



Pedagogical Gaps in Teaching Braille Quran Reading to Visually Impaired Children

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Abstract: Teaching Braille Qur'an reading to visually impaired children was a critical issue in special education and Islamic religious education, as it directly impacted students' access to religious literacy, independent learning, and spiritual participation. This article aimed to analyze pedagogical gaps in Braille Qur'an reading instruction based on a conceptual review of the characteristics of visually impaired children, the complexity of Braille literacy, and the prevailing tendency toward technically focused learning. The method used was a conceptual study employing a narrative literature review approach of internationally reputable literature from the past 10 years discussing Braille literacy, education for children with visual impairments, tactile learning, assistive technology, and meaningful learning. The results indicated that pedagogical gaps emerged in five main forms. First, instruction remained heavily oriented toward technical decoding, with little attention to students' conceptual understanding of Qur'anic text. Second, tactile experience was rarely scaffolded into coherent cognitive organization, leaving students unable to construct meaning from what they felt. Third, the complexity of Braille Qur'an symbols was frequently introduced without a structured learning sequence, overwhelming students before foundational skills were secured. Fourth, auditory approaches often overshadowed tactile reinforcement, creating dependency on listening rather than active reading. Fifth, the design of existing learning models failed to accommodate students' diverse individual needs, resulting in a one-size-fits-all approach that undermined meaningful participation. This article concluded that Braille Qur'an reading instruction needed to be directed toward a more explicitly structured and meaningful model, so that students were not only able to recite the text but also understand the relationship between Braille symbols, the sounds of the Hijaiyah letters, vowel marks, and the overall structure of the Qur'anic text.

Keywords: *braille Qur'an, visually impaired children, pedagogical gap, braille literacy, tactile learning, reception learning*

I. Introduction

The ability to read the Braille Qur'an holds a very important position in the education of children with visual impairments. Through the Braille Qur'an, students gain direct access to the sacred text without being entirely dependent on hearing, memorization, or the assistance of others. From an inclusive education perspective, the ability to read Braille is viewed not only as an academic skill but also as a means to strengthen students' independence, dignity, and participation in both religious and social life (Kana & Hagos, 2025; Long & Bjorg, 2025).

Braille literacy remains a global issue that requires serious attention. Various recent studies indicate that students with visual impairments often face challenges in accessing Braille reading materials, trained teachers, adequate learning resources, and sustainable technological support. These barriers result in low equity in Braille literacy, particularly in the context of special education and in developing countries (Kana & Hagos, 2025; Gurnani & Kaur, 2025).

In the context of Quranic education, the issue of Braille literacy becomes more complex. Students are not only required to recognize Braille symbols but also to associate them with the Arabic alphabet, vowel marks, punctuation, the length of sounds, and the accuracy of pronunciation in accordance with the rules of tajwid. Thus, reading the Braille Qur'an is not merely an activity of recognizing raised dots, but an integrative process that simultaneously involves tactile, phonological, cognitive, and religious aspects (Siuda-Krzywicka et al., 2024; Töteberg-Harms et al., 2023).

Children with visual impairments learn through different sensory channels than sighted children. Information that sighted children can quickly obtain through vision must be constructed for children

with visual impairments through touch, hearing, body movement, and verbal explanations. Therefore, learning for children with visual impairments requires a pedagogical design that is more explicit, concrete, multisensory, and systematic (Dursin, 2022; Long & Bjorg, 2025).

This difference in learning pathways is particularly evident in reading Braille. While sighted readers can grasp the shape of words or the structure of text relatively simultaneously, Braille readers must read symbol by symbol through finger movements. This process requires precise tactile discrimination, fine motor coordination, working memory, and the ability to integrate information gradually (Siuda-Krzywicka et al., 2024; Töteberg-Harms et al., 2023).

In many teaching practices, reading the Braille Qur'an is still taught through technical approaches such as repetitive drills, *talaqqi-musyafahah* (a face-to-face recitation method in which students read aloud directly before the teacher for immediate pronunciation correction), teacher demonstrations, auditory approaches, and individual guidance. These approaches certainly have pedagogical value because they can help students practice reading accuracy. However, if learning relies too heavily on repetition and imitation, the resulting reading skills risk becoming mechanical and lacking a connection to conceptual understanding. Research has consistently shown that rote-based instruction, when applied without scaffolding for meaning-making, tends to produce surface-level performance rather than deep comprehension (Kana & Hagos, 2025; Vallori, 2014). This concern is particularly relevant in Braille Qur'an instruction, where students may master the motor and auditory patterns of recitation without developing an understanding of the symbols, phonological structures, or textual meaning underlying the text (Bryce & Blown, 2024).

