



**ΔΗΜΟΚΡΕΙΤΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΡΑΚΗΣ**  
**ΣΧΟΛΗ ΚΛΑΣΙΚΩΝ ΚΑΙ ΑΝΘΡΩΠΙΣΤΙΚΩΝ ΣΠΟΥΔΩΝ**  
**ΤΜΗΜΑ ΕΛΛΗΝΙΚΗΣ ΦΙΛΟΛΟΓΙΑΣ**  
σε συνεργασία με το  
**ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΕΡΕΥΝΑΣ ΦΥΣΙΚΩΝ ΕΠΙΣΤΗΜΩΝ**  
**«ΔΗΜΟΚΡΙΤΟΣ»**  
**ΙΝΣΤΙΤΟΥΤΟ ΠΛΗΡΟΦΟΡΙΚΗΣ ΚΑΙ ΤΗΛΕΠΙΚΟΙΝΩΝΙΩΝ**

ΔΙΔΡΥΜΑΤΙΚΟ ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ:  
ΕΞΕΙΔΙΚΕΥΣΗ ΣΤΙΣ Τ.Π.Ε. ΚΑΙ ΕΙΔΙΚΗ ΑΓΩΓΗ – ΨΥΧΟΠΑΙΔΑΓΩΓΙΚΗ ΤΗΣ ΕΝΤΑΞΗΣ

**ΜΕΤΑΠΤΥΧΙΑΚΗ ΔΙΑΤΡΙΒΗ**

**Προγράμματα παρέμβασης για την ένταξη των μαθητών με ΔΕΠ-Υ  
στην πρωτοβάθμια εκπαίδευση- Ο ρόλος των ΤΠΕ**

Σεβοπούλου Παναγιώτα, Α.Μ.560

Μεταπτυχιακή διατριβή που υποβάλλεται στην τριμελή επιτροπή για την απόκτηση του μεταπτυχιακού τίτλου του Προγράμματος Μεταπτυχιακών Σπουδών Εξειδίκευσης του Τ.Ε.Φ. – Δ.Π.Θ. σε συνεργασία με το Ε.Κ.Ε.Φ.Ε. Δημόκριτος – Ινστιτούτο Πληροφορικής και Τηλεπικοινωνιών με τίτλο: «Εξειδίκευση στις Τ.Π.Ε. και Ειδική Αγωγή – Ψυχοπαιδαγωγική της Ένταξης»

Εγκεκριμένο από την τριμελή επιτροπή:

Επιβλέπων Καθηγητής:

Δρ. Διονύσιος Λουκέρης

2<sup>ο</sup> Μέλος:

Δρ. Αγάθη Σταθοπούλου

3<sup>ο</sup> Μέλος

Δρ. Ζαχαρούλα Ταβουλάρη

Αθήνα

2023

## ΠΕΡΙΛΗΨΗ

Το βασικό ερευνητικό ερώτημα που καλείται να απαντήσει η παρούσα μελέτη αφορά την σημασία των προγραμμάτων παρέμβασης για την ένταξη των μαθητών με ΔΕΠΥ στην πρωτοβάθμια εκπαίδευση και τον ρόλο των ΤΠΕ. Η παρούσα μελέτη υιοθετεί τη μεθοδολογία της βιβλιογραφικής ανασκόπησης. Στο πλαίσιο αυτό χρησιμοποιήθηκαν έρευνες που αναζητήθηκαν σε διεθνείς βάσεις δεδομένων όπως η Medline, η PubMed, η Google Scholar, η Science Direct και η Taylor & Francis. Στην αναζήτηση στις βάσεις δεδομένων χρησιμοποιήθηκαν οι όροι students, interventions, gamification, ICT, ADHD. Η ενσωμάτωση των ψηφιακών τεχνολογιών στον τομέα της εκπαίδευσης είναι πολύ παραγωγική και επιτυχημένη, διευκολύνει και βελτιώνει τις εκπαιδευτικές διαδικασίες και παράλληλα βελτιώνει τα επίπεδα άγχους των μαθητών, μέσω κινητών τηλεφώνων, διαφόρων εφαρμογών ΤΠΕ, και παιχνιδιών. Επιπλέον ο συνδυασμός των ΤΠΕ με θεωρίες και μοντέλα μεταγνώσης, ενσυνειδητότητας, διαλογισμού και καλλιέργειας συναισθηματικής νοημοσύνης καθώς και με περιβαλλοντικούς παράγοντες και διατροφή επιταχύνει και βελτιώνει περισσότερο τις εκπαιδευτικές πρακτικές και την ικανότητα ελέγχου του άγχους των μαθητών και έτσι μπορούν να αυξήσουν την αποτελεσματικότητά τους.

