

REFERENCES

- [1] H. Al-Samarraie and N. Saeed, "A systematic review of cloud computing tools for collaborative learning: Opportunities and challenges to the blended-learning environment," *Comput. Educ.*, vol. 124, 2018, doi: 10.1016/j.compedu.2018.05.016.
- [2] D. L. Ennis-Cole, *Technology for learners with autism spectrum disorders*. 2015. doi: 10.1007/978-3-319-05981-5.
- [3] K. A. Shaw *et al.*, "Early Identification of Autism Spectrum Disorder Among Children Aged 4 Years — Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2020," *MMWR Surveill. Summ.*, vol. 72, no. 1, 2023, doi: 10.15585/mmwr.ss7201a1.
- [4] M. Brosnan, S. Parsons, J. Good, and N. Yuill, "How can participatory design inform the design and development of innovative technologies for autistic communities?," *J. Assist. Technol.*, vol. 10, no. 2, 2016, doi: 10.1108/JAT-12-2015-0033.
- [5] D. Preece and M. Howley, "An approach to supporting young people with autism spectrum disorder and high anxiety to re-engage with formal education—the impact on young people and their families," *Int. J. Adolesc. Youth*, vol. 23, no. 4, 2018, doi: 10.1080/02673843.2018.1433695.
- [6] A. J. O. Whitehouse, H. J. Watt, E. A. Line, and D. V. M. Bishop, "Adult psychosocial outcomes of children with specific language impairment, pragmatic language impairment and autism," *Int. J. Lang. Commun. Disord.*, vol. 44, no. 4, 2009, doi: 10.1080/13682820802708098.
- [7] C. C. Hudson, L. Hall, and K. L. Harkness, "Prevalence of Depressive Disorders in Individuals with Autism Spectrum Disorder: a Meta-Analysis," *J. Abnorm. Child Psychol.*, vol. 47, no. 1, 2019, doi: 10.1007/s10802-018-0402-1.
- [8] L. Escobedo, M. Tentori, E. Quintana, J. Favela, and D. Garcia-Rosas, "Using augmented reality to help children with autism stay focused," *IEEE Pervasive Comput.*, vol. 13, no. 1, 2014, doi: 10.1109/MPRV.2014.19.
- [9] American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*. Washington DC: American Psychiatric Association Publishing, 2022. doi: 10.1176/appi.books.9780890425787.
- [10] J. L. Dimassis, "Autism in Heels: The Untold Story of a Female Life on the Spectrum, by Jennifer Cook O'Toole," *J. Appl. Rehabil. Couns.*, vol. 50, no. 4, 2019, doi: 10.1891/0047-2220.50.4.331.
- [11] E. Pellicano, "Do autistic symptoms persist across time? Evidence of substantial change in symptomatology over a 3-year period in cognitively able children with

Autism,” *Am. J. Intellect. Dev. Disabil.*, vol. 117, no. 2, 2012, doi: 10.1352/1944-7558-117.2.156.

[12] L. G. Klinger, M. R. Klinger, and R. L. Pohlig, “Implicit learning impairments in autism spectrum disorders: Implications for treatment,” in *New Developments in Autism: The Future is Today.*, 2007.

[13] E. Pellicano, A. Dinsmore, and T. Charman, “What should autism research focus upon? Community views and priorities from the United Kingdom,” *Autism*, vol. 18, no. 7, 2014, doi: 10.1177/1362361314529627.

[14] F. E. J. Howe and S. D. Stagg, “How Sensory Experiences Affect Adolescents with an Autistic Spectrum Condition within the Classroom,” *J. Autism Dev. Disord.*, vol. 46, no. 5, 2016, doi: 10.1007/s10803-015-2693-1.

[15] G. R. Hayes, S. Hirano, G. Marcu, M. Monibi, D. H. Nguyen, and M. Yeganyan, “Interactive visual supports for children with autism,” *Pers. Ubiquitous Comput.*, vol. 14, no. 7, 2010, doi: 10.1007/s00779-010-0294-8.