The pedagogical gap discussed in this article is understood as the disparity between the ideal learning needs of children with visual impairments and the available teaching practices. This gap is not only related to a lack of media or facilities but also concerns how teachers organize materials, link tactile experiences to concepts, balance auditory and tactile exercises, and meaningfully build students' cognitive structures (Bryce & Blown, 2024; Hoskin et al., 2022).

Based on this issue, this article aims to analyze the forms of pedagogical gaps in teaching Braille Quran reading to children with visual impairments. This analysis is important because efforts to improve Braille Quran reading skills are not sufficient if they merely involve increasing practice; they must also be directed toward improving instructional design to make it more conceptual, systematic, and aligned with students' learning characteristics (Kana & Hagos, 2025; Snyder, 2019).

II. Method

This article employs a conceptual study method using a narrative literature review approach. This approach was chosen because the article does not aim to test the effectiveness of a model using field data, but rather to examine relevant concepts, theories, and research trends to understand pedagogical gaps in Braille Qur'an reading instruction (Snyder, 2019; Torraco, 2016). Literature was systematically searched across three databases, namely Google Scholar, ERIC, and Scopus, using keywords including "Braille literacy," "visual impairment education," "tactile learning," "assistive technology," "meaningful learning," and "Qur'an Braille." Sources were included if they were published within the past ten years (2015–2025), written in English, and addressed at least one of the following themes: Braille reading instruction, cognitive and tactile learning in visually impaired students, or religious literacy in special education contexts. Sources that did not meet the publication period criteria or lacked relevance to the pedagogical focus of this study were excluded.

The conceptual review provides a framework for connecting various bodies of literature from different fields, such as special education, Braille literacy, tactile learning, assistive technology, cognitive learning theory, and meaningful learning. This approach is relevant because Braille Qur'an learning cannot be explained through a single discipline alone; rather, it must be viewed as a phenomenon involving sensory, linguistic, cognitive, pedagogical, and religious aspects (Dursin, 2022; Siuda-Krzywicka et al., 2024).

The literature sources used were prioritized from international publications from the past 10 years, particularly articles from reputable journals, systematic reviews, and academic publications from international publishers. The selected literature addresses barriers to Braille learning, literacy strategies for students with visual impairments, technology for Braille education, tactile learning, and meaningful learning (Hoskin et al., 2022; Kana & Hagos, 2025; Töteberg-Harms et al., 2023).

In addition to international literature, the discussion of several foundational themes in this article, including the characteristics of children with visual impairments, principles of Braille reading instruction, and the theoretical basis of Reception Learning, draws on peer-reviewed sources that address these topics directly (Croake et al., 2025; Zebehazy & Holbrook, 2025; Bryce & Blown, 2024).

The analysis procedure was conducted in four stages. First, identifying key issues in Braille Quran reading instruction. Second, grouping these issues into themes of pedagogical gaps. Third, comparing these themes with findings from the international literature. Fourth, formulating a learning approach that is more aligned with the characteristics of children with visual impairments and the principles of meaningful learning (Snyder, 2019; Torraco, 2016).

The conceptual validity of the article is ensured through theoretical triangulation, specifically by comparing perspectives from special education, Braille literacy, tactile learning, assistive technology, and the theory of meaningful learning. This process was carried out by mapping key concepts from each theoretical domain against the identified pedagogical gaps, allowing patterns of convergence and divergence across perspectives to be traced systematically. Concepts that were consistently supported across multiple theoretical domains were retained as the basis for the article's conclusions, while those addressed by only a single perspective were treated with greater caution. In this way, the analysis relies not only on practical experience but also on a broader scientific framework that is academically accountable (Bryce & Blown, 2024; Kana & Hagos, 2025).