**Λέξεις -κλειδιά:** μαθητές με ΔΕΠΥ, ΤΠΕ, προγράμματα παρέμβασης σε μαθητές με ΔΕΠΥ.

## BIBΛΙΟΓΡΑΦΙΑ

- Abadi, M. S., Madgaonkar, J., & Venkatesan, S. (2008). Effect of yoga on children with attention deficit/hyperactivity disorder. *Psychological Studies-University of Calicut*, 53(2), 154.
- Agnew-Blais, J. C., Polanczyk, G., Danese, A., Wertz, J., Moffitt, T. E., & Arseneault, L. (2016). Persistence, remission and emergence of ADHD in young adulthood: results from a longitudinal, prospective population-based cohort. *JAMA psychiatry*, 73(7), 713. doi: 10.1001/jamapsychiatry.2016.0465
- Agnew-Blais, J., & Arseneault, L. (2018). Late-onset ADHD: case closed or open question?. *American Journal of Psychiatry*, 175(5), 481-482. doi: <https://doi.org/10.1176/appi.ajp.2018.17111240>
- Akpolat, B. S., & Slany, W. (2014, April). Enhancing software engineering student team engagement in a high-intensity extreme programming course using gamification. In *2014 IEEE 27th conference on software engineering education and training (CSEE&T)* (pp. 149-153). IEEE. doi: 10.1109/CSEET.2014.6816792
- American Psychiatric Association, D., & American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5* (Vol. 5, No. 5). Washington, DC: American psychiatric association.
- Anagnostou, M., & Drigas, A. (2022). Mobile Applications for stress management. *Scientific Electronic Archives*, 15(2). doi: <https://doi.org/10.36560/15220221507>
- Antshel, K. M., Hargrave, T. M., Simonescu, M., Kaul, P., Hendricks, K., & Faraone, S. V. (2011). Advances in understanding and treating ADHD. *BMC medicine*, 9(1), 1-12. doi: <https://doi.org/10.1186/1741-7015-9-72>
- Archer, J. (1994). Achievement goals as a measure of motivation in university students. *Contemporary educational psychology*, 19(4), 430-446. doi: <https://doi.org/10.1006/ceps.1994.1031>
- Arnold, L. E., Hodgkins, P., Kahle, J., Madhoo, M., & Kewley, G. (2020). Long-term outcomes of ADHD: academic achievement and performance. *Journal of attention disorders*, 24(1), 73-85. doi: <https://doi.org/10.1177/1087054714566076>

- Baker, B. H., Wu, H., Laue, H. E., Boivin, A., Gillet, V., Langlois, M. F., ... & Takser, L. (2020). Methylparaben in meconium and risk of maternal thyroid dysfunction, adverse birth outcomes, and Attention-Deficit Hyperactivity Disorder (ADHD). *Environment international*, *139*, 105716. doi: <https://doi.org/10.1016/j.envint.2020.105716>
- Banfield, J., & Wilkerson, B. (2014). Increasing student intrinsic motivation and self-efficacy through gamification pedagogy. *Contemporary Issues in Education Research (CIER)*, *7*(4), 291-298. doi: <https://doi.org/10.19030/cier.v7i4.8843>
- Barbarese, W. J., Katusic, S. K., Colligan, R. C., Weaver, A. L., & Jacobsen, S. J. (2007). Long-term school outcomes for children with attention-deficit/hyperactivity disorder: a population-based perspective. *Journal of Developmental & Behavioral Pediatrics*, *28*(4), 265-273. doi: [10.1097/DBP.0b013e31811ff87d](https://doi.org/10.1097/DBP.0b013e31811ff87d)
- Barzegary, L., & Zamini, S. (2011). The effect of play therapy on children with ADHD. *Procedia-Social and Behavioral Sciences*, *30*, 2216-2218. doi: [doi.org/10.1016/j.sbspro.2011.10.432](https://doi.org/10.1016/j.sbspro.2011.10.432)
- Bedard, A. C., Jain, U., Johnson, S. H., & Tannock, R. (2007). Effects of methylphenidate on working memory components: Influence of measurement. *Journal of Child Psychology and Psychiatry*, *48*(9), 872-880. doi: <https://doi.org/10.1111/j.1469-7610.2007.01760.x>
- Blunden, S. L., Milte, C. M., & Sinn, N. (2011). Diet and sleep in children with attention deficit hyperactivity disorder: Preliminary data in Australian children. *Journal of Child Health Care*, *15*(1), 14-24. doi: <https://doi.org/10.1177/1367493510385020>
- Brahmbhatt, K., Hilty, D. M., Hah, M., Han, J., Angkustsiri, K., & Schweitzer, J. (2016). Diagnosis and treatment of ADHD during adolescence in the primary care setting: review and future directions. *The Journal of adolescent health: official publication of the Society for Adolescent Medicine*, *59*(2), 135. doi: [10.1016/j.jadohealth.2016.03.025](https://doi.org/10.1016/j.jadohealth.2016.03.025)
- Bravou, V., Driga, A. M. S., & Drigas, A. (2022). Emotion Regulation, the Function of Stress Hormones & Digital Technologies. *Technium BioChemMed*, *3*(2), 27-34. doi: <https://doi.org/10.47577/biochemmed.v3i2.6338>
- Briars, L., & Todd, T. (2016). A review of pharmacological management of attention-deficit/hyperactivity disorder. *The Journal of Pediatric Pharmacology and*

- Therapeutics*, 21(3), 192-206. doi: <https://doi.org/10.5863/1551-6776-21.3.192>
- Bul, K. C., Franken, I. H., Van der Oord, S., Kato, P. M., Danckaerts, M., Vreeke, L. J., ... & Maras, A. (2015). Development and user satisfaction of “Plan-It Commander,” a serious game for children with ADHD. *Games for health journal*, 4(6), 502-512. doi: <https://doi.org/10.1089/g4h.2015.0021>
- Bul, K. C., Kato, P. M., Van der Oord, S., Danckaerts, M., Vreeke, L. J., Willems, A., ... & Maras, A. (2016). Behavioral outcome effects of serious gaming as an adjunct to treatment for children with attention-deficit/hyperactivity disorder: a randomized controlled trial. *Journal of medical Internet research*, 18(2), e26. doi: 10.2196/jmir.5173
- Chimiklis, A. L., Dahl, V., Spears, A. P., Goss, K., Fogarty, K., & Chacko, A. (2018). Yoga, mindfulness, and meditation interventions for youth with ADHD: Systematic review and meta-analysis. *Journal of Child and Family Studies*, 27, 3155-3168. doi: <https://doi.org/10.1007/s10826-018-1148-7>
- Chou, C. C., & Huang, C. J. (2017). Effects of an 8-week yoga program on sustained attention and discrimination function in children with attention deficit hyperactivity disorder. *PeerJ*, 5, e2883. doi: <https://doi.org/10.7717/peerj.2883>
- Classi, P., Milton, D., Ward, S., Sarsour, K., & Johnston, J. (2012). Social and emotional difficulties in children with ADHD and the impact on school attendance and healthcare utilization. *Child and Adolescent Psychiatry and Mental Health*, 6(1), 1-8. doi: <https://doi.org/10.1186/1753-2000-6-33>
- Climie, E. A., & Henley, L. (2018). Canadian parents and children’s knowledge of ADHD. *Vulnerable Children and Youth Studies*, 13(3), 266-275. doi: <https://doi.org/10.1080/17450128.2018.1484975>
- Cohen, S. C., Harvey, D. J., Shields, R. H., Shields, G. S., Rashedi, R. N., Tancredi, D. J., ... & Schweitzer, J. B. (2018). The effects of yoga on attention, impulsivity and hyperactivity in pre-school age children with ADHD symptoms. *Journal of developmental and behavioral pediatrics: JDBP*, 39(3), 200. doi: 10.1097/DBP.0000000000000552
- Coghill, D. R., Seth, S., & Matthews, K. (2014). A comprehensive assessment of memory, delay aversion, timing, inhibition, decision making and variability in attention deficit hyperactivity disorder: advancing beyond the three-pathway

