

Pedagogical Strategies for Blind-Autistic Students: A Literature Review

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Abstract

This concept paper elucidates the critical importance of education for students with special educational needs (SEN), specifically those with blind-autism, and examines the pedagogical strategies employed by special education teachers to facilitate their academic growth. The discourse highlights the imperative of inclusive educational practices through the lens of Sustainable Development Goal 4 (SDG 4) in Malaysia, which underscores quality education for all. Special education teachers are pivotal in fostering an environment conducive to the distinctive requirements of blind-autistic students, ensuring that these students receive tailored educational experiences that accommodate their unique challenges and strengths. The collaborative efforts among special education teachers, transdisciplinary professionals, parents, and the broader community are emphasized as vital in nurturing the holistic development of blind-autistic students. This integrative approach underscores the necessity of a cohesive support system that extends beyond the classroom, ensuring that educational strategies are reinforced in various aspects of the students' lives. The paper posits that with a comprehensive, adaptive, and sustained pedagogical framework, educators can significantly enhance the learning trajectories of blind-autistic students. By embedding holistic methodologies and continuous support mechanisms, teachers can cultivate an educational milieu that not only meets the academic needs of these students but also promotes their overall well-being and potential for lifelong learning. Thus, this paper advocates for a robust, inclusive education system where blind-autistic students are empowered to achieve their fullest educational potential, aligned with the broader goals of equity and quality in education espoused by SDG 4.

Keywords: Special Educational Needs, Blind-Autistic Students, Pedagogical Strategies, Sustainable Development Goal 4

Introduction

Education for all was initiated in Jomtien, Thailand in 1990 and later reaffirmed at the World Education Forum in Dakar, Senegal in 2000 (Ainscow, 2020). This movement, catalyzed by the Millennium Development Goals, compelled governments globally to commit to free, high-quality, and compulsory primary education starting in 2015 (UNICEF, 2017). Governments worldwide have since strived to uphold this goal, implementing diverse strategies to ensure

the right to education for all children. As Noorilham Ismail et al. (2021) articulate, education encompasses a holistic process that aims to develop the physical, emotional, spiritual, intellectual, and social dimensions of individuals. This process enhances skills, knowledge, and experiences that foster personal and societal well-being. Recently, there has been increasing attention on education for students with special educational needs (SEN).

Sustainable Development Goal 4 (SDG 4), adopted by Malaysia, was introduced by the United Nations in September 2015. The goal focuses on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all (Boeren, 2019). SDG 4 encompasses ten targets, including free and equitable access to primary and secondary education (SDG 4.1), quality preschool education (SDG 4.2), and access to technical, vocational, and university education (SDG 4.3). Additionally, SDG 4 emphasizes the inclusion of people with disabilities in vocational training and education (SDG 4.5), aiming to equip them with skills that meet industrial market requirements, thereby enhancing their employability and entrepreneurial capabilities (Nazar et al., 2018). Target SDG 4.a focuses on building and upgrading inclusive and safe schools, providing infrastructure and materials tailored to the needs of SEN.

SEN refers to children identified by professional experts as having learning difficulties that hinder their educational progress. These disabilities can vary based on cognitive abilities, behavior, social development, oral language proficiency, reading skills, developmental milestones, and mathematical abilities. SEN students includes children with visual and hearing impairments, learning disabilities, and those with multiple disabilities. According to Marul (2023), multiple disabilities describe individuals with two or more coexisting impairments. This category of SEN often requires diverse adaptations or interventions in education and self-management to support their integration and survival within the community.

Students with multiple disabilities face unique challenges compared to those with a single disability. These challenges include limited speech, difficulty with basic movements, a tendency to forget unused skills, and the need for substantial support to achieve independence. Common combinations of disabilities include deaf-blindness, blindness with cognitive issues, and blindness with autism. Blind-autism occurs when a child born with visual impairment also has autism. This condition can result from neurological damage or brain injuries at birth, leading to significant emotional and developmental challenges (Molinaro et al., 2020). Children born blind who experience brain damage are more likely to exhibit autistic traits (Pili et al., 2021).

The prevalence of multiple disabilities is increasing, posing significant challenges for parents and educators. SEN students with multiple disabilities often experience complications such as scoliosis, seizures, and gastrointestinal diseases, making their care and education more demanding (Geuze & Goossensen, 2021). Among these, blindness-autism is a particularly complex comorbid condition requiring specialized educational approaches. Special education teachers play a pivotal role in addressing the educational needs of blind-autistic students. They must adapt their teaching methods to accommodate the sensory and cognitive limitations of these students. Effective teaching strategies for blind-autistic students include the use of tactile learning materials, structured routines, and personalized instruction plans that cater to individual needs. Teachers also collaborate with transdisciplinary professionals,

parents, and the community to create a supportive educational environment. This collaboration ensures that educational interventions are reinforced across various contexts, promoting consistency and stability for SEN students.