III. Results and Discussion

A. *Learning Characteristics of Children with Visual Impairments in Reading Braille*

Children with visual impairments do not face learning barriers due to low intellectual capacity, but because their access to visual information differs from that of sighted children. Much of the information typically obtained through observation must be replaced through direct experience, touch, hearing, verbal explanations, and structured practice. Therefore, learning for children with visual impairments must take into account how students construct concepts through alternative sensory pathways (Dursin, 2022; Long & Bjorg, 2025). In the context of Braille Qur'an reading, this means that instruction cannot rely solely on auditory imitation of the teacher's recitation; rather, students must be guided to build a tactile understanding of Braille symbols, connect those symbols to the sounds of Hijaiyah letters, and gradually internalize the phonological and structural patterns of Qur'anic text through purposeful, multi-sensory engagement.

In reading Braille, the learning process takes place through sequential tactile activities. Learners need to feel the symbols one by one, distinguish dot configurations, remember the sequence of symbols, and then associate them with sounds and meanings. This process requires focused practice because Braille readers do not perceive the text as a whole, unlike sighted readers (Siuda-Krzywicka et al., 2024; Töteberg-Harms et al., 2023).

These characteristics indicate that teachers need to pay close attention to how students touch, trace, and distinguish Braille symbols. Instruction is not sufficient if it merely asks students to read; it must also teach tactile exploration strategies, proper finger pressure, reading rhythm, and how to compare similar dot patterns (Kana & Hagos, 2025; Long & Bjorg, 2025).

From a cognitive perspective, reading Braille also requires a significant amount of memory work. Learners must retain information about the previous symbol while reading the next one, then integrate it into a more meaningful reading unit. Therefore, instruction that is too fast, non-sequential, or insufficiently explicit can increase the cognitive load on learners (Siuda-Krzywicka et al., 2024; Bryce & Blown, 2024)

B. Symbolic and Phonological Complexity of the Braille Qur'an

The Braille Qur'an has more complex characteristics than standard Braille text because it includes symbols for the Arabic alphabet, vowel marks, tanwin, sukun, tasydid, mad, waqaf marks, and other elements related to accurate recitation. Each symbol has a phonological function that learners need to understand so that the resulting reading is not only fluent but also structurally correct (Kana & Hagos, 2025; Siuda-Krzywicka et al., 2024).

This complexity is further compounded by the fact that symbols in the Braille Qur'an are read linearly through touch. In other words, learners encounter a sequence of letters and punctuation marks that must be processed in order. If students do not yet have a sufficiently strong cognitive structure, this sequence of symbols may feel like a collection of separate dots, rather than a coherent reading system (Siuda-Krzywicka et al., 2024; Töteberg-Harms et al., 2023).

In addition to the symbolic aspect, reading the Quran in Braille also requires phonological accuracy. Students need to understand the relationship between Braille symbols and the sounds of the Arabic letters, including differences in vowel length, articulation points, and the application of tajwid rules. Thus, mastery of tactile symbols must always be linked to the correct representation of sounds (Kana & Hagos, 2025; Dursin, 2022).

The religious dimension also cannot be overlooked. For Muslim students, reading the Qur'an is not merely an academic activity but also a form of worship. This can serve as a powerful source of motivation, but at the same time, it can create psychological pressure when students fear making mistakes while reading. Therefore, learning needs to combine precision, patience, constructive correction, and emotional support (Bryce & Blown, 2024; Dursin, 2022).

C. The Gap Between Technical Practice and Conceptual Understanding

The first gap evident in Braille Qur'an reading instruction is the tendency for technical drills to overshadow conceptual understanding. Studies examining Qur'an learning practices for visually impaired students report that instruction commonly revolves around repetition, teacher imitation, symbol drills, and talaqqi-based recitation, with limited attention to the conceptual relationships underlying the reading system (Syumarlin, 2021). Technical exercises such as these are indeed important for building reading automaticity. However, when they are not accompanied by explanations of how symbols, sounds, and phonological structures relate to one another, learners may recite accurately while remaining unable to independently decode unfamiliar text or understand what they are reading (Bryce & Blown, 2024; Kana & Hagos, 2025).