- models. *Psychological medicine*, 44(9), 1989-2001. doi: <https://doi.org/10.1017/S0033291713002547>
- Craven, M. P., Young, Z., Simons, L., Schnädelbach, H., & Gillott, A. (2014, October). From snappy app to screens in the wild: Gamifying an attention deficit hyperactivity disorder continuous performance test for public engagement and awareness. In *2014 International Conference on Interactive Technologies and Games* (pp. 36-43). IEEE. Doi: 10.1109/iTAG.2014.12
- Craven, M. P., & Groom, M. J. (2015, October). Computer games for user engagement in Attention Deficit Hyperactivity Disorder (ADHD) monitoring and therapy. In *2015 International Conference on Interactive Technologies and Games* (pp. 34-40). IEEE. doi: 10.1109/iTAG.2015.9
- Crnic, K. A., & Greenberg, M. T. (1990). Minor parenting stresses with young children. *Child development*, 61(5), 1628-1637. doi: <https://doi.org/10.1111/j.1467-8624.1990.tb02889.x>
- Crnic, K., & Acevedo, M. (1995). *Everyday stresses and parenting*. In M. H. Bornstein (Ed.), *Handbook of parenting*, Vol. 4. Applied and practical parenting (pp. 277-297). Lawrence Erlbaum Associates, Inc.
- Dahl, V., Ramakrishnan, A., Spears, A. P., Jorge, A., Lu, J., Bigio, N. A., & Chacko, A. (2020). Psychoeducation interventions for parents and teachers of children and adolescents with ADHD: a systematic review of the literature. *Journal of Developmental and Physical Disabilities*, 32, 257-292. doi: <https://doi.org/10.1007/s10882-019-09691-3>
- Daley, D., & Birchwood, J. (2010). ADHD and academic performance: why does ADHD impact on academic performance and what can be done to support ADHD children in the classroom?. *Child: care, health and development*, 36(4), 455-464. doi: <https://doi.org/10.1111/j.1365-2214.2009.01046.x>
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, 11(4), 227-268. doi: [https://doi.org/10.1207/S15327965PLI1104\\_01](https://doi.org/10.1207/S15327965PLI1104_01)
- Demontis, D., Satterstrom, K., Duan, J., Lescai, F., Østergaard, S. D., Lesch, K. P., ... & Børglum, A. D. (2019). The role of ultra-rare coding variants in ADHD. *European Neuropsychopharmacology*, 29, S724-S725. doi: <https://doi.org/10.1016/j.euroneuro.2017.06.042>

- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011, September). From game design elements to gamefulness: defining "gamification". In *Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments* (pp. 9-15). doi: <https://doi.org/10.1145/2181037.2181040>
- Douglas, V.I. (1999). *Cognitive control processes in attention-deficit/hyperactivity disorder*. In H.C. Quay & A.E. Hogan (eds.). *Handbook of disruptive behavior disorders*. New York, NY: Plenum Press.
- Doulou, A., & Drigas, A. (2022). Electronic, VR & augmented reality games for intervention in ADHD. *Technium Soc. Sci. J.*, 28, 159.
- Dovis, S., Van der Oord, S., Wiers, R. W., & Prins, P. J. (2015). Improving executive functioning in children with ADHD: training multiple executive functions within the context of a computer game. A randomized double-blind placebo controlled trial. *PloS one*, 10(4), e0121651. doi: <https://doi.org/10.1371/journal.pone.0121651>
- Driga, A. M., & Drigas, A. (2019). ADHD in the Early Years: Pre-Natal and Early Causes and Alternative Ways of Dealing. *International Journal of Online & Biomedical Engineering*, 15(13). doi: <https://doi.org/10.3991/ijoe.v15i13.11203>
- 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). doi: <https://doi.org/10.3991/ijoe.v17i08.23563>
- DuPaul, G. J., & Eckert, T. L. (1997). The effects of school-based interventions for attention deficit hyperactivity disorder: A meta-analysis. *School psychology review*, 26(1), 5-27. doi: <https://doi.org/10.1080/02796015.1997.12085845>
- Durocher, J. J., Marti, H., Morin, B., & Wakeham, T. R. (2018). Single session mindfulness meditation reduces aortic pulsatile load and anxiety in mild to moderately anxious adults. *The FASEB Journal*, 32, 714-19. doi: [https://doi.org/10.1096/fasebj.2018.32.1\\_supplement.714.19](https://doi.org/10.1096/fasebj.2018.32.1_supplement.714.19)
- Epstein, J. N., & Loren, R. E. (2013). Changes in the definition of ADHD in DSM-5: subtle but important. *Neuropsychiatry*, 3(5), 455. doi: 10.2217/np.13.59
- Emser, T. S., Johnston, B. A., Steele, J. D., Kooij, S., Thorell, L., & Christiansen, H. (2018). Assessing ADHD symptoms in children and adults: evaluating the role

