

SPECIAL NEEDS EDUCATION FOR THE VISUALLY IMPAIRED IN MALAYSIA

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Received: 28 August 2024; **Revised:** 22 September 2024; **Accepted:** 30 October 2024; **Published:** 12 November 2024

To cite this article (APA): Awang, A., Abdul Rani, I. F., & Kway, E. H. (2024). Special Needs Education for The Visually Impaired in Malaysia. *Southeast Asia Early Childhood Journal*, 13(2), 123–132. <https://doi.org/10.37134/saecj.vol13.2.9.2024>

To link to this article: <https://doi.org/10.37134/saecj.vol13.2.9.2024>

ABSTRACT

This study examines the development, challenges, and educational approaches for visually impaired children in Malaysia, framed within the goals of inclusive education as outlined by Sustainable Development Goal 4 (SDG 4). Despite progressive policies, significant challenges persist, including limited access to specialized resources, inconsistent quality across regions, and a lack of adequately trained educators. The study aims to explore the historical development of special education for visually impaired children, classify visual impairments, and examine various learning mediums. Using a qualitative literature review, data were collected from academic and government source. Findings reveal notable gaps in resource allocation and instructional frameworks, especially in rural areas, where visually impaired children face greater educational barriers. The study's implications underscore the need for standardized frameworks and increased resource distribution to ensure equitable access to quality education. Future research should address the long-term impact of dual media learning and investigate best practices from global contexts to enhance Malaysia's approach to visual impairment education. Aligned with SDG 4, the findings advocate for collaborative efforts between educators, policymakers, and community stakeholders to create an educational landscape where visually impaired children can fully engage and thrive academically and socially.

Keywords: Braille literacy, Inclusive education, Special needs education, Visual impairment

INTRODUCTION

Special needs education for visually impaired children in Malaysia is a crucial component of the national vision for inclusive education, aligning with Sustainable Development Goal 4 (SDG 4), which seeks to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (United Nations, 2022). With a growing emphasis on inclusive policies, Malaysia has integrated special education into its educational landscape through initiatives outlined in the Malaysia Education Blueprint 2013–2025, which underscores inclusivity as one of its primary goals (Ministry of Education Malaysia, 2012). Despite these advances, challenges persist, particularly in achieving equitable educational access and outcomes for visually impaired children. According to recent data, Malaysian educational institutions enrol only 6.69% of children with visual impairments, a small fraction

of the total visually impaired population of 55,240 (Department of Statistics Malaysia, 2024). This statistic reveals both progress and the need for expanded reach and quality in educational provision for visually impaired children.

Malaysia's approach to special education for the visually impaired is not without significant challenges. Malaysian Association for The Blind (MAB) (2020) highlighted pervasive issues, including inadequate access to specialized learning tools such as braille resources, large-print materials, and assistive technologies. These resources, critical to visually impaired children's literacy and engagement, are often inconsistently available (Alya Qasdina Ng Ai Lee & Kway, 2023). Educators also face obstacles due to insufficient training in teaching techniques and technologies tailored for visually impaired children, which hampers their ability to deliver effective and adaptive instruction (Azizah Awang et al., 2024; Hazlin Falina Rosli et al., 2021). Such gaps not only affect student learning outcomes but also contribute to a lack of continuity in service provision across different regions.

A further challenge arises from the decentralized policy framework governing special education. The absence of standardized instructional guidelines and service quality across states has resulted in disparities in educational provision, which impact visually impaired children's academic and social development (Mohd Nur Adzam Rasdi et al., 2017). Despite the advocacy for uniform standards by the National Council for the Blind Malaysia (NCBM) and other non-governmental organizations, we need more cohesive and comprehensive policies to ensure equitable support for visually impaired children throughout Malaysia (NCBM, 2024). This lack of consistency impedes Malaysia's ability to meet the SDG 4 target of inclusive, high-quality education for all.

OBJECTIVE OF THE STUDY

The objectives of this study are as follows:

1. To examine the historical development of special education for visually impaired children in Malaysia.
2. To identify and categorize the specific educational needs of visually impaired children based on levels of impairment.
3. To examine various learning mediums for visually impaired children.

