fact, predicted responses from a mobile device do not cause anxiety to these children. On the contrary, children with ASD adopt a gamesome attitude and feel more secure in their daily environment. (Ntalindwa et al., 2019).

References

[1] Anagnostopoulou, P., Alexandropoulou, V., Lorentzou, G., Lykothanasi, A., Ntaountaki, P., & Drigas, A. (2020). Artificial Intelligence in Autism Assessment. International Journal of Emerging Technologies in Learning (iJET), 15(06), pp. 95–107. https://doi.org/10.3991/ijet.v15i06.11231

[2] Bakola, *L. &* Drigas, A. (2020)*:* Technological Development Process of Emotional Intelligence as a Therapeutic Recovery Implement in Children with ADHD and ASD Comorbidity. Int. J. Online Biomed. Eng. 16(3)*: 75-85.*

[3] Bamicha, V. & Drigas, A. (2022). "The Evolutionary Course of Theory of Mind - Factors that facilitate or inhibit its operation and the role of ICTs," Technium Social Sciences Journal, Technium Science, vol. 30(1), pages 138-158, April.

[4] Barkley, R. A., & Murphy, K. R. (2011). The nature of executive function (EF) deficits in daily life activities in adults with ADHD and their relationship to performance on EF tests. *Journal of Psychopathology and Behavioral Assessment, 33*(2), 137–158. https://doi.org/10.1007/s10862-011-9217-x
[5] Corbett, B. A., Constantine, L. J., Hendren, R., Rocke, D., & Ozonoff, S. (2009). Examining executive functioning in children with autism spectrum disorder, attention deficit hyperactivity disorder and typical development. Psychiatry Research, 166(2-3), 210–222. doi:10.1016/j.psychres.2008.02.005
[6] Demetriou, E. A., DeMayo, M. M., & Guastella, A. J. (2019). Executive Function in Autism Spectrum Disorder: History, Theoretical Models, Empirical Findings, and Potential as an Endophenotype. Frontiers in Psychiatry, 10. doi:10.3389/fpsyt.2019.00753
[7] Demetriou, E. A., Lampit, A., Quintana, D. S., Naismith, S. L., Song, Y. J. C., Pye, J. E., Hickie, I., & Guastella, A. J. (2018). Autism spectrum disorders: A meta-analysis of executive function. *Molecular Psychiatry, 23*(5), 1198–1204. https://doi.org/10.1038/mp.2017.75
[8] Dieckhaus, M. F. S., Hardy, K. K., Gutermuth Anthony, L., Verbalis, A., Kenworthy, L., & Pugliese, C. E. (2021). Anxiety relates to classroom executive function problems in students with ASD, but not ADHD. Research in Autism Spectrum Disorders, 82, 101739. doi:10.1016/j.rasd.2021.101739
[9] Edmunds SR, MacNaughton GA, Rueda MR, Combita LM, Faja S. Beyond group differences: Exploring the preliminary signals of target engagement of an executive function training for autistic children. Autism Res. 2022 Jul;15(7):1261-1273. doi: 10.1002/aur.2735. Epub 2022 Apr 28. PMID: 35481725; PMCID: PMC9322009.
[10] Garon, N., Bryson, S. E., & Smith, I. M. (2008). Executive function in preschoolers: A review using an integrative framework. Psychological Bulletin, 134(1), 31–60. doi:10.1037/0033-2909.134.1.31
[11] Gioia, G. A., Isquith, P. K., Retzlaff, P. D., & Espy, K. A. (2002). Confirmatory Factor Analysis of the Behavior Rating Inventory of Executive Function (BRIEF) in a Clinical Sample. Child Neuropsychology (Neuropsychology, Development and Cognition: Section C), 8(4), 249–257. doi:10.1076/chin.8.4.249.13513
[12] Girault, Jessica B. et al. (2020). The Neurodevelopment of Autism from Infancy Through Toddlerhood. Neuroimaging Clinics, Volume 30, Issue 1, 97 – 114
[13] Gotham, K., Pickles, A., & Lord, C. (2012). Trajectories of Autism Severity in Children Using Standardized ADOS Scores. PEDIATRICS, 130(5), e1278–e1284. doi:10.1542/peds.2011-3668
[14] Happé, F., Ronald, A., & Plomin, R. (2006). Time to give up on a single explanation for autism. Nature Neuroscience, 9(10), 1218–1220. doi:10.1038/nn1770
[15] Hill, E. L. (2004). Executive dysfunction in autism. Trends in Cognitive Sciences, 8(1), 26–32. doi:10.1016/j.tics.2003.11.003
[16] Hogg, N., & Kramer, B. (2014). Estimations of Japanese University Learners' English Vocabulary Sizes Using the Vocabulary Size Test Stuart McLeana doi:http://dx.doi.org/10.7820/vli.v03.2.mclean.et.al
[17] Hollocks, M. J., Jones, C. R. G., Pickles, A., Baird, G., Happé, F., Charman, T., & Simonoff, E. (2014). The Association Between Social Cognition and Executive Functioning and Symptoms of Anxiety and Depression in Adolescents With Autism Spectrum Disorders. Autism Research, 7(2), 216–228. doi:10.1002/aur.1361
[18] Hourcade, J. P., Williams, S. R., Miller, E. A., Huebner, K. E., & Liang, L. J. (2013). Evaluation of tablet apps to encourage social interaction in children with autism spectrum disorders. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems - CHI '13. doi:10.1145/2470654.2466438.
[19] Magnuson, K. M., & Constantino, J. N. (2011). Characterization of Depression in Children With Autism Spectrum Disorders. Journal of Developmental & Behavioral Pediatrics, 32(4), 332–340. doi:10.1097/dbp.0b013e318213f56c
[20] Memisevic, H. & Pasalic, A. (2021). Executive Functions and Developmental Profiles in Preschool Children with Autism Spectrum Disorder. DOI: https://doi.org/10.21203/rs.3.rs-438077/v1
[21] Memisevic, H., & Sinanovic, O. (2013). Executive function in children with intellectual disability - the effects of sex, level and aetiology of intellectual disability. Journal of Intellectual Disability Research, 58(9), 830–837. doi:10.1111/jir.12098
[22] Ntalindwa T, Soron TR, Nduwingoma M, Karangwa E, White R. The Use of Information Communication Technologies Among Children With Autism Spectrum Disorders: Descriptive Qualitative Study. JMIR Pediatr Parent. 2019 Sep 27;2(2):e12176. doi: 10.2196/12176. PMID: 31573940; PMCID: PMC6789423.
[23] Papoutsi, C., Drigas, A., & Skianis, C. (2021). Virtual and Augmented Reality for Developing Emotional Intelligence Skills. International Journal of Recent Contributions from Engineering, Science & IT (iJES), 9(3), pp. 35–53. https://doi.org/10.3991/ijes.v9i3.23939