[16] L. Kenworthy, B. E. Yerys, L. G. Anthony, and G. L. Wallace, “Understanding executive control in autism spectrum disorders in the lab and in the real world,” *Neuropsychol. Rev.*, vol. 18, no. 4, 2008, doi: 10.1007/s11065-008-9077-7.

[17] G. B. Mesibov and V. Shea, “The TEACCH program in the era of evidence-based practice,” *J. Autism Dev. Disord.*, vol. 40, no. 5, 2010, doi: 10.1007/s10803-009-0901-6.

[18] C. A. Gray, “Social Stories and Comic Strip Conversations with Students with Asperger Syndrome and High-Functioning Autism,” in *Asperger Syndrome or High-Functioning Autism?*, 1998. doi: 10.1007/978-1-4615-5369-4_9.

[19] J. Case-Smith, L. L. Weaver, and M. A. Fristad, “A systematic review of sensory processing interventions for children with autism spectrum disorders,” *Autism*, vol. 19, no. 2, 2015, doi: 10.1177/1362361313517762.

[20] S. Fletcher-Watson, “A Targeted Review of Computer-Assisted Learning for People with Autism Spectrum Disorder: Towards a Consistent Methodology,” *Rev. J. Autism Dev. Disord.*, vol. 1, no. 2, 2014, doi: 10.1007/s40489-013-0003-4.

[21] N. S. Alcívar, L. P. Toala, J. E. Ramírez, and E. Ponce Villamar, “Technologies in Inclusive Education for Children with Autism Spectrum Disorder: Experiences of use in developing economies,” *RISTI - Rev. Iber. Sist. E Tecnol. Inf.*, vol. 2022, no. E50, 2022.

[22] A. H. Anderson, J. Stephenson, M. Carter, and S. Carlon, “A Systematic Literature Review of Empirical Research on Postsecondary Students with Autism Spectrum Disorder,” *J. Autism Dev. Disord.*, vol. 49, no. 4, 2019, doi: 10.1007/s10803-018-3840-2.

- [23] T. R. Gruber, "A translation approach to portable ontology specifications," *Knowl. Acquis.*, vol. 5, no. 2, 1993, doi: 10.1006/knac.1993.1008.
- [24] N. Guarino and D. Oberle, "Handbook on Ontologies - What Is an Ontology?," *Handb. Ontol.*, 2009.
- [25] A. Gómez-Pérez, M. Fernández-López, O. Corcho, and A. Gomez-Perez, *Ontological Engeenering with examples from the areas of Knowledge Management, e-Commerce and the Semantic Web*. 2010.
- [26] A. Woukeu, G. Wills, G. Conole, L. Carr, S. Kampa, and W. Hall, "Ontological Hypermedia in Education: A framework for building web-based educational portals," *Proc. EDMEDIA*, vol. 12, 2003.
- [27] M. Al-Yahya, R. George, and A. Alfaries, "Ontologies in E-Learning: Review of the literature," *Int. J. Softw. Eng. Its Appl.*, vol. 9, no. 2, 2015, doi: 10.14257/ijseia.2015.9.2.07.
- [28] W. Villegas-Ch and J. García-Ortiz, "Enhancing Learning Personalization in Educational Environments through Ontology-Based Knowledge Representation," *Computers*, vol. 12, no. 10, 2023, doi: 10.3390/computers12100199.
- [29] B. Vesin, M. Ivanović, A. Klačnja-Milićević, and Z. Budimac, "Protus 2.0: Ontology-based semantic recommendation in programming tutoring system," *Expert Syst. Appl.*, vol. 39, no. 15, 2012, doi: 10.1016/j.eswa.2012.04.052.
- [30] Y. L. Chi, T. Y. Chen, and W. T. Tsai, "Creating individualized learning paths for self-regulated online learners: An ontology-driven approach," in *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 2014. doi: 10.1007/978-3-319-07308-8_52.
- [31] Dr. K. Chitra and R. . Umamaheswari, "Semantically Enchanced Personalised Adaptive E-Learning for General and Dyslexia Learners: An Ontology Based Approach," *Int. J. Adv. Netw. Appl.*, vol. 10, no. 01, 2018, doi: 10.35444/ijana.2018.10017.
- [32] J. T. Nganji, M. Brayshaw, and B. Tompsett, "Ontology-driven disability-aware e-learning personalisation with ONTODAPS," *Campus-Wide Inf. Syst.*, vol. 30, no. 1, 2012, doi: 10.1108/10650741311288797.
- [33] O. Mugzach, M. Peleg, S. C. Bagley, S. J. Guter, E. H. Cook, and R. B. Altman, "An ontology for Autism Spectrum Disorder (ASD) to infer ASD phenotypes from Autism Diagnostic Interview-Revised data," *J. Biomed. Inform.*, vol. 56, 2015, doi: 10.1016/j.jbi.2015.06.026.
- [34] J. Galán-Mena, G. Ávila, J. Pauta-Pintado, D. Lima-Juma, V. Robles-Bykbaev, and D. Quisi-Peralta, "An intelligent system based on ontologies and ICT tools to support the diagnosis and intervention of children with autism," in *2016 IEEE Biennial*

