

Hobbies and Diversion: A Jolt on the Behavior of Children with ASD

Maria Cecilia Fadare¹, Cherie Bautista-Apolinario², Stephen, Ayoade Fadare^{3*}, Karlo May Portento- Sanmillan⁴, Josephine Bisquera Paredes⁵, Johnzen Mapangdol Palgue⁶

¹ School Nurse/SPED Instructor, Saint Louis College, CSF, La Union, Philippines -

<https://orcid.org/0000-0001-5570-6623>

² Master Teacher, Department of Education, Silanganan Elementary School, Caloocan,

Philippines -<https://orcid.org/0009-0001-0981-4372>

^{3*} Assistant Professor, CSPEAR, Mindanao State University (Main) Marawi, Philippine –

<https://orcid.org/0000-0002-3444-4713>

⁴ Research Fellow, Orange County Public Schools - Orlando, Florida, USA-

<https://orcid.org/0009-0001-3564-3204>

⁵ Research Fellow, Lee County School District, Marianna, Arkansas USA – 0009-0002-6638- 8741 (Not Paid)

⁶ Central High School, Helena, Arkansas, USA – <https://orchid.org/0009-0009-1392-7968>

Abstract

Autism spectrum disorder (ASD), a neurodevelopmental condition, is characterized by challenges in social interaction and communication as well as repetitive activities and focused interests. Children with ASD frequently experience particular difficulties in their everyday lives, which may have an effect on their conduct, social abilities, and general well-being. This review examines how engaging in hobbies and other activities might help children with ASD improve their social skills and general wellbeing while lowering problematic behaviors. Also, the possible beneficial effects of particular pastimes or diversions on autistic children's conduct and social abilities. A better knowledge of efficient therapies and techniques for encouraging good behaviors and lowering difficult behaviors in kids with ASD may be gained by looking at the association between hobbies, diversions and ASD. With a focus on publications like Elsevier, Sage journals, BMC, PubMed, Frontier, Scopus and other related health journals, a unique study was conducted on a variety of recently published works from 2015 to 2023. Promoting good behaviors and lowering problematic ones requires treatments and techniques that are specifically designed to meet the requirements of children with ASD. Children with ASD can be empowered to realize their full potential and lead fulfilling lives through early intervention, individualized approaches, evidence-based techniques, social skill development, visual supports, sensory integration strategies, communication interventions, caregiver involvement, multidisciplinary collaboration, and community inclusion.

Keywords: ASD children, A Jolt, behavior, diversion, hobbies.

Introduction

According to Hodges et al. (2020); WHO (2020), autism spectrum disorder (ASD) is a neurodevelopmental disease that is characterized by difficulties with social interaction, communication, repetitive activities, and narrow interests. The World Health Organization (WHO) estimates that 16% of children worldwide have ASD,

and according to data from the Centers for Disease Control and Prevention (CDC), 1 in 59 US children aged 8 have been diagnosed with autism spectrum disorder (ASD). Children with ASD typically experience challenges in their everyday lives, which may affect their behavior, social abilities, and general wellbeing. The study of the role that interests and pastimes play in promoting positive outcomes and improving the quality of life for children with ASD is growing in popularity as researchers and professionals strive to offer children with ASD effective interventions and support systems (Baxter et al., 2015; Kogan et al., 2019; Palinkas et al., 2019).

Hobbies and diversions are leisure pursuits that individuals decide to engage in independently for their own enjoyment and self-expression. Along with physical activities like sports or outdoor adventures, these interests might also include artistic pursuits like music, painting, or sketching (Knight et al., 2019). They can also involve academic and cerebral activities like computer programming or crossword puzzles. Beyond basic recreational activities, hobbies and diversions can benefit children with ASD in a number of ways (Fadare et al., 2023; Smith, 2021; Kelly & Armitage, 2015;).

One important aspect that makes hobbies and diversions particularly beneficial for children with ASD is their capacity to provide structured and predictable environments. People with autism spectrum disorders often thrive in structured settings with established routines. The sense of stability and familiarity that hobbies and diversions may offer can help youngsters with ASD feel more at ease and safe in their involvement. As a result, there may be a decrease in anxiety and an overall improvement in behavior (Tyrell et al., 2017). Moreover, hobbies and diversions provide opportunities for creativity and self-expression. Many people with ASD have distinctive skills, passions, and abilities that may be developed and honored via their favorite pastimes and activities. Taking part in activities that are compatible with their interests and skills may increase self-confidence and give people a sense of achievement, which can lead to an improvement in their mental health and general quality of life (Martinsen et al., 2021).