[24] Pennington, B. F., & Ozonoff, S. (1996). Executive Functions and Developmental Psychopathology. Journal of Child Psychology and Psychiatry, 37(1), 51–87. doi:10.1111/j.1469-7610.1996.tb01380.x
[25] Rodgers, J., Glod, M., Connolly, B., & McConachie, H. (2012). The Relationship Between Anxiety and Repetitive Behaviours in Autism Spectrum Disorder. Journal of Autism and Developmental Disorders, 42(11), 2404–2409. doi:10.1007/s10803-012-1531-y
[26] Schärfe, Øhrstrøm & Gyori. (2009). A Conceptual Analysis of Difficult Situations – developing systems for teenagers with ASD.
[27] Sideraki, Angeliki & Maradou, Efthalia & Papageorgiou, Elisavet & Tsiava, Malvina & Drigas, Athanasios. (2022). Stress, Hormones & the role of ICT in autism. 3. 45-59. 10.47577/biochemmed.v3i1.5786.
[28] Simonoff, E., Pickles, A., Charman, T., Chandler, S., Loucas, T., & Baird, G. (2008). Psychiatric Disorders in Children With Autism Spectrum Disorders: Prevalence, Comorbidity, and Associated Factors in a Population-Derived Sample.
[29] Sivaratnama, C., L. Newmanb, C. , Rineharta, N. (2018). Child & Adolescent Psychiatry, 47(8), 921–929. Emotion-recognition and theory of mind in high-functioning children with ASD: Relationships with attachment security and executive functioning. doi:10.1097/chi.0b013e318179964f
[30] Van Steensel, F. J. A., Bögels, S. M., & de Bruin, E. I. (2012). Psychiatric Comorbidity in Children with Autism Spectrum Disorders: A Comparison with Children with ADHD. Journal of Child and Family Studies, 22(3), 368–376. doi:10.1007/s10826-012-9587-z
[31] Vogan, V. M., Leung, R. C., Safar, K., Martinussen, R., Smith, M. L., & Taylor, M. J. (2018). Longitudinal Examination of Everyday Executive Functioning in Children With ASD: Relations With Social, Emotional, and Behavioral Functioning Over Time. Frontiers in Psychology, 9. doi:10.3389/fpsyg.2018.01774
[32] White, S. W., Oswald, D., Ollendick, T., & Scahill, L. (2009). Anxiety in children and adolescents with autism spectrum disorders. Clinical Psychology Review, 29(3), 216–229. doi:10.1016/j.cpr.2009.01.003
[33] Zorcec, T., Robins, B., & Dautenhahn, K. (2018). Getting Engaged: Assisted Play with a Humanoid Robot Kaspar for Children with Severe Autism. ICT Innovations 2018. Engineering and Life Sciences, 198–207. doi:10.1007/978-3-030-00825-3_17
[34] Stavridou Th., Driga, A.M., Drigas, A.S., Blood Markers in Detection of Autism ,International Journal of Recent Contributions from Engineering Science & IT (iJES) 9(2):79-86. 2021.
[35] Zavitsanou, A., & Drigas, A. (2021). Nutrition in mental and physical health. Technium Soc. Sci. J., 23, 67.
[36] Driga, A.M., Drigas, A.S. "Climate Change 101: How Everyday Activities Contribute to the Ever-Growing Issue", International Journal of Recent Contributions from Engineering, Science & IT, vol. 7(1), pp. 22-31, 2019. https://doi.org/10.3991/ijes.v7i1.10031
[37] Driga, A.M., and Drigas, A.S. "ADHD in the Early Years: Pre-Natal and Early Causes and Alternative Ways of Dealing." International Journal of Online and Biomedical Engineering (IJOE), vol. 15, no. 13, 2019, p. 95., doi:10.3991/ijoe.v15i13.11203
[38] A Fotoglou, I Moraiti, A Diamantis, V Stergios, Z Gavriilidou, A Drigas 2022 Nutritious Diet, Physical Activity and Mobiles. The Game Changers of ADHD BioChemMed 3 (2), 87-106
[39] V Tsopanidou, A Drigas 2022 ENVIRONMENTAL FACTORS AND THEIR EFFECT ON THE OCCURRENCE OF AUTISM BioChemMed 3 (1)
[40] AS Drigas, MA Pappas 2015 A review of mobile learning applications for mathematics. International Journal of Interactive Mobile Technologies 9 (3)
[41] Vlachou J. and Drigas, A. S., "Mobile technology for students and adults with Autistic Spectrum Disorders (ASD)," International Journal of Interactive Mobile Technologies, vol. 11(1), pp. 4-17, 2017
[42] Papoutsi C., Drigas, A. S., and C. Skianis, "Mobile Applications to Improve Emotional Intelligence in Autism – A Review," Int. J. Interact. Mob. Technol. (iJIM); Vol 12, No 6, 2018
[43] Karabatzaki, Z., Stathopoulou, A., Kokkalia, G., Dimitriou, E., Loukeri, P., Economou A., & Drigas, A. (2018). Mobile Application Tools for Students in Secondary Education. An Evaluation Study. International Journal of Interactive Mobile Technologies (iJIM), 12(2), 142-161