A holistic approach to education for blind-autistic students involves addressing not only academic skills but also social, emotional, and practical life skills. This approach includes individualized education plans (IEPs) tailored to each student's unique needs, assistive technologies that aid in communication and learning, and therapeutic interventions such as speech, occupational, and physical therapy integrated into the educational program. Engaging parents in the educational process is crucial for ensuring consistency and support at home. Ensuring quality education for SEN students, particularly those with blind-autism, aligns with the broader goals of SDG 4. By adopting a holistic, inclusive approach, special education teachers can create environments that support the diverse needs of these students. Collaborative efforts among educators, professionals, and families are essential in promoting the academic and personal development of blind-autistic students. Through sustained support and adaptive teaching strategies, these students can achieve their full potential, contributing to a more inclusive and equitable educational landscape.

Blind - Autism

Blind-autism is a condition where a child is born with both blindness or significant vision problems and features of autism. This condition arises from children with visual impairments who experience neurological problems or brain damage at birth. Visually impaired students with autism characteristics exhibit different developmental traits compared to students with good vision who have autism. According to Molinaro et al (2020), children born with certain eye diseases have a high likelihood of exhibiting autism characteristics. These eye diseases include retinopathy of prematurity (ROP), optic nerve hypoplasia (ONH), and septo-optic dysplasia (SOD).

ROP is a condition caused by abnormal vascularization of the retina, leading to potential visual impairment or blindness. Premature infants born before 29 weeks gestation are particularly vulnerable due to incomplete development of retinal blood vessels essential for delivering oxygen and nutrients. Early detection by neonatologists and pediatricians is crucial for effectively preventing and managing ROP, as highlighted by Dammann, Hartnet & Stahl (2023). Despite advancements in treatment, addressing ROP remains challenging, with the rate of ROP-related treatment among premature infants in the USA increasing from 3.4% to 5.3% between 2009 and 2018. ONH is characterized by an underdeveloped optic nerve due to a deficiency of retinal ganglion axons necessary for visual brain stimulation. It is a significant cause of childhood visual impairment or blindness, affecting one or both eyes, with varying levels of visual function from partial to complete blindness. Children with bilateral ONH often exhibit visual behavior issues, nystagmus, and strabismus (Netzel, High & Suh, 2019). Additionally, individuals with ONH frequently present with reduced pituitary hormone levels, cognitive disabilities, autism spectrum disorder, and other brain abnormalities (Dahl et al., 2020). SOD also known as Morsier syndrome, is a rare condition characterized by multiple abnormalities including pituitary hormone deficiencies, ONH, and an underdeveloped corpus callosum. Children with SOD commonly experience higher rates of neurological disabilities and features of autism compared to those without SOD (Mann et al., 2023). Diagnosing SOD in newborns is challenging, as visual impairments may not become apparent until one to three

months after birth (Ganau et al., 2019). Early identification of SOD is crucial for timely intervention and management of developmental and visual complications.

Blindness is a condition characterized by a severe lack of visual perception due to physiological or neurological factors. Clinically, total blindness is defined as no light perception (NLP) or visual acuity less than 20/400 (6/120) or a visual field loss of less than 10 degrees in the better eye after the best possible correction (Teoh, Solebo & Rahi, 2021). Autism spectrum disorder (ASD) is a neurological condition influenced by genetic and environmental factors, characterized by deficits in social communication, restricted interests, and repetitive behaviors. Children with ASD require ongoing developmental support in behavior, education, health, leisure, and family support (Hyman et al., 2020). Early intervention, starting as early as 18 months, can significantly improve outcomes for children with ASD (Hodges, Fealko & Soares, 2019).

Children with comorbid disabilities, such as blind-autism, have unique developmental and educational needs that cannot be fully addressed by programs designed solely for blind children or those with autism (Hallahan, Kauffman & Pullen, 2012). Blind-autistic students face challenges in accessing information typically obtained through sight and hearing. Sensory inputs that most people take for granted are often incomplete or distorted for these students, leading to significant delays and difficulties in concept development and skill acquisition. For instance, understanding large or distant objects, like trees, mountains, or clouds, is difficult without the use of sight (Heller et al., 2009).