It is important to understand that while hobbies and other types of entertainment can considerably assist children with ASD, individual preferences and needs might vary greatly. What is effective for one child may not necessarily be effective for another. It is important to take into account each child's particular interests, sensory demands, and developmental stages in order to guarantee the appropriateness and efficacy of the hobbies and diversions chosen.

Hobbies and Diversions as a source of Cognitive and Social Skills Development.

The development of children's cognitive and social abilities, particularly those of individuals with autism spectrum disorder (ASD), depends greatly on their hobbies and diversions. Children can benefit greatly from having opportunities to build important life skills, better social connections, and develop their cognitive capabilities by participating in activities that are in line with their unique interests and preferences. With an emphasis on the effects on kids with ASD, this in-depth analysis examines the value of hobbies and diversions as catalysts for children's cognitive and social skill development (Matson & Shoemaker, 2017).

Cognitive Skills Development

Problem-solving and Critical Thinking: Hobbies and diversions frequently offer opportunity for challenges and problem-solving that engage cognitive processes. Activities that encourage critical thinking, logical reasoning, and problem-solving abilities include puzzles, strategic games, and coding. The analysis of problems, consideration of alternatives, and development of efficient techniques to get around hurdles are encouraged by such activities for kids, including those with ASD (Hillman et al., 2015).

Creativity and Imagination: Creativity and imagination are fostered through engaging in creative pursuits like music, painting, and sketching. Children may express themselves, consider various viewpoints, and think creatively through these activities. Creative pursuits can encourage self-expression, enhance communication abilities, and give an outlet for emotional expression for kids with ASD (Fancourt et al., 2016; Sahakian et al., 2018).

Attention and Focus:Children with ASD frequently struggle with attention difficulties, and structured activities like hobbies can help them improve their ability to sustain attention and follow instructions (Savulich et al., 2019). Hobbies and diversions that demand sustained attention and focus, such as playing a musical instrument or participating in sports, can significantly enhance concentration skills.

Social Skills Development

Peer Interaction and Cooperation:Children get the chance to engage with peers through group hobbies and activities, which promotes the growth of social skills. Children are encouraged to practice turn-taking, negotiate, and work with others through collaborative activities like team sports, group projects, or board games. These encounters foster reciprocal relationship building, social communication, and empathy (Chan et al., 2022; Langco et al., 2022).

Communication and Language Skills:Hobbies and diversions provide a background for using and honing language and communication abilities. Children with ASD can improve their speech, expressive language, and conversational skills by participating in verbal-interaction-based activities like joining a theater club or joining a book club. Children with low verbal skills may find other ways of expression and communication in nonverbal pursuits like painting or music (Qureshi et al., 2021).

Self-Confidence and Self-Advocacy:Children, even those with ASD, might experience increased self-confidence and self-esteem when they excel in a pastime or activity (). Self-perception and self-advocacy can both be enhanced by the sense of achievement one feels after mastering a skill or winning acclaim. As children with ASD become more assertive and ready to communicate with others, developing confidence via hobbies can have a good influence on social interactions (Rwegoshora et al., 2022).

Hobbies and Diversion as a way of improving expression and interaction in Children with ASD.

The expressiveness and social interaction of children with autism spectrum disorder (ASD) can be improved through hobbies and diversions. Activities that are in line with their interests and strengths offer beneficial chances for communication and self-expression.

Non-Verbal Expression:Verbal communication is a struggle for many kids with ASD. Alternative channels of expression are offered by hobbies and diversions. Children can visually express their thoughts, feelings, and ideas via artistic endeavors like painting, sketching, or sculpture. Hobbies can offer a way of communication and self-expression, which can help to lessen irritation and increase involvement (Silva et al., 2016).