[44] Drigas, A. S., and Angelidakis P., 'Mobile Applications within Education: An Overview of Application Paradigms in Specific Categories', International Journal of Interactive Mobile Technologies (iJIM), vol. 11, no. 4, p. 17, May 2017. https://doi.org/10.3991/ijim.v11i4. 6589
[45] Stathopoulou A., Loukeris D., Karabatzaki Z., Politi E., Salapata Y., and Drigas, A. S., "Evaluation of Mobile Apps Effectiveness in Children with Autism Social Training via Digital Social Stories," Int. J. Interact. Mob. Technol. (iJIM); Vol 14, No 03, 2020
[46] Stathopoulou, et all Mobile assessment procedures for mental health and literacy skills in education. International Journal of Interactive Mobile Technologies, 12(3), 21-37, 2018,
[47] Drigas, A., Kokkalia, G. & Lytras, M. D. (2015). Mobile and Multimedia Learning in Preschool Education. J. Mobile Multimedia, 11(1/2), 119–133.
[48] Stathopoulou, A., Karabatzaki, Z., Kokkalia, G., Dimitriou, E., Loukeri, P.I., Economou, A., and Drigas, A. (2018). Mobile assessment procedures for mental health and literacy skills in education. International Journal of Interactive Mobile Technologies (iJIM), 12(3):21-37. https://doi.org/10.3991/ijim.v12i3.8038
[49] Drigas, A.S., Ioannidou, R.E., Kokkalia, G. and Lytras, M. (2014), "ICTs, mobile learning and social media to enhance learning for attention difficulties", Journal of Universal Computer Science, Vol. 20 No. 10, pp. 1499-1510.
[50] Kokkalia G. K. and Drigas, A. S., "Mobile learning for special preschool education," International Journal of Interactive Mobile Technologies, vol. 10 (1), pp. 60-67, 2016
[51] G Kokkalia, AS Drigas, A Economou 2016 Mobile learning for preschool education. International Journal of Interactive Mobile Technologies 10 (4)
[52] A Stathopoulou, Z Karabatzaki, D Tsiros, S Katsantoni, A Drigas 2022 Mobile apps the educational solution for autistic students in secondary education International Association of Online Engineering
[53] P Leliopoulos, A Drigas 2022 The evolution of wireless mobile networks and the future 5G mobile technology for sustainability. Technium Sustainability, 2(4), 28–43. 2 (4), 28-43
[54] A Doulou, A Drigas, C Skianis 2022 Mobile applications as intervention tools for children with ADHD for a sustainable education. Technium Sustainability, 2(4), 44–62. 2 (4), 44-62
[55] V Tsakou, A Drigas 2022 Early Detection of Preschool Children with ADHD and the role of mobile Apps and AI Technium Social Sciences Journal 30, 127-137
[56] E Karagianni, A Drigas 2022 Language Development and Mobile Apps for Down Syndrome Children Technium Social Sciences Journal 34, 193-213
[57] M Anagnostou, A Drigas 2022 Mobile Applications for stress management Scientific Electronic Archives 15 (2)
[58] Pappas, M.A.; Papoutsi, C.; Drigas, A.S. Policies, Practices, and Attitudes toward Inclusive Education: The Case of Greece. Soc. Sci. 2018, 7, 90.
[59] 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.
[60] Drigas, A. S., J.Vrettaros, L.Stavrou, D.Kouremenos, E-learning Environment for Deaf people in the E-Commerce and New Technologies Sector, WSEAS Transactions on Information Science and Applications, Issue 5, Volume 1, November 2004.
[61] Drigas, A.S., Vrettaros, J. and Kouremenos, D. (2004a) 'Teleeducation and e-learning services for teaching English as a second language to deaf people, whose first language is the sign language', WSEAS Transactions on Information Science and Applications, Vol. 1, No. 3, pp.834–842.
[62] Drigas, A., Koukianakis, L., Papagerasimou, Y., Towards an ICT-based psychology: Epsychology, Computers in Human Behavior, 2011, 27:1416–1423. https://doi.org/10.1016/j.chb.2010.07.045
[63] Charami, F., & Drigas, A. (2014). ICTs in English Learning and Teaching. International Journal of Engineering and Science. Vol. 2(4):4-10. DOI: 10.3991/ijes.v2i4.4016

[64] Drigas A.S., Kouremenos D (2005) An e-learning system for the deaf people. In: WSEAS transaction on advances in engineering education, vol 2, issue 1, pp 20–24
[65] Drigas A., Pappas M, and Lytras M., "Emerging technologies for ict based education for dyscalculia: Implications for computer engineering education," International Journal of Engineering Education, vol. 32, no. 4, pp. 1604–1610, 2016.
[66] Drigas, A. & Kokkalia, G. 2017. ICTs and Special Education in Kindergarten. International Journal of Emerging Technologies in Learning 9 (4), 35–42.
[67] Drigas A., and Koukianakis L., A Modular Environment for E-learning and E-psychology Applications, WSEAS Transactions on Information Science and Application, Vol. 3, 2004, pp. 2062-2067.
[68] Drigas, A., Leliopoulos, P.: Business to consumer (B2C) e-commerce decade evolution. Int. J. Knowl. Soc. Res. (IJKSR) 4(4), 1–10 (2013)
[69] Pappas M, Drigas A, Papagerasimou Y, Dimitriou H, Katsanou N, Papakonstantinou S, et al. Female Entrepreneurship and Employability in the Digital Era: The Case of Greece. Journal of Open Innovation: Technology, Market, and Complexity. 2018; 4(2): 1.
[70] Papanastasiou G., Drigas, A. S., Skianis Ch., M. Lytras & E. Papanastasiou, "Patient-Centric ICTs based Healthcare for students with learning, physical and/or sensory disabilities," Telemat Inform, vol. 35, no. 4, pp. 654–664, 2018. https://doi. org/10.1016/j.tele.2017.09.002
[71] Drigas, A., & Kontopoulou, M. T. L. (2016). ICTs based Physics Learning. International Journal of Engineering Pedagogy (iJEP), 6(3), 53-59. https://doi.org/10.3991/ijep.v6i3. 5899
[72] Papanastasiou, G., Drigas, A., Skianis, C., and Lytras, M. (2020). Brain computer interface based applications for training and rehabilitation of students with neurodevelopmental disorders. A literature review. Heliyon 6:e04250. doi: 10.1016/j.heliyon.2020.e04250
[73] Drigas, A. S., John Vrettaros, and Dimitris Kouremenos, 2005. "An e-learning management system for the deaf people," AIKED '05: Proceedings of the Fourth WSEAS International Conference on Artificial Intelligence, Knowledge Engineering Data Bases, article number 28.
[74] Pappas, M., Demertzi, E., Papagerasimou, Y., Koukianakis, L., Kouremenos, D., Loukidis, I. and Drigas, A. 2018. E-Learning for deaf adults from a user-centered perspective. Education Sciences 8(206): 3-15.
[75] Marios A. Pappas, Eleftheria Demertzi, Yannis Papagerasimou, Lefteris Koukianakis, Nikitas Voukelatos, and Drigas, A. S., 2019. Cognitive Based E-Learning Design for Older Adults. Social Sciences 8, 1 (Jan. 2019), 6. https://doi.org/10.3390/socsci801000
[76] Drigas, A. S., Leyteris Koukianakis: Government online: An e-government platform to improve public administration operations and services delivery to the citizen. WSKS (1), volume 5736 de Lecture Notes in Computer Science, 523–532. Springer, 2009.
[77] Theodorou, P.; Drigas, A. ICTs and Music in Generic Learning Disabilities. Int. J. Emerg. Technol. Learn. 2017, 12, 101–110
[78] Drigas, A., Kokkalia, G., & Lytras, M. D. (2015). ICT and collaborative co-learning in preschool children who face memory difficulties. Computers in Human Behavior, 51, 645–651. https://doi.org/10.1016/j.chb.2015.01.019
[79] Pappas, M.A., & Drigas, A.S. (2015). ICT based screening tools and etiology of dyscalculia. International Journal of Engineering Pedagogy, 3, 61-66.
[80] Drigas, A., & Kostas, I. (2014). On Line and other ICTs Applications for teaching math in Special Education. International Journal of Recent Contributions from Engineering, Science & IT (iJES), 2(4), pp-46. http://dx.doi.org/10.3991/ijes.v2i4.4204
[81] Alexopoulou, A, Batsou, A, Drigas, A. (2019). Resilience and academic underachievement in gifted students: causes, consequences and strategic methods of prevention and intervention. International Journal of Online and Biomedical Engineering (iJOE), vol. 15, no. 14, pp. 78.
[82] Pappas, M. A., & Drigas, A. S. (2015). ICT Based Screening Tools and Etiology of Dyscalculia. International Journal of Engineering Pedagogy, 5(3)