- of objective measures. *Behavioral and Brain Functions*, 14(1), 1-14. doi: <https://doi.org/10.1186/s12993-018-0143-x>
- Farcas, S., & Szamosközi, I. (2016). The effects of working memory trainings with game elements for children with ADHD. A meta-analytic review. *Transylvanian Journal of Psychology*, (1).
- Feldman, H. M., & Reiff, M. I. (2014). Attention deficit–hyperactivity disorder in children and adolescents. *New England Journal of Medicine*, 370(9), 838-846. doi: 10.1056/NEJMcp1307215
- Field, T. (2012). Exercise research on children and adolescents. *Complementary Therapies in Clinical Practice*, 18(1), 54-59. doi: <https://doi.org/10.1016/j.ctcp.2011.04.002>
- Franke, B., Michelini, G., Asherson, P., Banaschewski, T., Bilbow, A., Buitelaar, J. K., ... & Reif, A. (2018). Live fast, die young? A review on the developmental trajectories of ADHD across the lifespan. *European Neuropsychopharmacology*, 28(10), 1059-1088. doi: <https://doi.org/10.1016/j.euroneuro.2018.08.001>
- García-Redondo, P., García, T., Areces, D., Núñez, J. C., & Rodríguez, C. (2019). Serious games and their effect improving attention in students with learning disabilities. *International journal of environmental research and public health*, 16(14), 2480. doi: <https://doi.org/10.3390/ijerph16142480>
- Gathercole, S. E., Astle, D. A., Manly, T., CALM Team, & Holmes, J. (2018). Cognition and behaviour in learning difficulties and ADHD: A dimensional approach. *BioRxiv*, 260265. doi: <https://doi.org/10.1101/260265>
- Grosswald, S. J., Stixrud, W. R., Travis, F., & Bateh, M. A. (2008). Use of the transcendental meditation technique to reduce symptoms of attention deficit hyperactivity disorder (ADHD) by reducing stress and anxiety: an exploratory study. *Current Issues in Education*, 10.
- Hariprasad, V. R., Arasappa, R., Varambally, S., Srinath, S., & Gangadhar, B. N. (2013). Feasibility and efficacy of yoga as an add-on intervention in attention deficit-hyperactivity disorder: An exploratory study. *Indian journal of psychiatry*, 55(Suppl 3), S379. doi: 10.4103/0019-5545.116317
- Hashemi, M., Banijamali, S. S., & Khosravi, Z. (2018). The efficacy of short-term play therapy for children in reducing symptoms of ADHD. *World Family Medicine*.

- Holbrook, J. R., Cuffe, S. P., Cai, B., Visser, S. N., Forthofer, M. S., Bottai, M., ... & McKeown, R. E. (2016). Persistence of parent-reported ADHD symptoms from childhood through adolescence in a community sample. *Journal of attention disorders, 20*(1), 11-20. doi: <https://doi.org/10.1177/1087054714539997>
- Hopia, H., Latvala, E., & Liimatainen, L. (2016). Reviewing the methodology of an integrative review. *Scandinavian journal of caring sciences, 30*(4), 662-669. doi: <https://doi.org/10.1111/scs.12327>
- Hoza, B. (2007). Peer functioning in children with ADHD. *Journal of pediatric psychology, 32*(6), 655-663. doi: <https://doi.org/10.1093/jpepsy/jsm024>
- Ibrahim, M., Prasad, P. W. C., Alsadoon, A., & Pham, L. (2016). Synchronous virtual classroom for student with ADHD disorder. In *2016 13th International Joint Conference on Computer Science and Software Engineering (JCSSE)* (pp. 1-6). IEEE. doi: 10.1109/JCSSE.2016.7748860
- Jensen, P. S., & Kenny, D. T. (2004). The effects of yoga on the attention and behavior of boys with attention-deficit/hyperactivity disorder (ADHD). *Journal of attention disorders, 7*(4), 205-216. doi: <https://doi.org/10.1177/108705470400700403>
- Johnson, J. H., & Reader, S. K. (2002). Assessing stress in families of children with ADHD: Preliminary development of the Disruptive Behavior Stress Inventory (DBSI). *Journal of Clinical Psychology in Medical Settings, 9*, 51-62. doi: <https://doi.org/10.1023/A:1014136029697>
- Jones, H. A., & Chronis-Tuscano, A. (2008). Efficacy of teacher in-service training for attention-deficit/hyperactivity disorder. *Psychology in the Schools, 45*(10), 918-929. doi: <https://doi.org/10.1002/pits.20342>
- Kaufmann, L., & Nuerk, H. C. (2008). Basic number processing deficits in ADHD: a broad examination of elementary and complex number processing skills in 9- to 12-year-old children with ADHD-C. *Developmental science, 11*(5), 692-699. doi: <https://doi.org/10.1111/j.1467-7687.2008.00718.x>
- Kendall, T., Taylor, E., Perez, A., & Taylor, C. (2008). Diagnosis and management of attention-deficit/hyperactivity disorder in children, young people, and adults: summary of NICE guidance. *Bmj, 337*. doi: <https://doi.org/10.1136/bmj.a1239>
- Kos, J. M., Richdale, A. L., & Hay, D. A. (2006). Children with attention deficit hyperactivity disorder and their teachers: A review of the