METHODOLOGY

This study employs a qualitative approach through a literature review to examine the development, categories, and learning mediums of special education for the visually impaired in Malaysia. Relevant data were sourced from academic databases and reports from governmental and non-governmental organizations, as well as foundational historical records. Using thematic analysis, the study identifies key themes such as the historical advancement of special education institutions, the categorization of visual impairments, and learning medium specifically designed for visually impaired children. By synthesizing these sources, this study offers a comprehensive overview of the advancements, challenges, and gaps within Malaysia's special education system for visually impaired children, laying the groundwork for future research and policy enhancement.

DEVELOPMENT HISTORY OF SPECIAL EDUCATION FOR THE VISUALLY IMPAIRED IN MALAYSIA

The history of special needs education for the visually impaired began in 1926 when the Special Needs Primary School of St. Nicholas was opened. This school was opened by the people of the Anglican Church situated in Malacca. In 1931, this school was transferred to Penang. After 17 years, in the year 1948, the Princess Elizabeth Special Needs Primary School (now known as the Princess Elizabeth Special Needs National School) was opened and this school has dormitory facilities provided by the Johor Bahru Social Welfare Department. After the establishment of Princess Elizabeth Special Needs Primary School, the Gurney Training Center was opened by the Social Welfare Department (*Jabatan Kebajikan Masyarakat, JKM*) (Nur Aishah Abdullah et al., 2019).

In 1953, the Taman Harapan Institute was opened by the Temerloh Agricultural Center while in 1958, the Taman Cahaya Institute was opened at the Sandakan Agricultural Center. Such advancements showed that the challenges faced by children with visual impairment have received attention from the responsible parties. In 1962, a merger plan for children with visual impairments was planned to be implemented in primary schools and secondary schools. Then in 1963, the plan was implemented to dignify the following group (Kementerian Pendidikan Malaysia, 2024; Nur Aishah Abdullah et al., 2019).

Special needs teacher training in the field of visual impairment began in 1977 at the Special Needs Education Teacher Training College (now known as the Institute of Teacher Education, Ilmu Khas Campus) located in Cheras. A year later, in 1978, the Main Committee for the Formation of the Malay Braille Code was established. The purpose of this authority was established to further develop the Malay Braille Code system. In 1983, a boarding secondary school for the visually impaired was opened in Setapak. In the same year, Princess Elizabeth Special Needs Primary School was taken over by the Ministry of Education and turned into a full-fledged school (Nur Aishah Abdullah et al., 2019).

CATEGORY OF VISUAL IMPAIRMENT

Visual impairment is defined as a condition in which an individual experiences a significant reduction in visual acuity or field of vision, even when using corrective measures such as glasses or contact lenses. According to the World Health Organization (WHO), visual impairment includes a range of vision loss that varies in severity, from mild impairment to total blindness. WHO (2023) categorizes visual impairment into different levels based on visual acuity measurements: mild, moderate, severe, and profound, with blindness representing the most severe form.

In practical terms, visual impairment can impact various aspects of daily life, limiting a person's ability to read, navigate environments, recognize faces, or perform tasks that require precise visual focus. Causes of visual impairment are diverse, ranging from congenital factors, age-related conditions, and hereditary influences to infections, medical complications, and accidents (WHO, 2023). Notably, visual impairment does not solely refer to complete blindness; it also includes low vision, where an individual has partial but functional vision that still impacts daily activities (Nanjwan & Igba, 2019). In general, children with visual impairments is divided into two categories, namely blindness and limited vision (Curriculum Development Division, 2018).

Blindness

According to the National Council for the Blind Malaysia (NCBM) (2023), the definition of blindness is that the central visual acuity must be 20/200 or less in the better eye with the best correction, or the visual field must be 20 degrees or less. Blindness is also known as category B1 and refers to the total loss of vision (Curriculum Development Division, 2018). Category B1 is defined as an individual who does not have the perception of light in the eyes and is unable to recognize the shape of the hand at any distance or direction. Braille code is the main literacy medium for children with visual impairment in category B1. Education for blind children in Malaysia emphasizes braille literacy, orientation and mobility training, and the use of tactile resources. The curriculum is adapted to ensure that these children can participate meaningfully in national education while gaining essential skills for independence (Curriculum Development Division, 2018).