[83] Drigas, A. & Ioannidou, R. E. (2013). Special education and ICT's. International Journal of Emerging Technologies in Learning 8(2), 41– 47.
[84] Drigas, A., & Papanastasiou, G. (2014). Interactive White Boards in Preschool and Primary Education. International Journal of Online and Biomedical Engineering (iJOE), 10(4), 46–51. https://doi.org/10.3991/ijoe.v10i4.3754
[85] Drigas, A. S. and Politi-Georgousi, S. (2019). Icts as a distinct detection approach for dyslexia screening: A contemporary view. International Journal of Online and Biomedical Engineering (iJOE), 15(13):46–60.
[86] Lizeta N. Bakola, Nikolaos D. Rizos, Drigas, A. S., "ICTs for Emotional and Social Skills Development for Children with ADHD and ASD Co-existence"International Journal of Emerging Technologies in Learning (iJET), https://doi.org/10.3991/ijet.v14i05.9430
[87] Kontostavlou, E.Z., & Drigas, A.S. (2019). The Use of Information and Communications Technology (ICT) in Gifted Students. International Journal of Recent Contributions from Engineering, Science and IT, 7(2), 60-67. doi:10.3991/ijes.v7i2.10815
[88] Drigas, A. S., and Vlachou J. A., "Information and communication technologies (ICTs) and autistic spectrum disorders (ASD)," Int. J. Recent Contrib. Eng. Sci. IT (iJES), vol. 4, no. 1, p. 4, 2016. https://doi.org/10.3991/ijes.v4i1.5352
[89] Drigas, A. S., Koukianakis, L, Papagerasimou, Y. (2006) "An elearning environment for nontraditional students with sight disabilities.", Frontiers in Education Conference, 36th Annual. IEEE, p. 23-27.
[90] Drigas A., and Koukianakis L. An open distance learning e-system to support SMEs e-enterprising. In proceeding of 5th WSEAS Internationalconference on Artificial intelligence, knowledge engineering, data bases (AIKED 2006). Spain
[91] AS Drigas, LG Koukianakis, YV Papagerasimou 2005 A system for e-inclusion for individuals with sight disabilities Wseas transactions on circuits and systems 4 (11), 1776-1780
[92] MT Kontopoulou, V Papageorgiou, E Malli, L Mertsioti, A Drigas 2022 Special education in science teaching Technium Education and Humanities 2 (4), 19-33
[93] E Karagianni, A Drigas 2022 The contribution of ICTs to the Down Syndrome Children's Language and Cognitive Development Technium Education and Humanities 2 (3), 19-40
[94] I Chaidi, A Drigas 2022 "Digital Learning: Differentiated Teaching Models using e-Twinning I COMMUNICATE WITH MY NEIGHBOR THROUGH CULTURE AND TRADITION: e - Twinning Project" Technium Education and Humanities 2 (3), 59-77
[95] M Karyotaki, A Drigas 2022 The impact of digital technologies and social networks in young women and young mother's entrepreneurship and employability Technium Sustainability 2 (5), 79-91
[96] C Dimitropoulos, C Katsigera-Svoronou, A Rizou, SM Hantziara, A Hasioti, ... 2022 The Use of ICTs by Children and Young People with Mental Retardation and Syndrome Down in Domains of their Daily Life Sustainability 2 (5), 16-38
[97] M Tsakiridou, A Drigas 2022 A REVIEW OF STRESS ON STUDENTS WITH ADHD. THE ROLE OF ICTS & MENDAL INTERVENTIONS TO IMPROVE PRODUCTIVITY Technium Sustainability 2 (5), 39-57
[98] M Tsakiridou, A Drigas 2022 CAUSES OF STRESS ON CHILDREN WITH ADHD AND THE ROLE OF ICTS Technium BioChemMed 3 (3), 12-20
[99] H Koutsonika, A Drigas 2022 High functioning ASD profile adult employees in global labour markets. ICT supported employment Technium Sustainability 2 (4), 17-27
[100] T Vouglanis, AM Driga, A Drigas 2022 Physical and mental exercise to create new congenial neurons, to increase intelligence and the role of ICTs. Technium BioChemMed 3 (3), 21-36
[101] T Vouglanis, A Drigas 2022 The internet addiction and the impact on the cognitive, psychological and social side of people's personality with disabilities Technium Social Sciences Journal 35 (1), 93–110