Shared Interests and Connections:Children with ASD can connect with people who share their interests by taking up hobbies and other pastimes. It is possible to socialize with peers who have a same interest by joining hobby-specific groups or clubs. The emergence of social relationships and friendships can be aided by shared interests, which can act as conversation starters and engender a feeling of community. Group activities focused on interests offer an organized and welcoming setting where social connections can grow (Qureshi et al., 2021).

Collaborative Engagement:Cooperative learning can boost cognitive student accomplishment, according to research studies, with benefits that are of moderate magnitude (Veldman et al., 2020).Hobbies often involve collaborative tasks and projects, fostering cooperation and teamwork. Participating in group hobbies, such as music bands, theater groups, or team sports, requires interaction, coordination, and joint effort. These activities promote shared decision-making, turn-taking, and cooperation, which are essential social skills for children with ASD. Collaborative engagement in hobbies provides opportunities for practicing social communication and building positive relationships (Casey& O'Neill, 2018;González et al., 2016).

Interest-Oriented Conversations: Hobbies and diversions offer a natural context for conversation and social interaction. When children with ASD engage in activities, they are passionate about, it can facilitate conversations with peers or adults who share their interests. Discussing strategies, techniques, or experiences related to their hobbies provides a framework for meaningful and reciprocal conversations. Shared interests can

act as a bridge to initiate and sustain conversations, supporting the development of communication and social skills(National Autistic Society, 2020; Stivers et al., 2021)

Emotional Regulation: Hobbies and diversions can serve as outlets for emotional expression and regulation. Engaging in preferred activities can help children with ASD manage their emotions, reduce stress, and improve overall well-being. Through hobbies, children can develop self-regulation skills, learn to cope with frustration, and experience a sense of accomplishment, contributing to positive emotional experiences in social settings(Mazurek & Dombrowski, 2017).

Challenges associated with implementing hobbies and diversions in therapeutic settings and everyday life of children with ASD

For a youngster, especially one with autism spectrum disorder (ASD), incorporating hobbies and diversions into therapy settings and daily life might present particular obstacles. The following are some typical difficulties in introducing hobbies and diversions for kids with ASD:

Sensory Considerations:Many kids with ASD have sensory issues, and they could have trouble with certain sensory experiences. Some pastimes and activities may expose individuals to sensory stimulation that are too much or uncomfortable for them. When choosing activities, it's crucial to take the child's sensory preferences and sensitivities into account. The environment can be changed to meet sensory demands and encourage involvement (Robertson, 2017; Gentil-Gutiérrez et al., 2021; Mills et al., 2021). Additionally, sensory aids and alternative alternatives can be provided.

Communication and Social Engagement:Hobbies and pastimes frequently include communication and social engagement. Understanding social signs, making friends, and continuing conversations may be difficult for kids with ASD. Participating in group hobbies or team sports, which demand social interaction, might be difficult at first. Children with ASD can manage the social components of hobbies more skillfully with the use of support, social skills instruction, and visual aids (Jones et al., 2017).

Motivation and Engagement: Some children with ASD may have limited attention spans or difficulties with motivation and engagement. Sustaining interest and motivation in hobbies and diversions may require additional support and adaptations. Breaking activities into smaller, manageable steps, incorporating visual supports, or incorporating special interests into hobbies can help maintain engagement and motivation (Bennett et al., 2016).Engaging in sports activities can equally serves as motivation and awarding to the special kids will motivate them to play and have sports as their hobbies (Mabandes et al., 2021; Lee et al., 2020; Bearss et al., 2015).

Parent and Caregiver Support: Implementing hobbies and diversions in everyday life often requires support and collaboration from parents and caregivers. Parents play a crucial role in facilitating and reinforcing hobbies at home. Providing guidance, resources, and ongoing support to parents can help ensure consistency and success in implementing hobbies and diversions in the child's daily routine. (Fadare et al., 2022; Carlier et al., 2020; Bearss et al., 2015;)

Addressing these challenges involves careful planning, flexibility, and collaboration among professionals, parents, and caregivers. Individualized approaches, incorporating evidence-based strategies, and actively involving the child in the selection and adaptation of hobbies can help overcome challenges and promote meaningful engagement and skill development.