Limited Vision

Limited vision means the inability to see or limited vision due to an abnormality in the vision system that causes the eyes to not function perfectly and further hinders the ability to see (NCBM, 2023). The ones with the condition cannot restore their vision to normal even with glasses. They are not blind in the sense of not being able to see at all. They still have limited vision and can be helped with the use of appropriate vision aids to improve their ability to carry out daily tasks. The use of visual aids is very important for low vision children to improve vision (Nanjwan & Igba, 2019). Limited vision is divided into three categories as follows:

1. **Functional Visual Impairment:** According to Curriculum Development Division (2018) children with visual impairment in category B2 has the ability to identify the shape of the hand and has residual vision of approximately 3% to 5%. children with visual impairment of category B2 can read text at a very close distance which is 4 centimeters or 1.6 inches and requires special equipment to read. The use of braille code is quite significant for this category (Curriculum Development Division, 2018).
2. **Severe Low Vision:** Severe low vision is also known as category B3. Children with visual impairment in category B3 still use their vision to read (Curriculum Development Division, 2018). Print tools need to be adapted according to individual needs to help children with visual impairment read (Nanjwan & Igba, 2019). Children with visual impairment in category B3 still has partial vision with visual acuity between 2/60 to 6/60 or a field of vision between 5 to 20 degrees. The estimated functional vision of the children with visual impairment in category B3 is about 10% and can detect a wave of the hand with the help of glasses. Text reading distance is as far as 10 centimetres or 3.9 inches. The use of printing tools with large-size writing and special aids such as video magnifiers which are Closed Circuit Television Systems (CCTV) are very helpful in literacy activities (Curriculum Development Division, 2018). According to WHO (2023), severe low vision is having an acuity worse than 6/60 to 3/60.
3. **Blindness or Visual Impairment in One Eye:** Children with visual impairment in category B4 is a child who experiences visual impairment in one eye and has visual acuity between 6/60 to 6/24 (Curriculum Development Division, 2018). Estimated functional vision for the children with visual impairment in B4 category is about 25% and a field of vision greater than 20 degrees. Children with visual impairment in

category B4 can still read normal print with the help of glasses (Curriculum Development Division, 2018).

LEARNING MEDIUM FOR VISUALLY IMPAIRED CHILDREN

This section explains the learning medium used by children with visual impairment. For children with visual impairment in category B3 and category B4, the learning medium is to use Roman writing (Nurul Farahanim Nazri & Aisyah Mohamad Sharif, 2023; Nanjwan & Igba, 2019), while for children with visual impairment in category B1 and category B2, the learning medium uses braille code (Lillie & Tiger, 2019; Herzberg et al., 2017; Vik & Fellenius, 2007; Lusk & Corn, 2006). The following are the learning mediums used by children with visual impairment.

Braille Code

According to the Curriculum Development Division (2018), braille code mastery is a skill that should be mastered by children with visual impairments in categories B1 and B2 by using a system of raised dots that can be read with fingers. Braille code is not a language, but braille is a system of raised dots used by various languages, such as English, Spanish, Arabic, Chinese, and dozens of others (American Foundation for the Blind, 2023). The braille code is also used by thousands of people around the world in their native language and provides a means of literacy for all. The United States utilizes the English Braille Code, specifically the American edition. In 2016, the main code for reading materials was known as the Unified English Braille (UEB), which is the code used in seven other English-speaking countries (American Foundation for the Blind, 2023).

Braille code consists of braille cells with two columns and three rows. The touch-based writing in this code consists of cells with six numbered raised dots. The dots in the braille cell are labelled as dot 1, dot 2, dot 3, dot 4, dot 5 and dot 6. These six raised dots combine to represent the braille symbol (Kway & Wong, 2020). The first-grade braille code consists of braille signs that represent the 26 letters of the alphabet. We created a second-grade braille code because braille cells occupy a lot of space compared to normal print. The second-grade braille code contains various types of abbreviations as well as rules, aimed at saving the use of space on the page (American Foundation for the Blind, 2023). Figure 1 shows the dots used in the braille code.