[102] TM Hasioti, A Drigas, D Loukeris, Z Gavriilidou 2022 Asperger Syndrome and Assistive Technologies Technium Social Sciences Journal 35 (1), 285–295
[103] P Vasilakou, S Mineiko, TM Hasioti, Z Gavriilidou, A Drigas 2022 The accessibility of visually impaired people to museums and art through ICTs Technium Social Sciences Journal 35 (1), 263–284
[104] T Vouglanis, A Drigas 2022 The positive impact of Internet on the cognitive, psychological and social side of people's personality with disabilities Technium Social Sciences Journal 35 (1), 29–42.
[105] T Vouglanis, A Drigas 2022 The positive impact of Internet on the cognitive, psychological and social side of people's personality with disabilities Technium Social Sciences Journal 35 (1), 29–42.
[106] I Chaidi, A Drigas 2022 Key to Behavioral Observation of Developmental Disorders by teachers in Greek School and the role of ICTs. Technium Social Sciences Journal 34, 110-125
[107] I Moraiti, A Fotoglou, K Dona, A Katsimperi, K Tsionakas, Z Karampatzaki, ... 2022 Assistive Technology and Internet of Things for people with ADHD Technium Social Sciences Journal 32, 204-222
[108] E Gkeka, A Drigas 2022 Ict's and Dysgraphia Technium Social Sciences Journal 31, 228-240
[109] A Fotoglou, I Moraiti, K Dona, A Katsimperi, K Tsionakas, Z Karabatzaki, ... 2022 IoT Applications help people with Autism Technium Social Sciences Journal, 115-130
[110] A Doulou, A Drigas 2022 Behavioral Problems and ICTs: Research and analysis in schools in Athens Technium Social Sciences Journal 29, 181-197
[111] I Chaidi, A Drigas, C Karagiannidis 2021 ICT in special education Technium Soc. Sci. J. 23, 187
[112] L Bakola, I Chaidi, A Drigas, C Skianis, C Karagiannidis 2022 Women with Special Educational Needs. Policies & ICT for Integration &EqualityTechnium Social Sciences Journal
[113] M Karyotaki, L Bakola, A Drigas, C Skianis 2022 Womens Leadership via Digital Technology and Entrepreneurship in business and society Technium Social Sciences Journal
[114] A Drigas, A Petrova 2014 ICTs in speech and language therapy. International Journal of Engineering Pedagogy (iJEP) 4 (1), 49-54
[115] Kefalis C and Drigas A. (2019) Web Based and Online Applications in STEM Education. International Journal of Engineering Pedagogy (iJEP) 9, 4 (2019), 76–85.https://doi.org/10.3991/ijep.v9i4.10691
[116] Drigas, A. S., Rodi-Eleni Ioannidou, A Review on Artificial Intelligence in Special Education, Information Systems, Elearning, and Knowledge Management Research Communications in Computer and Information Science Volume 278, pp 385-391, 2013 http://dx.doi.org/10.1007/978-3-642-35879-1_46
[117] Drigas, A., Vrettaros, J.: An Intelligent Tool for Building e-Learning Contend-Material Using Natural Language in Digital Libraries. WSEAS Transactions on Information Science and Applications 5(1) (2004) 1197–1205
[118] Drigas, A.S., Vrettaros, J., Koukianakis, L.G. and Glentzes, J.G. (2005). A Virtual Lab and e-learning system for renewable energy sources. Int. Conf. on Educational Tech.
[119] Drigas AS, Argyri K, Vrettaros J (2009) Decade review (1999-2009): artificial intelligence techniques in student modeling. In: World Summit on Knowledge Society. Springer, pp 552–564
[120] Vrettaros, J., Tagoulis, A., Giannopoulou, N., & Drigas, A. (2009). An empirical study on the use of Web 2.0 by Greek adult instructors in educational procedures. World Summit on Knowledge System (WSKS), 49, 164-170. http://dx.doi.org/10.1007/978-3-642-04757-2_18
[121] Drigas, A., Dourou, A. (2013). A Review on ICTs, E-Learning and Artificial Intelligence for Dyslexic's Assistance. iJet, 8(4), 63-67.
[122] Drigas, A. S., Ioannidou,E.R., (2012), Artificial intelligence in special education: A decade review, International Journal of Engineering Education, vol. 28, no. 6.

[123] Drigas, A. S., and Leliopoulos, Panagiotis, The Use of Big Data in Education, International Journal of Computer Science Issues, Vol. 11, Issue 5, 2014, 58-63
[124] Anagnostopoulou, P., Alexandropoulou, V., Lorentzou, G., Lykothanasi, A., Ntaountaki, P., & Drigas, A. (2020). Artificial intelligence in autism assessment. International Journal of Emerging Technologies in Learning, 15(6), 95-107. https://doi.org/10.3991/ijet.v15i06.11231
[125] Pappas, M., & Drigas, A. (2016). Incorporation of artificial intelligence tutoring techniques in mathematics. International Journal of Engineering Pedagogy, 6(4), 12–16. https://doi.org/10.3991/ijep.v6i4.6063
[126] N Lytra, A Drigas 2021STEAM education-metacognition–Specific Learning Disabilities Scientific Electronic Archives 14 (10)
[127] E Mitsea, N Lytra, A Akrivopoulou, A Drigas 2020 Metacognition, Mindfulness and Robots for Autism Inclusion. Int. J. Recent Contributions Eng. Sci. IT 8 (2), 4-20
[128] E Karagianni, A Drigas 2022 The STEM Education of Down Syndrome Children in Algorithmic and Computation Thinking for a sustainable life Technium Sustainability 2 (5), 58-78
[129] S Kouloumenta, A Drigas 2022 The use of Robotics for the Development of Social Skills for Children with ASD Technium Education and Humanities 2 (4), 51-62
[130] M Karyotaki, A Drigas, C Skianis 2022 Chatbots as Cognitive, Educational, Advisory & Coaching Systems Technium Social Sciences Journal 30, 109-126
[131] A Sideraki, A Drigas Artificial Intelligence (AI) in Autism Technium Social Sciences Journal 26, 262-277
[132] E Chaidi, C Kefalis, Y Papagerasimou, A Drigas 2021 Educational robotics in Primary Education. A case in Greece. Research, Society and Development 10 (9), e17110916371-e17110916371
[133] I Chaidi, A Drigas 2022 Digital games & special education Technium Social Sciences Journal 34, 214-236
[134] Papanastasiou, G. P., Drigas, A. S., & Skianis, C. (2017). Serious games in preschool and primary education: Benefits and impacts on curriculum course syllabus. International Journal of Emerging Technologies in Learning, 12(1), 44–56. https://doi.org/10.3991/ijet.v12i01.6065
[135] Kokkalia, G., Drigas, A., Economou, A., Roussos, P., & Choli, S. (2017). The use of serious games in preschool education. International Journal of Emerging Technologies in Learning, 12(11), 15-27. https://doi.org/10.3991/ijet.v12i11.6991
[136] Drigas, A. S., and Pappas M.A. "On line and other Game-Based Learning for Mathematics." International Journal of Online Engineering (iJOE) 11.4, 62-67, 2015 https://doi.org/10.3991/ijoe.v11i4.4742
[137] 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, 51(4), 424-440. https://doi.org/10.1108/prog-02-2016-0020
[138] Drigas, A. S., & Kokkalia, G. K. (2014). ICTs in Kindergarten. International Journal of Emerging Technologies in Learning, 9(2). https://doi.org/10.3991/ijet.v9i2.3278
[139] A Doulou, A Drigas 2022 Electronic, VR & Augmented Reality Games for Intervention in ADHD Technium Social Sciences Journal
[140] Kokkalia, G., Drigas, A., & Economou, A. (2016). The role of games in special preschool education. International Journal of Emerging Technologies in Learning (iJET), 11(12), 30-35.
[141] V Bravou, A Drigas 2021 BCI-based games and ADHD Research, Society and Development 10 (4), e52410413942-e52410413942
[142] I Chaidi, A Drigas 2022 Questionnaire of parents' opinions on digital games in the education of children with autism spectrum disorder in a Greek context Technium Social Sciences Journal 34, 248-270
[143] E Karagianni, A Drigas 2022 Digital Games for Down Syndrome Children's Language and Cognitive Development Technium Social Sciences Journal 35 (1), 162–185