Effective interventions and strategies for promoting positive behaviors and reducing challenging behaviors in children with autism spectrum disorder (ASD)

Effective interventions and strategies for promoting positive behaviors and reducing challenging behaviors in children with autism spectrum disorder (ASD) are essential for improving their overall well-being and quality of life. Here are some evidence-based approaches that have shown promise in this regard:

Applied Behavior Analysis (ABA): ABA is a widely recognized and evidence-based intervention approach for children with ASD. It focuses on identifying and modifying behaviors by using systematic principles and strategies. ABA techniques, such as positive reinforcement, prompting, and shaping, are used to encourage desired behaviors and reduce challenging behaviors. A trained therapist or behavior analyst designs individualized interventions targeting specific behaviors and skill development (Tiede & Walton, 2019; Bellon-Harn et al., 2022; Gitimoghaddam et al., 2022).

Structured Teaching: Structured teaching approaches, such as the TEACCH (Treatment and Education of Autistic and Related Communication-handicapped Children) program, emphasize the use of visual supports and structured schedules to enhance organization, predictability, and independence. These approaches provide clear instructions, visual cues, and structured environments to promote positive behaviors and reduce anxiety associated with uncertainty (Royer et al., 2017; Samuel et al., 2021).

Social Skills Training: Social skills deficits are common among children with ASD. Social skills training interventions aim to improve social interactions, communication, and relationship-building skills. Strategies may include direct teaching of social rules, modeling appropriate behaviors, role-playing, and providing feedback. Social skills groups and targeted interventions can help children with ASD acquire and generalize social skills in various settings (Tanner et al., 2015; Zalewska et al., 2016)

Visual Supports: Visual supports, such as visual schedules, social stories, and visual cues, are effective tools for promoting positive behaviors and reducing anxiety in children with ASD. Visual supports provide clear and concrete information, help with understanding expectations, and facilitate communication. They can be used to support transitions, explain social situations, and promote independence. (Nget et al., 2022; Hu et al., 2021).

Sensory Integration Therapy: Many children with ASD experience sensory sensitivities or difficulties. Sensory integration therapy aims to help individuals with ASD process and respond to sensory input effectively. Through a range of activities and exercises, sensory integration therapy helps regulate sensory responses and reduces the likelihood of parents' education, strategies, and support of challenging behaviors associated with sensory overload or seeking (Ando et al., 2018; Case-Smith et al., 2015).

Functional Communication Training (FCT): FCT focuses on teaching alternative and functional communication skills to replace challenging or disruptive behaviors. It involves identifying the purpose or function of problem behaviors and teaching appropriate communication strategies to meet those needs effectively. By providing individuals with alternative means of communication, FCT can reduce frustration, increase engagement, and promote positive behaviors (Battaglia, 2017).

Parent and Caregiver Training: Involving parents and caregivers in interventions is crucial for consistency and generalization of skills. Parent training programs provide parents with education, strategies, and support, empowering them to implement effective interventions at home and in daily routines (Bearss et al., 2015). By working collaboratively with professionals, parents, and caregivers can reinforce positive behaviors, reduce challenging behaviors, and promote skill development in natural environments.

It is important to note that interventions should be individualized, considering the unique strengths, needs, and preferences of each child with ASD. Collaborative efforts among professionals, families, and caregivers, along with consistent implementation and ongoing evaluation, are vital for the success of these interventions.

Conclusion

Understanding the influence of hobbies and diversions on the behavior of children with ASD has the potential to significantly impact intervention approaches and support mechanisms for individuals on the autism spectrum. By shedding light on the benefits and challenges associated with implementing hobbies and diversions in therapeutic settings and everyday life, this study aims to contribute to the existing knowledge base and provide practical recommendations for promoting positive behaviors and enhancing the overall well-being of children with ASD.

It is advised that parents, school administrators, instructors, and caregivers keep an eye out for better ways to increase the hobbies and diversions available to able-bodied and special-needs children in our community, as this will foster and strengthen their feeling of community.

We ought to thank the academics whose publications were cited in this investigation. Aside from that, we value the help of Assoc. Prof. Hendely A. Adlawan, PhD., Prof. Samuel Arua, FOCS, and Prof. Falegbe Kehinde, FOCS, who acted as our internal peer reviewers and ensured the review article adhered to the actual requirements. Additionally, we value the editor's thoughtful decision to publish our work in the journal as well as the informative feedback the anonymous International Journal of Special Education peer reviewers provided. Thank you to all.