- literature. *International Journal of Disability, Development and Education*, 53(2), 147-160. doi: <https://doi.org/10.1080/10349120600716125>
- Kovshoff, H., Vrijens, M., Thompson, M., Yardley, L., Hodgkins, P., Sonuga-Barke, E. J., & Danckaerts, M. (2013). What influences clinicians' decisions about ADHD medication? Initial data from the Influences on Prescribing for ADHD Questionnaire (IPAQ). *European child & adolescent psychiatry*, 22, 533-542. doi: <https://doi.org/10.1007/s00787-013-0393-y>
- Kuriyan, A. B., Pelham, W. E., Molina, B. S., Waschbusch, D. A., Gnagy, E. M., Sibley, M. H., ... & Kent, K. M. (2013). Young adult educational and vocational outcomes of children diagnosed with ADHD. *Journal of abnormal child psychology*, 41, 27-41. doi: <https://doi.org/10.1007/s10802-012-9658-z>
- Kutcher, S., Aman, M., Brooks, S. J., Buitelaar, J., Van Daalen, E., Fegert, J., ... & Tyano, S. (2004). International consensus statement on attention-deficit/hyperactivity disorder (ADHD) and disruptive behaviour disorders (DBDs): clinical implications and treatment practice suggestions. *European Neuropsychopharmacology*, 14(1), 11-28. doi: [https://doi.org/10.1016/S0924-977X\(03\)00045-2](https://doi.org/10.1016/S0924-977X(03)00045-2)
- Lange, K. W., Hauser, J., Lange, K. M., Makulska-Gertruda, E., Takano, T., Takeuchi, Y., ... & Tucha, O. (2014). Utility of cognitive neuropsychological assessment in attention-deficit/hyperactivity disorder. *ADHD Attention deficit and hyperactivity disorders*, 6, 241-248. doi: <https://doi.org/10.1007/s12402-014-0132-3>
- Latouche, A. P., & Gascoigne, M. (2019). In-service training for increasing teachers' ADHD knowledge and self-efficacy. *Journal of attention disorders*, 23(3), 270-281. doi: <https://doi.org/10.1177/1087054717707045>
- Law, G. U., Sinclair, S., & Fraser, N. (2007). Children's attitudes and behavioural intentions towards a peer with symptoms of ADHD: does the addition of a diagnostic label make a difference?. *Journal of Child Health Care*, 11(2), 98-111. doi: <https://doi.org/10.1177/1367493507076061>
- Lawrence, K., Estrada, R. D., & McCormick, J. (2017). Teachers' experiences with and perceptions of students with attention deficit/hyperactivity disorder. *Journal of pediatric nursing*, 36, 141-148. doi: <https://doi.org/10.1016/j.pedn.2017.06.010>

- Leitch, S., Sciberras, E., Post, B., Gerner, B., Rinehart, N., Nicholson, J. M., & Evans, S. (2019). Experience of stress in parents of children with ADHD: A qualitative study. *International journal of qualitative studies on health and well-being*, *14*(1), 1690091. doi: <https://doi.org/10.1080/17482631.2019.1690091>
- Lindblad, F., & Hjern, A. (2010). ADHD after fetal exposure to maternal smoking. *Nicotine & Tobacco Research*, *12*(4), 408-415. doi: <https://doi.org/10.1093/ntr/ntq017>
- Loe, I. M., & Feldman, H. M. (2007). Academic and educational outcomes of children with ADHD. *Journal of pediatric psychology*, *32*(6), 643-654. doi: <https://doi.org/10.1093/jpepsy/jsl054>
- MacDonald, B., Pennington, B. F., Willcutt, E. G., Dmitrieva, J., Samuelsson, S., Byrne, B., & Olson, R. K. (2019). Cross-country differences in parental reporting of symptoms of ADHD. *Journal of cross-cultural psychology*, *50*(6), 806-824. doi: <https://doi.org/10.1177/0022022119852422>
- Mahone, E. M., & Denckla, M. B. (2017). Attention-deficit/hyperactivity disorder: a historical neuropsychological perspective. *Journal of the International Neuropsychological Society*, *23*(9-10), 916-929. doi: <https://doi.org/10.1017/S1355617717000807>
- Mancera, L., Baldiris, S., Fabregat, R., Viñas, F., & Caparros, B. (2011, July). Adapting suitable spaces in Learning Management Systems to support distance learning in adults with ADHD. In *2011 IEEE 11th International Conference on Advanced Learning Technologies* (pp. 105-109). IEEE. doi: [10.1109/ICALT.2011.37](https://doi.org/10.1109/ICALT.2011.37)
- Matallaoui, A., Hanner, N., & Zarnekow, R. (2017). Introduction to gamification: Foundation and underlying theories. *Gamification: Using Game Elements in Serious Contexts*, 3-18. doi: [https://doi.org/10.1007/978-3-319-45557-0\\_1](https://doi.org/10.1007/978-3-319-45557-0_1)
- Mayes, S. D., Waschbusch, D. A., Calhoun, S. L., & Mattison, R. E. (2020). Correlates of academic overachievement, nondiscrepant achievement, and learning disability in ADHD, autism, and general population samples. *Exceptionality*, *28*(1), 60-75. doi: <https://doi.org/10.1080/09362835.2020.1727324>

- McDougal, E., Riby, D. M., & Hanley, M. (2020). Teacher insights into the barriers and facilitators of learning in autism. *Research in autism spectrum disorders, 79*, 101674. doi: doi.org/10.1016/j.rasd.2020.101674
- McGee, R., & Feehan, M. (1991). Are girls with problems of attention underrecognized?. *Journal of Psychopathology and Behavioral Assessment, 13*, 187-198. doi: https://doi.org/10.1007/BF00960783
- Michelson, D., Faries, D., Wernicke, J., Kelsey, D., Kendrick, K., Sallee, F. R., ... & Atomoxetine ADHD Study Group. (2001). Atomoxetine in the treatment of children and adolescents with attention-deficit/hyperactivity disorder: a randomized, placebo-controlled, dose-response study. *Pediatrics, 108*(5), e83-e83. doi: https://doi.org/10.1542/peds.108.5.e83
- Mohr-Jensen, C., Steen-Jensen, T., Bang-Schnack, M., & Thingvad, H. (2019). What do primary and secondary school teachers know about ADHD in children? Findings from a systematic review and a representative, nationwide sample of Danish teachers. *Journal of attention disorders, 23*(3), 206-219. doi: https://doi.org/10.1177/1087054715599206
- Moore, D. A., Russell, A. E., Arnell, S., & Ford, T. J. (2017). Educators' experiences of managing students with ADHD: A qualitative study: Educators' management of ADHD. *Child: Care, Health and Development, 43*(4), 489-498.
- Moos, D. C., & Marroquin, E. (2010). Multimedia, hypermedia, and hypertext: Motivation considered and reconsidered. *Computers in human behavior, 26*(3), 265-276. doi: doi.org/10.1016/j.chb.2009.11.004
- Morris, B. J., Croker, S., Zimmerman, C., Gill, D., & Romig, C. (2013). Gaming science: the "Gamification" of scientific thinking. *Frontiers in psychology, 4*, 607. doi: https://doi.org/10.3389/fpsyg.2013.00607
- Mowlem, F. D., Rosenqvist, M. A., Martin, J., Lichtenstein, P., Asherson, P., & Larsson, H. (2019). Sex differences in predicting ADHD clinical diagnosis and pharmacological treatment. *European child & adolescent psychiatry, 28*, 481-489. doi: https://doi.org/10.1007/s00787-018-1211-3
- Mueller, A. K., Fuermaier, A. B., Koerts, J., & Tucha, L. (2012). Stigma in attention deficit hyperactivity disorder. *ADHD attention deficit and hyperactivity disorders, 4*, 101-114. doi: https://doi.org/10.1007/s12402-012-0085-3