Congress of Argentina, ARGENCON 2016, 2016. doi: 10.1109/ARGENCON.2016.7585361.

[35] T. Goradia, "Role of educational technologies utilizing the TPACK framework and 21st century pedagogies: Academics' perspectives," *IAFOR J. Educ.*, vol. 6, no. 3, 2018, doi: 10.22492/ije.6.3.03.

[36] D. W. F. Van Krevelen and R. Poelman, "A Survey of Augmented Reality Technologies, Applications and Limitations," *Int. J. Virtual Real.*, vol. 9, no. 2, 2010, doi: 10.20870/ijvr.2010.9.2.2767.

[37] M. H. M. Jamrus and A. B. Razali, "Augmented Reality in Teaching and Learning English Reading: Realities, Possibilities, and Limitations," *Int. J. Acad. Res. Progress. Educ. Dev.*, vol. 8, no. 4, 2019, doi: 10.6007/ijarped/v8-i4/6696.

[38] K. Khowaja *et al.*, "Augmented reality for learning of children and adolescents with autism spectrum disorder (ASD): A systematic review," *IEEE Access*, vol. 8, 2020, doi: 10.1109/ACCESS.2020.2986608.

[39] Q. Xu, S. C. S. Cheung, and N. Soares, "LittleHelper: An augmented reality glass application to assist individuals with autism in job interview," in *2015 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA ASC 2015*, 2016. doi: 10.1109/APSIPA.2015.7415480.

[40] L. Escobedo *et al.*, "MOSOCO: A mobile assistive tool to support children with autism practicing social skills in real-life situations," in *Conference on Human Factors in Computing Systems - Proceedings*, 2012. doi: 10.1145/2207676.2208649.

[41] Mahdi Ebnali *et al.*, "AR-coach: using augmented reality (AR) for real-time clinical guidance during medical emergencies on deep space exploration missions," in *Healthcare and Medical Devices*, New York, USA: AHFE International, pp. 67–75. doi: 10.54941/ahfe1002100.

[42] Z. Bai, A. F. Blackwell, and G. Coulouris, "Using augmented reality to elicit pretend play for children with autism," *IEEE Trans. Vis. Comput. Graph.*, vol. 21, no. 5, 2015, doi: 10.1109/TVCG.2014.2385092.

[43] K. Wang, S. J. Julier, and Y. Cho, "Attention-Based Applications in Extended Reality to Support Autistic Users: A Systematic Review," *IEEE Access*, vol. 10, 2022, doi: 10.1109/ACCESS.2022.3147726.

[44] R. S. Baragash, H. Al-Samarraie, A. I. Alzahrani, and O. Alfarraj, "Augmented reality in special education: a meta-analysis of single-subject design studies," *Eur. J. Spec. Needs Educ.*, vol. 35, no. 3, 2020, doi: 10.1080/08856257.2019.1703548.

[45] D. McMahon, D. F. Cihak, and R. Wright, "Augmented reality as a navigation tool to employment opportunities for postsecondary education students with intellectual disabilities and Autism," *J. Res. Technol. Educ.*, vol. 47, no. 3, 2015, doi: 10.1080/15391523.2015.1047698.