Competing Interests

The authors have no competing interests to declare.

Author Contributions

The scoping review and the composition of the article involves all writers equally.

Funding

None

References

- [1] Ando, H., Yoshimura, I., & Matsushima, K. (2018). Effects of Art Therapy Using Color on Symptoms of Children with Autism Spectrum Disorder. *International Journal of Environmental Research and Public Health*, 15(8), 1768.
- [2] Battaglia, D. (2017). Functional Communication Training in Children with Autism Spectrum Disorder. *Young Exceptional Children*, 20(1), 30–40. <https://doi.org/10.1177/1096250615576809>
- [3] Bennett, K.; Manassis, K., Duda, S., Bagnell, A., Bernstein, G.A., Garland, E.J., Miller, L.D., Newton, A., Thabane, L., Wilansky, P. (2016). Treating Child and Adolescent Anxiety Effectively: Overview of Systematic Reviews. *Clin. Psychol.* 50, 80–94.
- [4] Baxter, A. J., Brugha, T. S., & Erskine, H. E. (2015). The epidemiology and global burden of autism spectrum disorders. *Psychol Med*, 45:601-13. [10.1017/S003329171400172](https://doi.org/10.1017/S003329171400172)
- [5] Carlier, S, Van der, P. S, Ongenaes, F, De Backere, F, De & Turck F. (2020). Empowering Children with ASD and Their Parents: Design of a Serious Game for Anxiety and Stress Reduction. *Sensors*. 20(4):966. <https://doi.org/10.3390/s20040966>
- [6] Casey, A. F., & O'Neill, M. E. (2018). The Benefits of Artistic Engagement for Children on the Autism Spectrum: A Systematic Review. *International Journal of Disability, Development, and Education*, 65(4), 367-392.
- [7] Fadare, A. S., Wacan, S. J.G., Moreno, R.H., Tecson-Casane, H.F., Catalan, S.A., & Insisto, O.R. (2023). Valuing Inclusive Recreational Activities for Special Children: Leave No One Behind. *Kepes*. 21(2); 214-222. <https://doi.org/10.5281/zenodo.7936583#58>
- [8] Fadare, M. C., Fadare, A.S., Adlawan, A.H., Gumanoy, A.D., Oyda, A.M., E. L. Nnadi, E.L., &
- [9] Bademosi, A.T. (2022). Nurturing Teenagers with Special Needs: As a Basis for Government Intervention Programs. *Asian Journal of Research in Nursing and Health* 5(2): 38-46.
- [10] Jones, R., Pickles, A., & Lord, C. (2017). Evaluating the quality of peer interactions in children and adolescents with autism with the Penn Interactive Peer Play Scale (PIPPS). *Molecular Autism*, 8(28), 1-9. [doi:10.1186/s13229-017-0144-x](https://doi.org/10.1186/s13229-017-0144-x)
- [11] Kelly, L., & Armitage, V (2015). Diverse diversions: Youth justice reforms, localized practices, and a 'New Interventionist Diversion'? *Youth Justice*. 15(2), 117–133.