[144] C Gatsakou, N Bardis, A Drigas 2022 The usage of RPGS as an interdisciplinary method of teaching dyslexic students Technium Social Sciences Journal 27, 207-216
[145] C Gatsakou, N Bardis, A Drigas 2021 Role playing vs RPGs as teaching strategies in educational procedure Technium Social Sciences Journal 26, 186-193
[146] N Doukas, N Bardis, A Drigas 2022 A Strategy Game Using Adaptive Agents and Reinforcement Learning Technium Education and Humanities 2 (2), 33-46
[147] G Papanastasiou, A Drigas, C Skianis 2022 Serious Games: How do they impact special education needs children Technium Education and Humanities 2 (3), 41-58
[148] G Papanastasiou, A Drigas, C Skianis 2022 Serious Games in pre-K and K-6 education. Technium Education and Humanities 2 (3), 1-18
[149] V Bravou, D Oikonomidou, A Drigas 2022 Applications of Virtual Reality for Autism Inclusion. A review Retos 45, 779-785
[150] I Chaidi, A Drigas 2022 Digital games & special education Technium Social Sciences Journal 34, 214-236
[151] Drigas, A., & Mitsea, E. (2020). The 8 Pillars of Metacognition. International Journal of Emerging Technologies in Learning (iJET), 15(21), 162-178. https://doi.org/10.3991/ijet. v15i21.14907
[152] Drigas, A., & Papoutsi, C. (2019). Emotional intelligence as an important asset for HR in organizations: Leaders and employees. International Journal of Advanced Corporate Learning, 12(1). https://doi.org/10.3991/ijac.v12i1.9637
[153] Drigas, A. S., and M. Pappas, "The Consciousness-Intelligence-Knowledge Pyramid: An 8x8 Layer Model," International Journal of Recent Contributions from Engineering, Science & IT (iJES), vol. 5, no.3, pp 14-25, 2017. https://doi.org/10.3991/ijes.v5i3.7680
[154] Mitsea, E., & Drigas, A. (2019). A journey into the metacognitive learning strategies. International Journal of Online & Biomedical Engineering, 15(14). https://doi.org/ 10.3991/ijoe.v15i14.11379
[155] Drigas A, Karyotaki M (2017) Attentional control and other executive functions. Int J Emerg Technol Learn iJET 12(03):219–233
[156] Drigas A, Karyotaki M 2014. Learning Tools and Application for Cognitive Improvement. International Journal of Engineering Pedagogy, 4(3): 71-77. From (Retrieved on 13 May 2016)
[157] Drigas, A., & Mitsea, E. (2021). 8 Pillars X 8 Layers Model of Metacognition: Educational Strategies, Exercises &Trainings. International Journal of Online & Biomedical Engineering, 17(8). https://doi.org/10.3991/ijoe.v17i08.23563
[158] Drigas A., Papoutsi C. (2020). The Need for Emotional Intelligence Training Education in Critical and Stressful Situations: The Case of COVID-19. Int. J. Recent Contrib. Eng. Sci. IT 8 (3), 20–35. 10.3991/ijes.v8i3.17235
[159] Drigas, A., & Mitsea, E. (2020). The Triangle of Spiritual Intelligence, Metacognition and Consciousness. International Journal of Recent Contributions from Engineering, Science & IT (iJES), 8(1), 4-23. https://doi.org/10.3991/ijes.v8i1.12503
[160] Kokkalia, G., Drigas, A. Economou, A., & Roussos, P. (2019). School readiness from kindergarten to primary school. International Journal of Emerging Technologies in Learning, 14(11), 4-18.
[161] Drigas, A., & Mitsea, E. (2021). Metacognition, stress-relaxation balance & related hormones. International Journal of Recent Contributions from Engineering, Science & IT (iJES), 9(1), 4–16. https://doi.org/10.3991/ijes.v9i1.19623
[162] Pappas M, Drigas A. Computerized Training for Neuroplasticity and Cognitive Improvement. International Journal of Engineering Pedagogy. 2019;.(4):50-62
[163] Papoutsi, C. and Drigas, A. (2017) Empathy and Mobile Applications. International Journal of Interactive Mobile Technologies 11. 57. https://doi.org/10.3991/ijim.v11i3.6385
[164] Papoutsi, C. & Drigas, A. (2016). Games for Empathy for Social Impact. International Journal of Engineering Pedagogy 6(4), 36-40.