Due to the loss of visual input, blind-autistic children experience delays in receiving information, impacting their development. Indirect learning, which occurs through observation and unplanned interactions, is particularly affected (Aslop, 2002; Heller et al., 2009). These children require more structured and systematic instruction, along with significant time and adult intervention to learn concepts and skills. Developmental delays are often seen in mobility and motor skills due to the inability to visually monitor their environment or imitate others' behaviors. Orientation and spatial awareness are also impacted, as creating mental maps of their surroundings becomes challenging (Best et al., 2010).

To support the academic development of blind-autistic students, teachers must implement various adaptation processes in their teaching methods. This involves modifying teaching techniques, materials, and assessments to meet the specific needs of these students (Bemiller, 2019). Understanding each student's unique strengths, weaknesses, and interests is crucial for creating an inclusive learning environment. Adaptations differ based on the child's specific disabilities and require comprehensive involvement from teachers. Recognizing the individual needs and capabilities of SEN with multiple disabilities allows teachers to plan systematic, varied, and appropriately tailored educational activities (Aldabas, 2020).

Good social interaction is vital in the adaptation process for SEN students with multiple disabilities (Kart & Kart, 2021). Creating an environment that fosters positive relationships between these students, their peers, and teachers, both inside and outside the classroom, is essential (Juvonen et al., 2019). Special education teachers should aim to cultivate a cheerful

classroom atmosphere and encourage group activities suitable for the developmental levels of SEN students with multiple disabilities. These activities help the students interact and express themselves, promoting their social and emotional development.

In conclusion blind-autism is a disorder in which children are born with both blindness or major vision problems and traits of autism. This comorbid disabilities are caused by visual impairments and neurological issues present at birth. Eye conditions such as retinopathy of prematurity (ROP), optic nerve hypoplasia (ONH), and septo-optic dysplasia (SOD) are major factors in this situation. These blind-autistic students display distinct developmental characteristics and encounter difficulties in obtaining sensory input, resulting in setbacks in understanding concepts and acquiring new skills. Providing successful assistance to blind-autistic students involves early intervention, organized teaching, and customized educational adjustments that highlight social engagement and full participation from educators to promote an inclusive and encouraging educational setting

Challenges in Teaching Blind-Autism Students

In carrying out the teaching adaptation process for SEN students with blind-autism, special education teachers face various challenges. Challenges are an inevitable element in human life, arising in many forms that affect individuals, society, and the world at large. These challenges refer to situations, conditions, or problems requiring specific efforts, skills, or strategies to solve them (Shikalepo, 2020). Challenges can manifest in various aspects of life, including personal, career, academic, and social realms. Facing and overcoming these challenges is a critical process for the growth and development of an individual (Orland-Barak & Wang, 2021). According to a study conducted by de Verdier, Fernell, and Ek (2018), teachers reported that blind-autistic students had difficulty trying new things. This difficulty has caused teachers to face challenges in motivating these students to attempt new activities. Additionally, the study indicated that some blind-autistic students are very sensitive to changes, which places pressure and difficulty on teachers to handle these situations. Teachers noted that these students prefer to work alone and will only accept help from the teacher, posing a hindrance to carrying out group activities and encouraging peer communication.

One significant challenge is the determination of teachers to encourage blind- autistic students to try new things. According to Pili et al (2021), these students tend to stick to what they know and are interested in, resisting new activities that would require them to learn from scratch. This resistance limits their ability to develop skills in different fields and poses a problem for teachers trying to help them apply these skills in various real-world situations. Additionally, some blind-autistic students are highly sensitive to change and struggle to control their emotions if events do not unfold as expected. This emotional volatility places further stress on teachers who need to manage and calm these students. Molinaro et al. (2020), observed that blind- autistic students often become overly concerned with correcting mistakes during activities. If these mistakes are not immediately addressed, the students become preoccupied with them and refuse to perform other tasks.

Most blind- autistic students prefer to work alone, interacting only with the teacher. This tendency leads to social and communication problems. Based on a study by de Verdier, Fernell, and Ek (2020), teachers reported that these students' preference for solitary work is due to their desire not to be disturbed. This behavior concerns teachers who aim to help blind-

autistic students to engage with their peers to prevent feelings of marginalization and to improve their social skills. According to Ek (2010), some of these students do not exhibit an independent attitude, showing a reluctance to start or finish tasks without guidance. Teachers often need to encourage blind- autistic students to take the initiative and complete tasks independently, which can detract from the attention given to other students in the class.