In Braille Qur'an instruction, reading ability is measured not only by the ability to recite text aloud, but also by the ability to recognize symbols independently. This is particularly demanding in the Qur'anic context, where the Braille system must represent not only the 29 Hijaiyah letters but also a range of diacritical marks including harakat, tanwin, tasydid, and sukun, as well as tajweed symbols and waqf signs that govern recitation rules. Students need to understand that specific dot patterns represent specific letters, that diacritics alter sounds in precise ways, and that sequences of symbols form the phonological and syntactic structure of Qur'anic text. Such understanding does not arise from repetition alone but must be built through a clear, hierarchical organization of the material that introduces symbol categories in a principled sequence before combining them into full recitation practice (Siuda-Krzywicka et al., 2024; Hoskin et al., 2022).

The theory of meaningful learning emphasizes that new information is easier to understand when it is connected to the learner's existing knowledge structure. In the context of the Braille Qur'an, this means that teachers need to help students connect the experience of touching symbols with the concepts of letters, sounds, punctuation, and reading patterns in a meaningful way (Bryce & Blown, 2024; Dursin, 2022).

Thus, instruction that focuses solely on technical drills needs to be expanded to include instruction that builds conceptual understanding. Teachers should not only ask whether students can read, but also ensure that students understand the symbols they are reading, the functions of punctuation marks, and the relationship between tactile symbols and the sounds they represent (Kana & Hagos, 2025; Hoskin et al., 2022).

D. The Gap Between Tactile Experience and Cognitive Organization

The second gap lies in the suboptimal relationship between tactile experience and cognitive organization. In Braille learning, the experience of touching dots serves as an entry point to understanding symbols, but touch alone is not sufficient. Touch must be guided, explained, compared, and linked to meaning to become organized knowledge (Siuda-Krzywicka et al., 2024; Long & Bjorg, 2025).

Students may be able to repeatedly trace dot patterns, but they may not necessarily understand the differences in the functions of symbols if the teacher does not provide conceptual reinforcement. For example, the difference between letters and vowel marks needs to be explicitly explained because both appear in the form of tactile symbols but serve different functions within the structure of reading (Kana & Hagos, 2025; Bryce & Blown, 2024).

Cognitive organization is important because reading the Braille Qur'an requires students to integrate a great deal of information at once. Students need to remember the shapes of the symbols, activate the corresponding sounds, pay attention to the vowel marks, and then recite the text correctly. Without a structured learning framework, this process can become overwhelming and confusing (Bryce & Blown, 2024; Töteberg-Harms et al., 2023).

Therefore, teachers need to design activities that not only practice hand-eye coordination but also build understanding. Activities such as comparing dot patterns, grouping similar letters, explaining the function of vowel marks, and linking reading with auditory examples can help students build a more stable cognitive structure (Dursin, 2022; Hoskin et al., 2022).

E. The Gap Between Material Complexity and Learning Sequence

The third gap relates to the sequence of instruction. Braille Qur'an materials are highly complex and therefore cannot be presented in a random order. Students require a learning sequence that progresses from the simplest concepts to more complex ones so that the integration of knowledge occurs gradually (Bryce & Blown, 2024; Kana & Hagos, 2025).

A more appropriate learning sequence could begin with an introduction to the concept of the Braille cell, dot positions, basic patterns, the Arabic alphabet, vowel marks, combinations of letters and vowel marks, simple words, short sentences, and then longer passages. This sequence helps students see that Braille symbols are not a collection of isolated signs, but part of an interconnected reading system (Bryce & Blown, 2024; Siuda-Krzywicka et al., 2024).

If the learning sequence is not systematic, students risk experiencing high cognitive load. They must process complex symbols without a sufficient foundational framework. As a result, the reading process can devolve into memorizing fragments of symbols and sounds, rather than understanding the reading system (Bryce & Blown, 2024; Töteberg-Harms et al., 2023).

The need for a clear learning sequence is also reinforced by studies on Braille technology. Assistive technology can support Braille literacy, but its effectiveness still depends on instructional design, teacher engagement, and learner readiness. This means that even good media still require a structured learning model (Hoskin et al., 2022; Dursin, 2022).