[165] Karyotaki, M., & Drigas, A. (2015). Online and other ICT Applications for Cognitive Training and Assessment. International Journal of Online and Biomedical Engineering. 11(2), 36-42.
[166] Papoutsi, C., Drigas, A., & Skianis, C. (2019). Emotional intelligence as an important asset for HR in organizations: Attitudes and working variables. International Journal of Advanced Corporate Learning, 12(2), 21–35. https://doi.org/10.3991/ijac.v12i2.9620
[167] Chaidi I. and Drigas, A. S., "Autism, Expression, and Understanding of Emotions: Literature Review," Int. J. Online Biomed. Eng., vol. 16, no. 02, pp. 94–111, 2020. https://doi.org/10.3991/ijoe.v16i02.11991
[168] Drigas, A. S., & Karyotaki, M. (2019). A Layered Model of Human Consciousness. International Journal of Recent Contributions from Engineering, Science & IT (iJES), 7(3), 41- 50. https://doi.org/10.3991/ijes.v7i3.11117
[169] Drigas, A. S., Karyotaki, M., & Skianis, C. (2018). An Integrated Approach to Neuro-development, Neuroplasticity and Cognitive Improvement. International Journal of Recent Contributions from Engineering, Science & IT (iJES), 6(3), 4-18.
[170] Karyotaki M. and Drigas, A. S., "Latest trends in problem solving assessment," International Journal of Recent contributions from Engineering, Science & IT (iJES), vol. 4, no. 2, 2016. [Online serial]. Available: https://online-journals.org/index.php/i-jes/article/view/5800/. [Accessed Aug. 21, 2019]. https://doi.org/10.3991/ijes.v4i2.5800
[171] Mitsea E., Drigas, A. S., and Mantas P., "Soft Skills & Metacognition as Inclusion Amplifiers in the 21st Century," Int. J. Online Biomed. Eng. IJOE, vol. 17, no. 04, Art. no. 04, Apr. 2021. https://doi.org/10.3991/ijoe.v17i04.20567
[172] Angelopoulou, E. Drigas, A. (2021). Working Memory, Attention and their Relationship: A theoretical Overview. Research. Society and Development,10(5), 1-8. https://doi.org/10.33448/rsd-v10i5.15288
[173] Tourimpampa, A., Drigas, A., Economou, A., & Roussos, P. (2018). Perception and text comprehension. It'sa matter of perception! International Journal of Emerging Technologies in Learning (iJET). Retrieved from https://online-journals.org/index.php/ijet/article/view/7909/5051
[174] A Drigas, E Mitsea 2020 A metacognition based 8 pillars mindfulness model and training strategies. International Journal of Recent Contributions from Engineering, Science & IT …
[175] C Papoutsi, A Drigas, C Skianis 2021 Virtual and augmented reality for developing emotional intelligence skills Int. J. Recent Contrib. Eng. Sci. IT (IJES) 9 (3), 35-53
[176] S Kapsi, S Katsantoni, A Drigas 2020 The Role of Sleep and Impact on Brain and Learning. Int. J. Recent Contributions Eng. Sci. IT 8 (3), 59-68
[177] A Drigas, E Mitsea, C Skianis 2021 The Role of Clinical Hypnosis and VR in Special Education International Journal of Recent Contributions from Engineering Science & IT …
[178] V Galitskaya, A Drigas 2021 The importance of working memory in children with Dyscalculia and Ageometria Scientific Electronic Archives 14 (10)
[179] I Chaidi, A Drigas 2020 Parents' Involvement in the Education of their Children with Autism: Related Research and its Results International Journal Of Emerging Technologies In Learning (Ijet) 15 (14 …
[180] A Drigas, E Mitsea 2021 Neuro-Linguistic Programming & VR via the 8 Pillars of Metacognition X 8 Layers of Consciousness X 8 Intelligences Technium Soc. Sci. J. 26, 159
[181] A Drigas, E Mitsea 2022 Conscious Breathing: a Powerful Tool for Physical & Neuropsychological Regulation. The role of Mobile Apps Technium Social Sciences Journal
[182] A Drigas, E Mitsea, C Skianis 2022 Clinical Hypnosis & VR, Subconscious Restructuring-Brain Rewiring & the Entanglement with the 8 Pillars of Metacognition X 8 Layers of Consciousness X 8 Intelligences. International Journal of Online & Biomedical Engineering 18 (1)
[183] I Chaidi, A Drigas 2022 Emotional intelligence and autism spectrum disorder. Technium Social Sciences Journal 35 (1), 126–151