Assessing blind- autistic students poses another significant challenge. Assessment is crucial for all students, including those with special needs, as it allows teachers to identify students' ability levels and adapt teaching methods accordingly (Howell et al. 2021). However, most teachers who instruct blind- autistic students are uncertain about how to assess these students, whether in comparison with their classmates or based on individual progress. Assessing students with comorbid conditions of autism and blindness is a relatively new area for many special education teachers, who often do not know what to expect in terms of curriculum or co-curricular achievements (Miyauchi, 2020).

In summary, the process of adapting teaching methods for blind- autistic students involves a multitude of challenges. Teachers must find ways to motivate these students to try new activities despite their resistance and sensitivity to change. Encouraging social interaction and independence among these students requires patience and creativity, as they often prefer solitary work and rely heavily on teacher guidance. Additionally, the assessment of blind- autistic students is a complex task that many teachers find daunting due to the unique combination of disabilities involved. Addressing these challenges is crucial for the effective education and development of blind-autism students, necessitating specialized training, resources, and support for teachers.

Discussion

To overcome the challenges faced by special education teachers in adapting instruction for students with special educational needs (SEN) who are both blind and autistic, a study by Gense & Gense (2011), provides comprehensive guidance. This study outlines methods for special education teachers to offer comprehensive instruction while managing various situations. One crucial aspect is considering the sensory and biological needs of blind-autistic students. Teachers must create a quiet environment with minimal furniture to help these students focus during learning and facilitate their movement. Appropriate reinforcement methods tailored to the interests of blind-autistic students are also essential. For example, if a student enjoys singing, the teacher can allow the student to sing a song as a reward for completing a task. Furthermore, providing support for participation and understanding through tangible, tactile, or audio materials can significantly aid blind-autism students in grasping concepts and completing assignments. Teachers should encourage communication and socialization to prevent students from becoming passive. Using picture cards with pop-up diagrams or sound cues can help these students understand and express themselves in various environments. Teachers should also plan activities or assignments into simple, manageable steps adjusted to the students' cognitive levels.

Structured, organized, and concise instructions are vital for blind-autistic students, who rely heavily on their sense of hearing for information. Long and unsystematic instructions can hinder their understanding of tasks. Teachers must also use collected data and information to make informed decisions about the students' learning progress. Regular communication with

parents about the students' progress and any necessary changes to teaching methods is crucial. Ensuring that teaching instructions match the current skill level of blind-autistic students, while also being challenging enough to encourage development, is important for their learning outcomes. The study by Gense & Gense (2011), utilized questionnaires to gather information on functional and adaptive behavior, communication, sensory, academic, social skills, and orientation and mobility to support general skills and improve learning outcomes for blind-autistic students.

Additionally, a study by de Verdier, Fernell & Ek (2020), found that parents of blind-autistic students noted a deep interest in music among their children. These parents observed that their children learned language skills faster when using soft music. They also emphasized the importance of identifying their children's interests to maintain focus on tasks and avoid difficulties. Therefore, integrating learning materials with soft music could attract blind-autistic students' interest in learning. Pili et al (2021), further highlighted the need for transdisciplinary experts to collaborate and build evidence-based interventions to support the maximum individual development of blind-autistic students.

Teachers, as well-trained professionals in autism and blindness, play a crucial role in supporting the daily tasks of blind-autistic students and developing inclusive school projects. Their role extends beyond teaching to providing support to parents and family members. Teachers must develop daily activities and serve as a pillar of support, ensuring that blind-autistic students receive the necessary assistance to thrive in their educational environments. These comprehensive strategies and collaborative efforts are essential in addressing the unique challenges faced by blind-autistic students. By creating supportive and adaptive learning environments, using targeted reinforcement, and fostering communication and socialization, teachers can significantly enhance the educational experience and development of blind-autistic students. The integration of interests such as music into learning materials, along with the collaborative efforts of transdisciplinary experts, further supports these students' holistic development. Through these concerted efforts, special education teachers can provide the necessary tools and environments for blind-autistic students to reach their full potential and succeed in their educational journeys.

Conclusion

In conclusion, education must be inclusive, ensuring that students with special educational needs, such as blind-autistic students, receive the support they need. By implementing SDG 4 and fostering collaboration among special education teachers, transdisciplinary professionals, parents, and the community, we can create learning environments that maximize the development of each blind autistic student. Comprehensive instructional adaptations, appropriate support, and a deep understanding of their unique needs are crucial for providing quality education. Through these combined efforts, we can ensure that blind-autistic students have equal opportunities to learn, develop, and reach their full potential.

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