F. The Gap Between Auditory Dominance and Tactile Reinforcement

The fourth gap is the dominance of the auditory approach in learning to read the Qur'an. This dominance is not accidental; it is rooted in at least three intersecting factors. First, the oral transmission tradition in Qur'anic education, particularly through talaqqi-musyafahah, has historically privileged listening and imitation as the primary mode of acquiring correct recitation, a

practice deeply embedded in Islamic pedagogical culture long before Braille literacy became a consideration. Second, many teachers of visually impaired students lack specific training in Braille Qur'an instruction and therefore default to auditory methods they are more familiar with, a pattern documented in studies on teacher preparedness in special religious education settings (Kana & Hagos, 2025). Third, the relative scarcity of standardized Braille Qur'an materials in many educational institutions means that auditory resources such as recordings and teacher recitation remain more readily available than tactile ones. In the context of Braille Qur'an learning, the auditory approach needs to be balanced with tactile reinforcement so that students actually read the text through symbol recognition, rather than merely reproducing memorized sounds (Siuda-Krzywicka et al., 2024).

When instruction relies too heavily on auditory input, students may appear to read certain passages fluently, while their fingers are not actually tracking the symbols on the page. This risk is well-recognized in Braille literacy instruction more broadly: practitioners and researchers alike have noted that students who have memorized a text may recite it accurately without engaging in actual tactile decoding, making fluent recitation an unreliable indicator of genuine reading ability (Holbrook et al., 2017; Croake et al., 2025). In the Braille Qur'an context, where many passages are also reinforced through repeated auditory exposure and memorization practice, this risk is likely to be even more pronounced. This situation warrants attention because the goal of Braille literacy is independent access to text. Without strong tactile reading skills, students remain dependent on the teacher's voice, recordings, or memorization, and are unable to read independently when those supports are unavailable (Long & Bjorg, 2025; Hoskin et al., 2022).

Tactile reinforcement should be at the core of the learning process. Teachers can continue to provide reading examples, but afterward, students should be guided to trace symbols, recognize patterns, reread independently, and explain the symbols they have read. In this way, the auditory and tactile elements reinforce each other rather than replacing one another (Siuda-Krzywicka et al., 2024; Dursin, 2022).

The balance between auditory and tactile cues is also important in the evaluation. Teachers should not merely assess the fluency of pronunciation but must also check whether the student is reading from Braille symbols, whether they recognize vowel marks, and whether they can distinguish similar symbols. Such an evaluation aligns better with the goals of Braille literacy, which emphasize independent reading (Kana & Hagos, 2025; Töteberg-Harms et al., 2023).

G. The Gap Between Individual Needs and Instructional Model Design

The fifth gap relates to the diversity of students' individual needs. Children with visual impairments do not have a uniform learning profile. Some children have good tactile sensitivity, some require more time to distinguish dots, some are strong in auditory processing, and others require more intensive fine motor support (Töteberg-Harms et al., 2023; Long & Bjorg, 2025).

This diversity calls for adaptive, assessment-based instruction. Teachers need to understand students' functional abilities, prior experience with Braille, pattern recognition skills, reading speed, and responses to auditory and tactile exercises. Without an initial assessment, instruction can easily become too difficult for some students or too slow for others (Kana & Hagos, 2025; Dursin, 2022).

In practice, individual instruction is often provided by teachers, but it does not always follow an explicit instructional model. As a result, the success of learning depends heavily on the teacher's personal intuition, experience, and creativity. This can lead to inconsistencies in the quality of learning across classes or institutions (Hoskin et al., 2022; Kana & Hagos, 2025).

A clear learning model is necessary so that teachers have guidance in determining objectives, the sequence of material, tactile strategies, forms of auditory reinforcement, types of exercises, and evaluation. With such a model, learning does not lose its flexibility but retains a systematic and accountable direction (Bryce & Blown, 2024; Hoskin et al., 2022).

H. Directions for the Development of Reception-Based Learning

Reception Learning can serve as a conceptual alternative to address pedagogical gaps in Braille Qur'an reading instruction. The theory was developed by Ausubel (1968) in direct contrast to discovery learning, which positioned the learner as the primary source of knowledge construction. Because Ausubel emphasized the teacher's role in presenting material, Reception Learning has frequently been conflated with passive, lecture-based instruction in which students simply receive and memorize information. This misreading misses the central mechanism of the theory: what makes learning meaningful is not how content is delivered, but whether the new information is consciously connected to what the learner already knows. In Ausubel's framework, the teacher's responsibility is to organize material in a hierarchical and explicit sequence, using advance organizers to bridge prior knowledge and new concepts, so that students can genuinely integrate rather than merely absorb incoming information (Bryce & Blown, 2024). In the context of Braille Qur'an instruction, this means that the teacher's structured presentation of symbol systems, phonological rules, and recitation patterns is not a substitute for student understanding, but the very scaffold through which understanding becomes possible.