[184] I Chaidi, A Drigas 2022 Emotional intelligence and learning, and the role of ICTs. Technium Social Sciences Journal 35 (1), 56–78
[185] C Papoutsi, A Drigas, C Skianis 2022 Serious Games for Emotional Intelligence's Skills Development for Inner Balance and Quality of Life-A Literature Review. Retos: nuevas tendencias en educación física, deporte y recreación 46, 199-208
[186] V Bamicha, A Drigas 2022 The Evolutionary Course of Theory of Mind - Factors that facilitate or inhibit its operation & the role of ICTs. Technium Social Sciences Journal 30, 138-158
[187] I Chaidi, A Drigas 2022 Social and Emotional Skills of children with ASD: Assessment with Emotional Comprehension Test (TEC) in a Greek context and the role of ICTs. Technium Social Sciences Journal 33, 146-163
[188] I Chaidi, A Drigas 2022 "Parents' views Questionnaire for the education of emotions in Autism Spectrum Disorder" in a Greek context and the role of ICTs. Technium Social Sciences Journal 33, 73-91
[189] A Drigas, A Sideraki 2021 Emotional Intelligence in Autism. Technium Soc. Sci. J. 26, 80
[190] E Mitsea, A Drigas, C Skianis 2022 Metacognition in Autism Spectrum Disorder: Digital Technologies in Metacognitive Skills Training. Technium Social Sciences Journal, 153-173
[191] A Drigas, E Mitsea, C Skianis 2022 Virtual Reality and Metacognition Training Techniques for Learning Disabilities SUSTAINABILITY Special Issue Digital Technologies for Sustainable Education …
[192] E Mitsea, A Drigas, C Skianis 2022 Breathing, Attention & Consciousness in Sync: The role of Breathing Training, Metacognition & Virtual Reality Technium Social Sciences Journal 29, 79-97
[193] A Drigas, M Karyotaki Online and other ICT-based Assessment Tools for Problem-solving Skills International Journal of Emerging Technologies in Learning (Online) 11 (4), 56
[194] A Drigas, E Mitsea, C Skianis Intermittent Oxygen Fasting and Digital Technologies: from Antistress and Hormones Regulation to Wellbeing, Bliss and Higher Mental States BioChemMed 3 (2), 55-73
[195] A Sideraki, A Drigas Artificial Intelligence (AI) in Autism Technium Social Sciences Journal 26, 262-277
[196] E Mitsea, A Drigas, C Skianis Cutting-Edge Technologies in Breathwork for Learning Disabilities in Special Education Technium Social Sciences Journal 34, 136-157
[197] A Drigas, E Mitsea, C Skianis Subliminal Training Techniques for Cognitive, Emotional and Behavioural Balance. The role of Emerging Technologies Technium Social Sciences Journal 33, 164-186
[198] A Stathopoulou, M Liouni, Y Salapata, A Drigas 2022 Emotional difficulties and post-traumatic stress disorder symptoms in children refugees & the role of ICTs: A case study in northern Greece borders Technium Social Sciences Journal 31, 213-227
[199] C Gatsakou, N Bardis, A Drigas 2022 The Theatre of Mind: An educational tool of teaching Emotional Intelligence via ICTs and distant learning Technium Social Sciences Journal 31, 241-255
[200] I Chaidi, C Papoutsi, A Drigas, C Skianis 2022 Women: E-Entrepreneurship and Emotional Intelligence Technium Social Sciences Journal 30, 214-237
[201] V Bravou, AM Driga, A Drigas 2022 Emotion Regulation, the Function of Stress Hormones & Digital Technologies BioChemMed 3 (2), 27-34
[202] E Angelopoulou, A Drigas 2022 Working memory interventions via physical activity and ICTs: A strategic issue for the improvement of school students' learning performance Technium Social Sciences Journal 30, 200-213
[203] M Zografou, A Drigas 2022 The role of executive functions and ICTs in anxiety management of children with learning disabilities Scientific Electronic Archives 15 (8), 22-28
[204] E Angelopoulou, Z Karabatzaki, A Drigas 2021 Assessing working memory in general education students for ADHD detection Research, Society and Development 10 (10), e138101018766-e138101018766

[205] T Vouglanis, AM Driga, A Drigas 2022 Charismatic Children: Heredity, Environment and ICTs Technium Sustainability 2 (5), 1-15
[206] A Drigas, MT Kontopoulou, A Gougoudi, K Kantzavelou, L Mertzioti 2022 The education of Gifted in Special Education domain and the role of ICTs Technium Education and Humanities Drigas 2 (4), 1-18
[207] A Drigas, MT Kontopoulou, A Gougoudi, K Kantzavelou, L Mertzioti 2022 Assessing and Recognizing Gifted Children using ICTs Technium Education and Humanities 2 (4), 78-96
[208] E Batziaka, D Galanopoulou, I Papadogiannis, M Papapetrou, A Drigas 2022 ADHD and Giftedness and the role of ICTs Technium Education and Humanities 2 (4), 34-50
[209] A Drigas, MT Kontopoulou, A Gougoudi, K Kantzavelou, L Mertzioti 2022 Educating Gifted Students and the role of ICTs and STEM Technium Sustainability 2 (4), 63-79
[210] V Galitskaya, M Batzaka, E Kasapoglou, A Drigas 2022 Giftedness: A Three Way Approach and the role of ICTs Technium Social Sciences Journal 30, 238-251
[211] E Mitsea, A Drigas, C Skianis 2022 Mindfulness for Anxiety Management and Happiness: The Role of VR, Metacognition, and Hormones Technium BioChemMed 3 (3), 37-52
[212] A Drigas, E Mitsea, C Skianis 2022 Virtual Reality and Metacognition for Learning Disabilities Encyclopedia: Where Brilliant Minds Gather
[213] E Mitsea, A Drigas, C Skianis 2022 Mindfulness Strategies for Metacognitive Skills Training in Special Education: The Role of Virtual Reality Technium Social Sciences Journal 35 (1), 232–262
[214] A Sideraki, A Drigas 2022 Comparative analysis on: Metacognition and Mindfulness in twins with Attachment and children with ASD through I.C.T. Technium Social Sciences Journal 34, 90-109
[215] A Sideraki, A Drigas 2022 Comparative analysis on: Metacognition and Mindfulness in twins with Attachment and children with ASD through I.C.T. Technium Social Sciences Journal 34, 90-109
[216] P Chatzivasileiou, A Drigas 2022 ICTs for the Cognitive and Metacognitive abilities of the students with Specific Learning Disorder in Mathematics Technium Social Sciences Journal 31, 256-279
[217] P Chatzivasileiou, A Drigas 2022 ICTs for the Development of the Cognitive and Metacognitive abilities of the students with Specific Learning Disorder in Mathematics Technium Social Sciences Journal, 256-279
[218] P Chatzivasileiou, A Drigas 2022 ICTs for the Assessment of the Cognitive and Metacognitive abilities of the students with Specific Learning Disorder in Mathematics Technium Social Sciences Journal 31, 131-152
[219] B Victoria, A Drigas 2022 ToM & ASD: The Interconnection of Theory of Mind with the Social-Emotional, Cognitive Development of Children with Autism Spectrum Disorder. The Use of ICTs as an Alternative … Technium Soc. Sci. J. 33, 42
[220] A Drigas, M Karyotaki 2019 Attention and its Role: Theories and Models. International Journal of Emerging Technologies in Learning 14 (12), 169-182
[221] A Drigas, M Karyotaki 2019 Executive Functioning and Problem Solving: A Bidirectional Relation. International Journal of Engineering Pedagogy (iJEP) 9 (3)
[222] V Bamicha, A Drigas 2022 ToM & ASD: The interconnection of Theory of Mind with the social-emotional, cognitive development of children with Autism Spectrum Disorder. The use of ICTs as an alternative … Technium Social Sciences Journal 33, 42-72
[223] A Drigas, E Mitsea, C Skianis 2022 Neuro-Linguistic Programming, Positive Psychology & VR in Special Education. Scientific Electronic Archives 15 (1)