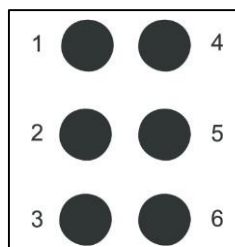


Figure 1. Braille Dots

However, Malaysia has used the Malay Braille Code that adopted the elements adopted in UEB around the year 2004 by the NCBM. Nevertheless, there is a need to make amendments to the 2020 Amended Edition of the Malay Braille Code which involves basic Mathematical

codes, phonemic codes, the use of capital letters, font marks such as italics, bold and also line or special marks for the Malaysian Ringgit currency (Kway & Wong, 2020). Letters, punctuation symbols, some syllables and words can be combined directly to shorten words so that the braille book becomes thinner when printed (Curriculum Development Division, 2018). Braille code can be produced using a braille typewriter or using a slate and stylus, which is a point produced on the reverse side of the paper. Braille codes can also be produced using a braille printer connected to a computer. Figure 2 shows a diagram of the braille code.

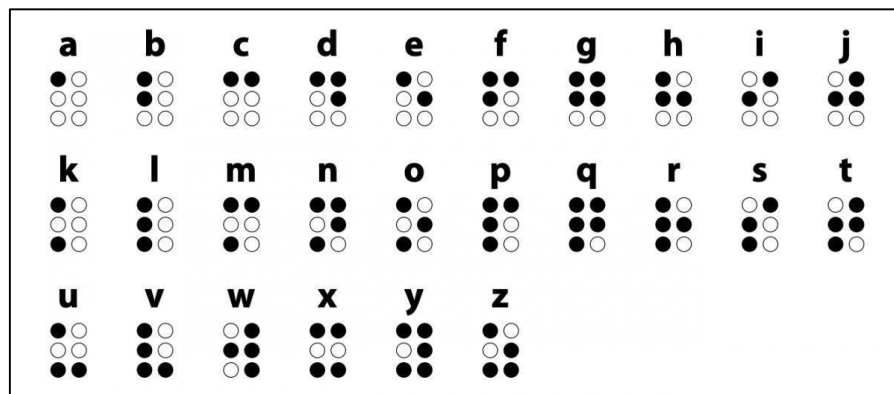


Figure 2. Braille Code

Roman Alphabet

The Roman alphabet consists of 26 letters from the Latin alphabet. Roman letters are the same as English letters which are based on Latin letters. Children with limited visual impairment often use the Roman alphabet as a learning medium, with adaptations tailored to their specific visual needs. This approach enables children to read and write using the standard alphabet in mainstream education, fostering inclusivity and acquainting them with commonly used text formats. For children with partial vision, large-print Roman text, high-contrast materials, and assistive devices such as magnifiers or CCTV systems enhance readability, enabling them to engage with educational content effectively (Nanjwan & Igba, 2019). These tools allow visually impaired children to read Roman alphabet text at larger sizes and with greater clarity, facilitating the development of literacy skills parallel to those of their sighted peers. Roman alphabet used must match the size of the print, which is a large print with a size of 16 to 24 points (Kizilaslan, 2020; Nanjwan & Igba, 2019). However, large print sizes of 16 to 24 points are not necessarily suitable for partially-sighted children and do not necessarily improve reading skills (Koenig & Holbrook, 2000).

Moreover, learning to read and write in the Roman alphabet offers visually impaired children broader access to general educational resources, including textbooks, digital content, and other printed materials. According to (Miyachi, 2020), adapting traditional print mediums supports the cognitive and linguistic development of these children by providing them with a familiar script that integrates seamlessly with mainstream education. By using assistive technologies, visually impaired children can maintain reading fluency and comprehension, thus enhancing their academic performance and social inclusion in regular classroom environments. This approach also reduces the need for full braille literacy in cases of partial vision, allowing children to maximize their residual sight while still gaining the benefits of accessible learning

resources (WHO, 2023). Table 1 shows the Roman alphabets that are used in the Malay language.