- [46] G. Lorenzo, A. Lledó, J. Pomares, and R. Roig, "Design and application of an immersive virtual reality system to enhance emotional skills for children with autism spectrum disorders," *Comput. Educ.*, vol. 98, 2016, doi: 10.1016/j.compedu.2016.03.018.
- [47] M. F. Syahputra, D. Arisandi, A. F. Lumbanbatu, L. F. Kemit, E. B. Nababan, and O. Sheta, "Augmented reality social story for autism spectrum disorder," in *Journal of Physics: Conference Series*, 2018. doi: 10.1088/1742-6596/978/1/012040.
- [48] A. B. M. S. U. Doulah *et al.*, "Application of Augmented Reality Interventions for Children with Autism Spectrum Disorder (ASD): A Systematic Review," *Computers*, vol. 12, no. 10, 2023, doi: 10.3390/computers12100215.
- [49] M. Akçayır and G. Akçayır, "Advantages and challenges associated with augmented reality for education: A systematic review of the literature," *Educ. Res. Rev.*, vol. 20, 2017, doi: 10.1016/j.edurev.2016.11.002.
- [50] M. A. Yahya and A. Dahanayake, "Augmented reality for human needs: An ontology," in *Frontiers in Artificial Intelligence and Applications*, 2020. doi: 10.3233/FAIA200835.
- [51] R. Hervas, D. Ruiz-Carrasco, T. Mondejar, and J. Bravo, "Gamification mechanics for behavioral change a systematic review and proposed taxonomy," in *PervasiveHealth: Pervasive Computing Technologies for Healthcare*, 2017. doi: 10.1145/3154862.3154939.
- [52] D. H. Rose, W. S. Harbour, C. S. Johnston, S. G. Daley, and L. Abarbanell, "Universal design for learning in postsecondary education: Reflections on principles and their application," *J. Postsecond. Educ. Disabil.*, vol. 19, no. 2, 2006.
- [53] J. Sweller, "Cognitive load theory, learning difficulty, and instructional design," *Learn. Instr.*, vol. 4, no. 4, 1994, doi: 10.1016/0959-4752(94)90003-5.
- [54] M. Bloch, J. Lave, and E. Wenger, "Situated Learning: Legitimate Peripheral Participation," *Man*, vol. 29, no. 2, 1994, doi: 10.2307/2804509.
- [55] L. Lu and M. Li, "Development of a virtual interactive system for Dahua Lou loom based on knowledge ontology-driven technology," *Herit. Sci.*, vol. 11, no. 1, 2023, doi: 10.1186/s40494-023-01027-x.
- [56] K. Venkatesan, S. Nelaturu, A. J. Vullamparthi, and S. Rao, "Hybrid ontology based e - Learning expert system for children with Autism," in *2013 International Conference of Information and Communication Technology, ICoICT 2013*, 2013. doi: 10.1109/ICoICT.2013.6574555.
- [57] F. Longo, G. Mirabelli, L. Nicoletti, and V. Solina, "An ontology-based, general-purpose and Industry 4.0-ready architecture for supporting the smart operator (Part I – Mixed reality case)," *J. Manuf. Syst.*, vol. 64, 2022, doi: 10.1016/j.jmsy.2022.08.002.