-
- [12] Knight, V., Sartini, E., & Spriggs, A. D. (2019). Exercise training improves physical, social, and psychological well-being in adults with autism spectrum disorder. *European Journal of Applied Physiology*, 119(1), 297-305.
- [13] Kogan, M. D., Vladutiu, C. J., & Perrin, J. M. (2019). Caution About Displaying State-Level Differences in the Prevalence of Autism Spectrum Disorder. *JAMA pediatrics*, 173(9), 887-888.
- [14] Langco, L. V., Langco, L. A., Langco, L. Sittie Asiyya., & Fadare A. S. (2022). Influenced of Peer Groups towards Socialization among Physical Education Students. *International Journal of Science and Management Studies*. 5(2); 48-55. doi: 10.51386/25815946/ijsms-v5i2p106
- [15] González, A. V., & Godoy, M. J. (2016). Merinocollaborative learning with students with an autism spectrum disorder. an experience in teaching electromagnetism. Conference: International Technology.Education and Development Conference. doi: 10.21125/iceri.2016.1527
- [16] Gitimoghaddam, M., Chichkine, N., McArthur, L., Sangha, S. S., & Symington, V. (2022). Applied Behavior Analysis in Children and Youth with Autism Spectrum Disorders: A Scoping Review. *Perspect Behav Science*, 45(3), 521-557. doi: 10.1007/s40614-022-00338-x
- [17] Gentil-Gutiérrez, A., Cuesta-Gómez, J. L., Rodríguez-Fernández, P., & González-Bernal J. J. (2021). Implication of the Sensory Environment in Children with Autism Spectrum Disorder: Perspectives from School. *Int J Environ Res Public Health*18(14), 7670. doi 10.3390/ijerph18147670
- [18] Hodges, H., Fealko, C., & Soares, N. (2020). Autism spectrum disorder: definition, epidemiology, causes, and clinical evaluation. *Transl Pediatric*, 9(1), 55-S65. doi: 10.21037/tp.2019.09.09
- [19] Hillman, C. H., Pontifex, M. B., Castelli, D. M., Khan, N. A., Raine, L. B., Scudder, M. R. & Kamijo, K. (2015). Effects of the FIT Kids randomized controlled trial on executive control and brain function. *Pediatrics*. 134(4),1063-1071
- [20] Hu, X., Wang, H., Han, Z. R., Zhao, Y., & Ke, L. (2021). The influence of visual supports and motivation on motor performance of the MABC-2 for Chinese school-aged children with autism spectrum disorder. *Sci Rep*. 11(1), 15557. doi: 10.1038/s41598-021-95155-8.
- [21] Lee, J., Zhang, T., Chu, T. L., & Gu, X. (2020). Effects of a need-supportive motor skill intervention on children's motor skill competence and physical activity. *Children*, 7(3), 21.
- [22] Mabandes, LL., Fadare, A.S., Adlawan, A.H. (Karate-do Athletes' Reactions to Aggression and Motivation during Fit and Well Zone Tournament Performance. *International Journal of Science and Management Studies*. 4(3);211-219. 10.51386/25815946/ijsms-v4i3p119
- [23] Martinsen, K. D, Rasmussen, L. P, Wentzel-Larsen, T., Holen, S, Sund, A. M., Pedersen, M. L, Løvaas, M. E. S., Patras, J., Adolfsen, F., & Neumer, S. P. (2021). Change in quality of life and self-esteem in a randomized controlled CBT study for anxious and sad children: can targeting anxious and depressive symptoms improve functional domains in schoolchildren? *BMC Psychol*. 9(1),8. Doi: 10.1186/s40359-021-00511-y
- [24] Mazurek, M. O., & Dombrowski, S. M. (2017). Feasibility and acceptability of a modified cognitive-behavioral and mindfulness-based group therapy for anxiety in children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*. 47(8), 2592-2608.
- [25] Mills, C.J., Chapparo, C., & Hinitt, J. (2021). Impact of a Sensory Activity Schedule Intervention on Cognitive Strategy Use in Autistic Students: A School-Based Pilot Study. *Br. J. Occup. Ther*. doi: 10.1177/0308022620982888
- [26] Bellon-Harn, M. L., Boyd, R. L. & Manchaiah, V. (2022). Applied Behavior Analysis as Treatment for Autism Spectrum Disorders: Topic Modeling and Linguistic Analysis of Reddit Posts. *Front. Rehabil. Sci., Translational Research in Rehabilitation*. 2. <https://doi.org/10.3389/fresc.2021.682533>
- [27] Matson, J. L., & Shoemaker, M. E. (2017). Intellectual disability and its relationship to autism spectrum disorders. *Research in Developmental Disabilities*. 64, 57-63.
- [28] Ng, P.M.L., Chan, J.K.Y. & Lit, K.K. (2022). Student learning performance in online collaborative learning. *Educ Inf Technol*, 27, 8129–8145. <https://doi.org/10.1007/s10639-022-10923-x>