Table 1
Roman Alphabets

A a	B b	C c	D d	E e	F f	G g	H h	I i	J j
K k	L l	M m	N n	O o	P p	Q q	R r	S s	T t
U u	V v	W w	X x	Y y	Z z				

Dual Media Learning

Dual-media learning refers to the use of both the Roman alphabet and braille code simultaneously as a medium for reading and writing for children with limited visual impairment in category B2 (Curriculum Development Division, 2018). Usually, the selection of this dual learning medium takes into account children with limited visual impairment in category B2 who suffer from eye diseases that cause their vision to decrease (Miller, 2023; WHO, 2023).

Children with limited visual impairment must also receive braille code lessons to read and write in braille, according to the Individuals with Disabilities Education Act (IDEA) (2017). The National Preschool Standard Curriculum for Special Education emphasizes the importance of exposing every child with a visual impairment, whether blind or limited, to the braille code to enhance their reading skills (Ministry of Education Malaysia, 2017). Muhammad Nizam Abdul Majid et al. (2022) contended that educators should teach both large print and braille learning methods to children with limited visual impairment diagnosed with eye disorders that tend towards blindness.

Previous studies also agreed that blind people and children with limited visual impairment should learn the braille code (Vassilios et al., 2020). This is due to the belief that children with limited visual impairment have a long-term guarantee of their vision (Curriculum Development Division, 2018). Early exposure to the braille code is essential to ensure that children with limited visual impairment who are at risk of vision impairment can follow the same learning flow as any other children (Muhammad Nizam Abdul Majid et al., 2022). Teachers need a comprehensive curriculum and established print readers at various reading levels, particularly for those transitioning to braille.

CONCLUSION

In summary, this study has provided an in-depth exploration of the development, categorization, and educational approaches for visually impaired children in Malaysia, highlighting both significant achievements and ongoing challenges. Over nearly a century, Malaysia has demonstrated a growing commitment to inclusive education for visually impaired children, from the establishment of foundational institutions like St. Nicholas School and Princess Elizabeth School to the integration of inclusive policies that align with SDG 4 of ensuring equitable, quality education for all. While substantial progress has been made, challenges persist, particularly in the areas of resource accessibility, specialized teacher training, and the availability of adaptive learning aids across different regions. The categorization of visual impairments, including blindness, severe low vision, and functional visual impairment, has helped educators and policymakers design more targeted interventions, while dual media learning, braille, and large-print materials enable visually impaired children to engage fully with the curriculum.

The findings underscore the need for standardized frameworks and enhanced resource allocation to ensure consistency in service quality for visually impaired children, especially in underserved rural areas. Improving teacher training in braille literacy, assistive technology, and instructional methods tailored to various levels of visual impairment is essential to bridging gaps in service delivery. Additionally, expanding access to digital technologies and high-contrast learning tools is critical for supporting literacy and fostering greater independence and active participation in both academic and social settings for visually impaired children.

For future research, studies should consider investigating the long-term effects of dual media learning on literacy outcomes, particularly the interaction between braille and Roman alphabet literacy. Comparative studies could also examine how Malaysia's support structures and inclusive policies align with international best practices, potentially offering insights to enhance Malaysia's approach to visual impairment education. Research on the lived experiences of visually impaired children and their families would provide valuable perspectives on educational needs and potential policy gaps, guiding more inclusive and effective support measures.

Aligned with SDG 4, achieving an inclusive and equitable education system for visually impaired children in Malaysia will require sustained collaboration among educators, policymakers, and community organizations. By addressing the existing challenges and enhancing educational resources, Malaysia can continue progressing toward an educational landscape where visually impaired children have access to the support, opportunities, and independence they need to thrive academically and socially.

ACKNOWLEDGEMENT

This article is part of a research project funded by the Education Sponsorship Division, Ministry of Education Malaysia.

DECLARATION OF IMPORTANCE

There are no known financial interests or personal relationships that influenced the work of this article.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this study.

AUTHOR CONTRIBUTIONS

The author was responsible for the conception and design of the study, data collection, data analysis, interpretation of the findings, and preparation of the manuscript.

DECLARATION OF GENERATIVE AI USE

No generative artificial intelligence (AI) tools were used in the design, data collection, analysis, interpretation of the findings, or writing of this manuscript.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the author upon reasonable request.

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