- [58] S. Isotani, A. Inaba, M. Ikeda, and R. Mizoguchi, "An ontology engineering approach to the realization of theory-driven group formation," *Int. J. Comput.-Support. Collab. Learn.*, vol. 4, no. 4, 2009, doi: 10.1007/s11412-009-9072-x.
- [59] S. Parsons and S. Cobb, "Reflections on the role of the 'users': Challenges in a multi-disciplinary context of learner-centred design for children on the autism spectrum," *Int. J. Res. Method Educ.*, vol. 37, no. 4, 2014, doi: 10.1080/1743727X.2014.890584.
- [60] A. K. Izuno-Garcia, M. M. McNeel, and R. H. Fein, "Neurodiversity in Promoting the Well-Being of Children on the Autism Spectrum," *Child Care Pract.*, vol. 29, no. 1, 2023, doi: 10.1080/13575279.2022.2126436.
- [61] S. Trewin *et al.*, "Considerations for AI fairness for people with disabilities," *AI Matters*, vol. 5, no. 3, 2019, doi: 10.1145/3362077.3362086.
- [62] M. Cherewick and M. Matergia, "Neurodiversity in Practice: a Conceptual Model of Autistic Strengths and Potential Mechanisms of Change to Support Positive Mental Health and Wellbeing in Autistic Children and Adolescents," *Adv. Neurodev. Disord.*, vol. 8, no. 3, 2024, doi: 10.1007/s41252-023-00348-z.
- [63] A. C. Starks and S. M. Reich, "“What about special ed?”: Barriers and enablers for teaching with technology in special education," *Comput. Educ.*, vol. 193, 2023, doi: 10.1016/j.compedu.2022.104665.
- [64] L. Benton, A. Vasalou, R. Khaled, H. Johnson, and D. Gooch, "Diversity for design: A framework for involving neurodiverse children in the technology design process," in *Conference on Human Factors in Computing Systems - Proceedings*, 2014, doi: 10.1145/2556288.2557244.
- [65] S. Fletcher-Watson, H. Pain, S. Hammond, A. Humphry, and H. McConachie, "Designing for young children with autism spectrum disorder: A case study of an iPad app," *Int. J. Child-Comput. Interact.*, vol. 7, 2016, doi: 10.1016/j.ijcci.2016.03.002.
- [66] R. Folostina, C. Dumitru, C. I. Iacob, and C. K. Syriopoulou-Delli, "Mapping Knowledge and Training Needs in Teachers Working with Students with Autism Spectrum Disorder: A Comparative Cross-Sectional Investigation," *Sustain. Switz.*, vol. 14, no. 5, 2022, doi: 10.3390/su14052986.
- [67] F. H. Boot, J. Owuor, J. Dinsmore, and M. Maclachlan, "Access to assistive technology for people with intellectual disabilities: A systematic review to identify barriers and facilitators," *J. Intellect. Disabil. Res.*, vol. 62, no. 10, 2018, doi: 10.1111/jir.12532.
- [68] B. S. Bloom, "The 2 Sigma Problem: The Search for Methods of Group Instruction as Effective as One-to-One Tutoring," *Educ. Res.*, vol. 13, no. 6, 1984, doi: 10.3102/0013189X013006004.

- [69] N. H. Sabelli and C. J. Harris, "The Role of Innovation in Scaling Up Educational Innovations," 2015. doi: 10.1007/978-981-287-537-2_2.
- [70] T. J. Kopcha, "A systems-based approach to technology integration using mentoring and communities of practice," *Educ. Technol. Res. Dev.*, vol. 58, no. 2, 2010, doi: 10.1007/s11423-008-9095-4.
- [71] C. O’Keeffe and S. McNally, "A Systematic Review of Play-Based Interventions Targeting the Social Communication Skills of Children with Autism Spectrum Disorder in Educational Contexts," *Rev. J. Autism Dev. Disord.*, vol. 10, no. 1, 2023, doi: 10.1007/s40489-021-00286-3.
- [72] J. T. Nganji, M. Brayshaw, and N. Gordon, "Flexible Ontology-Driven Educational Apps and Social Media for Learners with a Disability," in *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 2022. doi: 10.1007/978-3-031-05657-4_26.
- [73] K. Sengupta, L. Lobo, and V. Krishnamurthy, "Educational and Behavioral Interventions in Management of Autism Spectrum Disorder," *Indian J. Pediatr.*, vol. 84, no. 1, 2017, doi: 10.1007/s12098-015-1967-0.
- [74] A. Pedrazzoli, "OPUS one: An intelligent adaptive learning environment using artificial intelligence support," in *AIP Conference Proceedings*, 2010. doi: 10.1063/1.3460231.
- [75] S. K., A. Gantman, and E. A., "Transition to Adulthood for High-Functioning Individuals with Autism Spectrum Disorders," in *A Comprehensive Book on Autism Spectrum Disorders*, 2011. doi: 10.5772/21506.
- [76] S. Grimm, P. Hitzler, and A. Abecker, "Knowledge Representation and Ontologies Logic, Ontologies and Semantic Web Languages," *Semantic Web Serv.*, 2007, doi: 10.1007/3-540-70894-4_3.
- [77] M. V. Judy, U. Krishnakumar, and A. G. H. Narayanan, "Constructing a personalized e-learning system for students with autism based on soft semantic web technologies," in *Proceedings - 2012 IEEE International Conference on Technology Enhanced Education, ICTEE 2012*, 2012. doi: 10.1109/ICTEE.2012.6208625.
- [78] S. Yang, H. Tian, L. Sun, and X. Yu, "From One-size-fits-all Teaching to Adaptive Learning: The Crisis and Solution of Education in the Era of AI," in *Journal of Physics: Conference Series*, 2019. doi: 10.1088/1742-6596/1237/4/042039.
- [79] G. Lorenzo, A. Gilabert, A. Lledó, and A. Lorenzo-Lledó, "Analysis of Trends in the Application of Augmented Reality in Students with ASD: Intellectual, Social and Conceptual Structure of Scientific Production Through WOS and Scopus," *Technol. Knowl. Learn.*, vol. 28, no. 1, 2023, doi: 10.1007/s10758-021-09582-7.