- Murphy, P. K., & Alexander, P. A. (2000). A motivated exploration of motivation terminology. *Contemporary educational psychology*, 25(1), 3-53. doi: doi.org/10.1006/ceps.1999.1019
- Nussey, C., Pistrang, N., & Murphy, T. (2013). How does psychoeducation help? A review of the effects of providing information about Tourette syndrome and attention-deficit/hyperactivity disorder. *Child: care, health and development*, 39(5), 617-627. doi: https://doi.org/10.1111/cch.12039
- O'Brien, H. L., & Toms, E. G. (2008). What is user engagement? A conceptual framework for defining user engagement with technology. *Journal of the American society for Information Science and Technology*, 59(6), 938-955. doi: https://doi.org/10.1002/asi.20801
- Ochi, Y., Laksanasopin, T., Kaewkamnerdpong, B., & Thanasuan, K. (2017, August). Neurofeedback game for attention training in adults. In *2017 10th Biomedical Engineering International Conference (BMEiCON)* (pp. 1-5). IEEE. doi: 10.1109/BMEiCON.2017.8229113
- Ohan, J. L., Cormier, N., Hepp, S. L., Visser, T. A., & Strain, M. C. (2008). Does knowledge about attention-deficit/hyperactivity disorder impact teachers' reported behaviors and perceptions?. *School psychology quarterly*, 23(3), 436. doi: https://doi.org/10.1037/1045-3830.23.3.436
- Östberg, M., & Hagekull, B. (2000). A structural modeling approach to the understanding of parenting stress. *Journal of clinical child psychology*, 29(4), 615-625. doi: https://doi.org/10.1207/S15374424JCCP2904\_13
- Ou, Y. K., Wang, Y. L., Chang, H. C., Yen, S. Y., Zheng, Y. H., & Lee, B. O. (2020). Development of virtual reality rehabilitation games for children with attention-deficit hyperactivity disorder. *Journal of Ambient Intelligence and Humanized Computing*, 11, 5713-5720. doi: https://doi.org/10.1007/s12652-020-01945-9
- Paulsen, M. F. (2003). Experiences with learning management systems in 113 European institutions. *Journal of Educational Technology & Society*, 6(4), 134-148.
- Pelham, W. E., Carlson, C., Sams, S. E., Vallano, G., Dixon, M. J., & Hoza, B. (1993). Separate and combined effects of methylphenidate and behavior modification on boys with attention deficit-hyperactivity disorder in the classroom. *Journal of Consulting and Clinical Psychology*, 61(3), 506. doi: https://doi.org/10.1037/0022-006X.61.3.506

- Pelham, W. E., Gnagy, E. M., Burrows-Maclean, L., Williams, A., Fabiano, G. A., Morrisey, S. M., ... & Morse, G. D. (2001). Once-a-day Concerta methylphenidate versus three-times-daily methylphenidate in laboratory and natural settings. *Pediatrics*, *107*(6), e105-e105.
- Perold, H., Louw, C., & Kleynhans, S. (2010). Primary school teachers' knowledge and misperceptions of attention deficit hyperactivity disorder (ADHD). *South African Journal of Education*, *30*(3). doi: 10.15700/saje.v30n3a364
- Polanczyk, G. V., Willcutt, E. G., Salum, G. A., Kieling, C., & Rohde, L. A. (2014). ADHD prevalence estimates across three decades: an updated systematic review and meta-regression analysis. *International journal of epidemiology*, *43*(2), 434-442. doi: <https://doi.org/10.1093/ije/dyt261>
- Polanczyk, G. V., Salum, G. A., Sugaya, L. S., Caye, A., & Rohde, L. A. (2015). Annual research review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of child psychology and psychiatry*, *56*(3), 345-365. doi: <https://doi.org/10.1111/jcpp.12381>
- Ra, C. K., Cho, J., Stone, M. D., De La Cerda, J., Goldenson, N. I., Moroney, E., ... & Leventhal, A. M. (2018). Association of digital media use with subsequent symptoms of attention-deficit/hyperactivity disorder among adolescents. *Jama*, *320*(3), 255-263. doi:10.1001/jama.2018.8931
- Reimeringer, M. J. (2016). *Gamification: a tool to enhance response quality in lean market research* (Bachelor's thesis, University of Twente).
- Rhodes, S. M., Park, J., Seth, S., & Coghill, D. R. (2012). A comprehensive investigation of memory impairment in attention deficit hyperactivity disorder and oppositional defiant disorder. *Journal of Child Psychology and Psychiatry*, *53*(2), 128-137. doi: <https://doi.org/10.1111/j.1469-7610.2011.02436.x>
- Richardson, M., Moore, D. A., Gwernan-Jones, R., Thompson-Coon, J., Ukoumunne, O., Rogers, M., ... & Ford, T. J. (2015). Non-pharmacological interventions for attention-deficit/hyperactivity disorder (ADHD) delivered in school settings: systematic reviews of quantitative and qualitative research. *Health Technology Assessment (Winchester, England)*, *19*(45), 1. doi: 10.3310/hta19450
- Robinson, A., Simpson, C., & Hott, B. L. (2017). The effects of child-centered play therapy on the behavioral performance of three first grade students with