In the context of Braille Qur'an, Reception Learning does not imply passive learning. Instead, the teacher plays an active role as a concept organizer, a guide for tactile experiences, a provider of phonological examples, and a giver of feedback. Students remain active in reading, touching, comparing, remembering, and connecting symbols with sounds (Bryce & Blown, 2024; Siuda-Krzywicka et al., 2024).

One of the key principles of Reception Learning is the use of advance organizers. In Braille Qur'an instruction, advance organizers can take several concrete, tactile forms that are accessible to visually impaired students. For example, before introducing a new group of Hijaiyah letters, a teacher may provide a raised-dot reference card that groups letters sharing similar dot configurations, allowing students to feel the structural similarities before encountering them in full text. Alternatively, a teacher may use a sequential verbal walkthrough in which each symbol category (base letters, harakat, tanwin, and tasydid) is introduced one at a time through oral explanation paired with immediate tactile exploration of embossed Braille examples. A third form involves a teacher-guided finger-tracing exercise on a simplified Braille chart that maps the relationship between a letter and its vowelized variants, giving students a physical reference structure before they begin reading connected passages. These organizers serve not as decorative introductions but as cognitive anchors that structure how students receive and categorize new symbolic information (Bryce & Blown, 2024; Dursin, 2022).

This approach also allows teachers to organize the material from general to specific. Students first understand that Braille is a system of symbols, then learn dots, letters, vowel marks, reading combinations, and sentences. This sequence helps students build knowledge structures gradually and reduces fragmented learning (Kana & Hagos, 2025; Bryce & Blown, 2024).

Reception Learning does not need to replace drill, talaqqi, or individual practice. Instead, this approach can serve as a framework for organizing the use of these strategies. Drill is used for automation, talaqqi is used for phonological accuracy, individual guidance is used for adapting to individual needs, while Reception Learning organizes all of these to make learning more meaningful (Bryce & Blown, 2024; Hoskin et al., 2022).

Thus, the approach to teaching Braille Qur'an reading needs to shift from mere mechanical practice toward learning that strengthens cognitive structures. Students should not only be assisted in reciting the text but also in understanding the symbolic system, the function of punctuation marks, the relationship between letters and sounds, and the overall structure of the Qur'anic text (Siuda-Krzywicka et al., 2024; Kana & Hagos, 2025).

IV. Conclusion and Suggestion

This study reveals that the instruction of Braille Qur'an reading for children with visual impairments is beset by considerable pedagogical deficiencies. These shortcomings are manifested in an over-reliance on technical drills, a weak synthesis between tactile experience and cognitive structuring, the absence of a methodical material sequence, a predominant dependence on auditory methods, and a lack of robust pedagogical frameworks capable of addressing diverse learner needs. Such a gap underscores the necessity of reconceptualizing Braille Qur'an pedagogy; instruction must transcend the mere pursuit of pronunciation accuracy and reading fluency. Instead, it should facilitate a comprehensive understanding of the interconnections among dot configurations, Arabic orthography, vowel markers, phonetics, and textual organization. Consequently, the development of reading proficiency must be approached as the cultivation of a cognitively integrated tactile-phonological skill.

Given the identified pedagogical challenges, Reception Learning emerges as a pertinent theoretical alternative, primarily due to its emphasis on content structuring, the deployment of advance organizers, the hierarchical sequencing of concepts, and the integration of new knowledge with students' pre-existing cognitive frameworks. In the context of Braille Qur'an instruction, this framework offers a pathway for educators to design more explicit, systematic, and meaningful learning experiences. It is therefore suggested that instructional models be developed based on these principles to provide a more structured and cognitively supportive environment. However, to ensure practical viability and effectiveness, future empirical research is imperative. Such investigations should rigorously assess the efficacy of this theoretical approach in real-world classroom settings, moving beyond theoretical postulation to validate its applicability and impact on improving Braille Qur'an literacy outcomes.

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