- [80] A. T. McCray, P. Trevvett, and H. R. Frost, "Modeling the autism spectrum disorder phenotype," *Neuroinformatics*, vol. 12, no. 2, 2014, doi: 10.1007/s12021-013-9211-4.
- [81] A. N. Lam, B. Elvesæter, and F. Martin-Recuerda, "Evaluation of a Representative Selection of SPARQL Query Engines Using Wikidata," in *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 2023. doi: 10.1007/978-3-031-33455-9_40.
- [82] A. Gatti and V. Mascardi, "Towards VEsNA, a Framework for Managing Virtual Environments via Natural Language Agents," in *Electronic Proceedings in Theoretical Computer Science, EPTCS*, 2022. doi: 10.4204/EPTCS.362.8.
- [83] A. Ruggeri, A. Dancel, R. Johnson, and B. Sargent, "The effect of motor and physical activity intervention on motor outcomes of children with autism spectrum disorder: A systematic review," *Autism*, vol. 24, no. 3, 2020, doi: 10.1177/1362361319885215.
- [84] N. H. Adnan, I. Ahmad, and N. Abdullasim, "Systematic review on augmented reality application for autism children," *J. Adv. Res. Dyn. Control Syst.*, vol. 10, no. 11, 2018.
- [85] A. Posar and P. Visconti, "Sensory abnormalities in children with autism spectrum disorder," *J. Pediatr. (Rio J.)*, vol. 94, no. 4, 2018, doi: 10.1016/j.jped.2017.08.008.
- [86] G. Wilson, "Mindblindness—an essay on autism and theory of mind," *Personal. Individ. Differ.*, vol. 20, no. 2, 1996, doi: 10.1016/s0191-8869(96)80006-7.
- [87] A. Carreon, S. J. Smith, B. Frey, A. Rowland, and M. Mosher, "Comparing immersive VR and non-immersive VR on social skill acquisition for students in middle school with ASD," *J. Res. Technol. Educ.*, vol. 56, no. 5, 2024, doi: 10.1080/15391523.2023.2182851.
- [88] "IEEE Transactions on Learning Technologies," *IEEE Trans. Learn. Technol.*, vol. 15, no. 6, 2022, doi: 10.1109/tlt.2022.3224333.
- [89] A. Meyer, D. H. Rose, and David Gordon, "Universal Design for Learning Theory and Practice," *Br. J. Psychiatry*, vol. 112, no. 483, 1966.
- [90] Buddhika Withanage, "ONLEARN Demonstrations." Google Drive, Apr. 27, 2025. [Online]. Available: https://drive.google.com/drive/folders/1-EJzxw30kd9wDL1713ZV0rloMXTfze5Y?usp=drive_link