-
- [29] National Autistic Society (2020). Sensory activities for autistic children. Retrieved from <https://www.autism.org.uk/advice-and-guidance/topics/sensory-world/sensory-activities>
- [30] Palinkas, L. A., Mendon, S. J., & Hamilton, A. B (2019). Annual review of public health innovations in mixed methods evaluations. *Annu Rev Public Heal*, 40:423-42. 10.1146/annual-publhealth-040218-044215
- [31] Robertson, C.E., & Baron-Cohen, S.(2017) Sensory perception in autism. *Nat. Rev. Neuroscience*, 18:671–684. doi: 10.1038/nrn.2017.112.
- [32] Royer, D. J., Lane, K. L., Cantwell, E. D., & Messenger, M. L. (2017). A Systematic Review of the Evidence Base for Instructional Choice in K-12 Settings. *Behavioral Disorders*, 42(3), 89-107.
- [33] Rwegoshora, H., Mohamed, F & Mnyanyi, C (2022). Factors Influencing Social Participation and Self-esteem among Children with Cognitive Disability within African Families: The Case of Ilala District in Tanzania. *Asian Research Journal of Arts & Social Sciences*. 17 (2): 1-13.
- [34] Samuel, L., Odom, Hall, L J., Morin, K. L., Kraemer, B. R., Hume, K. A., McIntyre, N. S., Steinbrenner, J. R., Sam, A. M., & DaWalt, L. (2021). Educational Interventions for Children and Youth with Autism: A 40-Year Perspective. *Journal of Autism Dev Discord*, 51, 4354–4369 (2021). <https://doi.org/10.1007/s10803-021-04990-1>
- [35] Savulich, G, Thorp E, Thomas, P, Peterson, K. A., Pickard, J, D., Sahakian Barbara J. (2019). Improvements in Attention Following Cognitive Training with the Novel “Decoder” Game on an iPad. *Frontiers in Behavioral Neuroscience*. <https://www.frontiersin.org/articles/10.3389/fnbeh.2019.00002>. doi:10.3389/fnbeh.2019.00002
- [36] Smith, R. (2021). Diversion, Rights and Social Justice. *Youth Justice*. 21(1),18–32. <https://doi.org/10.1177/1473225420902845>
- [37] Sahakian, B. J., d’Angelo, L.-S. C., & Savulich, G. (2018). Games for the brain Games: Conflict, Competition, and Cooperation. *Darwin College Lectures*, eds D. Blagden and M. De Rond (Cambridge: Cambridge University Press), 101–119.
- [38] Stivers, T., Mondada, L., & Steensig, J. (2021). *The Morality of Knowledge in Conversation*. Cambridge University Press.
- [39] Tanner, K., Hand, B.N., O’Toole, G., & Lane, A.E. (2015). Effectiveness of interventions to improve social participation, play, leisure, and restricted and repetitive behaviors in people with autism spectrum disorder: A systematic review. *Am. J. Occup. Ther.*; 69:1–12. doi: 10.5014/ajot.2015.017806
- [40] Tiede, G., & Walton, K. M. (2019). Meta-analysis of naturalistic developmental behavioral interventions for young children with autism spectrum disorder. *Autism*, 23(8), 2080–2095. <https://doi.org/10.1177/1362361319836371>
- [41] Tyrell, K., Bond, E., Manning, M., & Dogaru, C. (2017). *Diversion, Prevention, and Youth Justice: A Model of Integrated Decision Making*. Ipswich: University of Suffolk
- [42] Qureshi, M. A., Khaskheli, A., Qureshi, J. A., Raza, S. A., & Yousufi, S. Q. (2021). Factors affecting students’ learning performance through collaborative learning and engagement. *Interactive Learning Environments*, 1–21
- [43] Veldman, M. A., Doolaard, S., Bosker, R. J., & Snijders, T. A. B. (2020). Young children working together. Cooperative learning effects on group work of children in Grade 1 of primary education. *Learning and Instruction*, 67, 101308. <https://doi.org/10.1016/j.learninstruc.2020.101308>
- [44] Zalewska, A., Migliore, A., & Butterworth, J. (2016). Self-determination, social skills, job search, and transportation: Is there a relationship with the employment of young adults with autism?’. *Journal of Vocational Rehabilitation*, 43(3), 225–239. <https://doi.org/10.3233/JVR-160825>
- [45] WHO. (2020). *Manual of the international statistical classification of diseases, injuries, and causes of death*. Genève: World Health Organization