- ADHD. *International Journal of Play Therapy*, 26(2), 73. doi: <https://doi.org/10.1037/pla0000047>
- Rodrigo-Yanguas, M., Martin-Moratinos, M., Menendez-Garcia, A., Gonzalez-Tardon, C., Royuela, A., & Blasco-Fontecilla, H. (2021). A virtual reality game (The Secret Trail of Moon) for treating attention-deficit/hyperactivity disorder: development and usability study. *JMIR Serious Games*, 9(3), e26824. doi: 10.2196/26824
- Rodriguez, A., Bohlin, G., & Lindmark, G. (2000). Psychosocial predictors of smoking and exercise during pregnancy. *Journal of reproductive and infant psychology*, 18(3), 203-223. doi: <https://doi.org/10.1080/713683039>
- Ružbarská, I., & Chovanová, E. (2014). Primary school children diagnosed with ADHD and physical activity preferences. In *7TH INTERNATIONAL SCIENTIFIC CONFERENCE ON KINESIOLOGY* (p. 295).
- Russell, G., Rodgers, L. R., Ukoumunne, O. C., & Ford, T. (2014). Prevalence of parent-reported ASD and ADHD in the UK: findings from the Millennium Cohort Study. *Journal of autism and developmental disorders*, 44, 31-40. doi: <https://doi.org/10.1007/s10803-013-1849-0>
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*, 25(1), 54-67. doi: <https://doi.org/10.1006/ceps.1999.1020>
- Saccaro, L. F., Schilliger, Z., Perroud, N., & Piguet, C. (2021). Inflammation, anxiety, and stress in attention-deficit/hyperactivity disorder. *Biomedicines*, 9(10), 1313. doi: <https://doi.org/10.3390/biomedicines9101313>
- Santonastaso, M., Mottola, F., Iovine, C., Cesaroni, F., Colacurci, N., & Rocco, L. (2020). In vitro effects of titanium dioxide nanoparticles (TiO<sub>2</sub>NPs) on cadmium chloride (CdCl<sub>2</sub>) genotoxicity in human sperm cells. *Nanomaterials*, 10(6), 1118. doi: <https://doi.org/10.3390/nano10061118>
- Sarver, D. E., McCart, M. R., Sheidow, A. J., & Letourneau, E. J. (2014). ADHD and risky sexual behavior in adolescents: Conduct problems and substance use as mediators of risk. *Journal of Child Psychology and Psychiatry*, 55(12), 1345-1353. doi: <https://doi.org/10.1111/jcpp.12249>
- Sayal, K., Prasad, V., Daley, D., Ford, T., & Coghill, D. (2018). ADHD in children and young people: prevalence, care pathways, and service provision. *The*

- Lancet Psychiatry*, 5(2), 175-186. doi: [https://doi.org/10.1016/S2215-0366\(17\)30167-0](https://doi.org/10.1016/S2215-0366(17)30167-0)
- Schachter, H. M., King, J., Langford, S., & Moher, D. (2001). How efficacious and safe is short-acting methylphenidate for the treatment of attention-deficit disorder in children and adolescents? A meta-analysis. *Cmaj*, 165(11), 1475-1488.
- Scheffler, R. M., Brown, T. T., Fulton, B. D., Hinshaw, S. P., Levine, P., & Stone, S. (2009). Positive association between attention-deficit/hyperactivity disorder medication use and academic achievement during elementary school. *Pediatrics*, 123(5), 1273-1279. doi: <https://doi.org/10.1542/peds.2008-1597>
- Sergeant, J. A., Geurts, H., Huijbregts, S., Scheres, A., & Oosterlaan, J. (2003). The top and the bottom of ADHD: a neuropsychological perspective. *Neuroscience & Biobehavioral Reviews*, 27(7), 583-592. doi: <https://doi.org/10.1016/j.neubiorev.2003.08.004>
- Shernoff, D. J., Csikszentmihalyi, M., Shneider, B., & Shernoff, E. S. (2003). Student engagement in high school classrooms from the perspective of flow theory. *School psychology quarterly*, 18(2), 158. doi: <https://doi.org/10.1521/scpq.18.2.158.21860>
- Sibley, M. H., Pelham Jr, W. E., Molina, B. S., Gnagy, E. M., Waschbusch, D. A., Garefino, A. C., ... & Karch, K. M. (2012). Diagnosing ADHD in adolescence. *Journal of consulting and clinical psychology*, 80(1), 139. doi: <https://doi.org/10.1037/a0026577>
- Sitra, O., Katsigiannakis, V., Karagiannidis, C., & Mavropoulou, S. (2017). The effect of badges on the engagement of students with special educational needs: A case study. *Education and Information Technologies*, 22, 3037-3046. doi: <https://doi.org/10.1007/s10639-016-9550-5>
- Smidts, D. P., & Oosterlaan, J. (2007). How common are symptoms of ADHD in typically developing preschoolers? A study on prevalence rates and prenatal/demographic risk factors. *Cortex*, 43(6), 710-717. doi: [https://doi.org/10.1016/S0010-9452\(08\)70500-8](https://doi.org/10.1016/S0010-9452(08)70500-8)
- Sonne, T., & Jensen, M. M. (2016, February). Chillfish: A respiration game for children with adhd. In *Proceedings of the TEI'16: Tenth International*

- Conference on Tangible, Embedded, and Embodied Interaction* (pp. 271-278).  
doi: <https://doi.org/10.1145/2839462.2839480>
- Spencer, T. J., Brown, A., Seidman, L. J., Valera, E. M., Makris, N., Lomedico, A., ... & Biederman, J. (2013). Effect of psychostimulants on brain structure and function in ADHD: a qualitative literature review of magnetic resonance imaging-based neuroimaging studies. *The Journal of clinical psychiatry*, *74*(9), 5654.
- Thapar, A., Cooper, M., Jefferies, R., & Stergiakouli, E. (2012). What causes attention deficit hyperactivity disorder?. *Archives of disease in childhood*, *97*(3), 260-265. doi: <http://dx.doi.org/10.1136/archdischild-2011-300482>
- Thapar, A., Cooper, M., Eyre, O., & Langley, K. (2013). Practitioner review: what have we learnt about the causes of ADHD?. *Journal of Child Psychology and Psychiatry*, *54*(1), 3-16. doi: <https://doi.org/10.1111/j.1469-7610.2012.02611.x>
- Thoma, V. K., Schulz-Zhecheva, Y., Oser, C., Fleischhaker, C., Biscaldi, M., & Klein, C. (2020). Media use, sleep quality, and ADHD symptoms in a community sample and a sample of ADHD patients aged 8 to 18 years. *Journal of Attention Disorders*, *24*(4), 576-589. doi: <https://doi.org/10.1177/1087054718802014>
- Thomas, R., Sanders, S., Doust, J., Beller, E., & Glasziou, P. (2015). Prevalence of attention-deficit/hyperactivity disorder: a systematic review and meta-analysis. *Pediatrics*, *135*(4), e994-e1001. doi: <https://doi.org/10.1542/peds.2014-3482>
- Van der Oord, S., Bögels, S. M., & Peijnenburg, D. (2012). The effectiveness of mindfulness training for children with ADHD and mindful parenting for their parents. *Journal of child and family studies*, *21*, 139-147. doi: <https://doi.org/10.1007/s10826-011-9457-0>
- Verret, C., Guay, M. C., Berthiaume, C., Gardiner, P., & Béliveau, L. (2012). A physical activity program improves behavior and cognitive functions in children with ADHD: an exploratory study. *Journal of attention disorders*, *16*(1), 71-80. doi: <https://doi.org/10.1177/1087054710379735>
- Voort, J. L. V., He, J. P., Jameson, N. D., & Merikangas, K. R. (2014). Impact of the DSM-5 attention-deficit/hyperactivity disorder age-of-onset criterion in the

- US adolescent population. *Journal of the American Academy of Child & Adolescent Psychiatry*, 53(7), 736-744. doi: <https://doi.org/10.1016/j.jaac.2014.03.005>
- White, J. W., & Buehler, C. (2012). Adolescent sexual victimization, ADHD symptoms, and risky sexual behavior. *Journal of Family Violence*, 27, 123-132. doi: <https://doi.org/10.1007/s10896-012-9411-y>
- Wiener, J., Malone, M., Varma, A., Markel, C., Biondic, D., Tannock, R., & Humphries, T. (2012). Children's perceptions of their ADHD symptoms: Positive illusions, attributions, and stigma. *Canadian Journal of School Psychology*, 27(3), 217-242. doi: <https://doi.org/10.1177/0829573512451972>
- Wigal, T., Swanson, J. M., Regino, R., Lerner, M. A., Soliman, I., Steinhoff, K., ... & Wigal, S. B. (1999). Stimulant medications for the treatment of ADHD: efficacy and limitations. *Mental Retardation and Developmental Disabilities Research Reviews*, 5(3), 215-224. doi: [https://doi.org/10.1002/\(SICI\)1098-2779\(1999\)5:3<215::AID-MRDD8>3.0.CO;2-K](https://doi.org/10.1002/(SICI)1098-2779(1999)5:3<215::AID-MRDD8>3.0.CO;2-K)
- Wolraich, M. L., Bickman, L., Lambert, E. W., Simmons, T., & Doffing, M. A. (2005). Intervening to improve communication between parents, teachers, and primary care providers of children with ADHD or at high risk for ADHD. *Journal of Attention Disorders*, 9(1), 354-368. doi: <https://doi.org/10.1177/1087054705278834>
- Xu, G., Strathearn, L., Liu, B., Yang, B., & Bao, W. (2018). Twenty-year trends in diagnosed attention-deficit/hyperactivity disorder among US children and adolescents, 1997-2016. *JAMA network open*, 1(4), e181471-e181471. doi:10.1001/jamanetworkopen.2018.1471
- Zichermann, G., & Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps*. " O'Reilly Media, Inc."
- Ziereis, S., & Jansen, P. (2015). Effects of physical activity on executive function and motor performance in children with ADHD. *Research in developmental disabilities*, 38, 181-191. doi: <https://doi.org/10.1016/j.ridd.2014.12.005>
- Bolic, V., Lidström, H., Thelin, N., Kjellberg, A., & Hemmingsson, H. (2013). Computer use in educational activities by students with ADHD. *Scandinavian journal of occupational therapy*, 20(5), 357-364. <https://doi.org/10.3109/11038128.2012.758777>.

- Chan, G., Santally, M., & Whitehead, J. (2022). Gamification as technology enabler in SEN and DHH education. *Education and Information Technologies*, 27(7), 1-34. <https://doi.org/10.1007/s10639-022-10984-y>.
- Dandashi, A., Karkar, A., Saaw, S., Barhoumi, Z., Aljaam, J., & Saddik, A. (2015). Enhancing the cognitive and learning skills of children with intellectual disability through physical activity and educational games. *International Journal of Distributed Sensor*, 11(6). <https://doi.org/10.1155/2015/165165>.
- Hulusic, V., & Pistoljevic, N. (2017). *A curriculum for developing serious games for children with autism: A success story* [Paper presentation]. 9th International Conference on Virtual Worlds and Gmaes for Serious Application. <https://doi.org/10.1109/VS-GAMES.2017.8056586>.
- Kusmawati, A. P., Fahrurrozi, F., & Supena, A. (2023). Increasing Concentration of Attention Deficit Hyperactivity Disorder (ADHD) Students Through Gamification Learning Media in Indonesian Inclusion Elementary School. *International Journal of Special Education*, 38(1), 169-184. <https://doi.org/10.52291/ijse.2023.38.15>.
- Ronimus, M., Eklund, K., Pesu, L., & Lyytinen, H. (2019). Supporting struggling readers with digital game-based learning. *Educational Technology Research & Development*, 67(3), 639-663. <https://doi.org/10.1007/s11423-019-09658-3>.