

Augmentative and Alternative Communication for Advanced Language Development in Special Education

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ABSTRACT

Augmentative and Alternative Communication (AAC) has increasingly been recognised as a means of supporting communication and participation among students with special educational needs. While earlier applications of AAC focused primarily on basic communicative functions, recent research has highlighted its potential to support advanced language skills such as narrative development, literacy engagement, and pragmatic social communication. This article presents a narrative review of recent literature examining the use of AAC for advanced language development within school-based special education contexts. Relevant studies published between 2020 and 2025 were identified through major academic databases and analysed thematically. The review highlights emerging AAC-supported approaches, including story grammar-based narrative activities, shared book reading, and dialogic interaction, which enable extended discourse and meaningful classroom participation. At the same time, persistent challenges remain, particularly in relation to teacher training, cross-disciplinary collaboration, contextual applicability, and limited empirical evidence from Malaysia. Overall, the findings underscore the need to reconceptualise AAC beyond basic communication support and to prioritise classroom-based, interaction-driven approaches that align with local educational realities. Implications for practice and directions for future research are discussed to support more effective and contextually relevant AAC implementation in special education.

Keywords: Augmentative and Alternative Communication; advanced language skills; special education; social communication; intervention strategies

INTRODUCTION

Augmentative and Alternative Communication (AAC) is an important communication method that supports the development of language and communication skills among individuals who require assistance to speak verbally (Mat Rabi & Nordin, 2021; Wu et al., 2020). In the context of special needs education, AAC is commonly used by students with special educational needs or murid berkeperluan khas (MBK). This practice aligns with Malaysia's Persons with Disabilities Act 2008, which emphasises the right of individuals with disabilities to receive high-quality education. The use of AAC is encouraged to reduce communication barriers that may hinder the learning process and limit social participation in the classroom (Loi et al., 2023).

AAC plays a vital role in special education not only in supporting communication but also in promoting students' independence and sense of control within their environment (Zaharudin et al., 2023). Therefore, AAC should not be viewed as a last resort but rather as a primary mode of communication for students with communication challenges (Donaldson et al., 2023). To achieve this, AAC intervention should not focus solely on basic communication skills such as requesting and labelling. Previous studies have highlighted the expanding role of

AAC in supporting advanced language skills, including narrative development, literacy, and social pragmatics (Almubark et al., 2025; Light et al., 2021; Spencer et al., 2025).

In Malaysia, research has shown that teachers generally exhibit positive attitudes towards the use of AAC in the classroom (Joginder Singh et al., 2020). However, the integration of AAC in educational settings continues to face several challenges. One major issue is the lack of adequate training for teachers, as existing training programmes tend to focus primarily on theoretical knowledge with limited practical application (Loi et al., 2023; Yasin et al., 2020). In addition, there is an absence of standardised guidelines to support teachers in implementing AAC effectively in classroom settings (Abdul Razak et al., 2022). Although speech-language therapists (SLT) play a central role in AAC intervention, collaboration between professionals in the education and health sectors remains limited (Suhr et al., 2024), which further constrains effective implementation.

As a result, the use of AAC in Malaysian special education classrooms is often restricted to basic communication skills. Many schools continue to rely heavily on low-technology AAC systems such as the Picture Exchange Communication System (PECS) (Joginder Singh et al., 2020). While low-technology AAC is widely used due to its affordability and accessibility (Elsahar et al., 2019), it is associated with several limitations, including reduced communicative effectiveness and longer training periods (Alsayedhassan et al., 2021). In contrast, advancements in technology have contributed to the growing use of high-technology AAC, particularly application-based systems that can be accessed via tablets and mobile devices (Alzrayer, 2020).

With the increasing number of students enrolled in the special integrated education program, or locally known as Program Pendidikan Khas Integrasi (PPKI) following the implementation of the Zero Reject Policy (Othman & Matore, 2020), there is a growing urgency to place greater emphasis on advanced language development. Supporting higher-level communication skills is essential in creating classroom environments that enable students to interact meaningfully, participate actively, and communicate effectively within both academic and social contexts.

This need is also aligned with global development priorities, particularly the Sustainable Development Goals (SDGs), which emphasise inclusive and equitable access to education and wellbeing for all individuals. SDG 4 highlights the importance of ensuring inclusive and quality education for persons with disabilities, while SDG 3 and SDG 10 emphasise wellbeing and the reduction of inequalities, respectively (United Nations, 2015). However, while these frameworks stress inclusion and access, specific mechanisms to support communication access, including the use of AAC, are not explicitly elaborated. This suggests that although the importance of inclusion is widely recognised at the policy level, the practical implementation of communication support strategies, particularly those targeting advanced language development, remains underexplored. Addressing this gap is essential to ensure that students with complex communication needs are not only included in educational settings but are also able to participate meaningfully through effective communication (Bornman, 2023).

Therefore, this article aims to synthesise existing literature on the use of AAC in supporting the development of advanced language skills among students with special educational needs. Specifically, the review focuses on how AAC can be implemented within school-based settings to support higher-level language abilities such as narrative skills, literacy, and social pragmatics. By examining current trends, instructional approaches, and challenges reported in previous studies, this article seeks to provide a clearer understanding of how AAC may be used as an effective communicative and instructional strategy to support meaningful language development in special education classrooms.

METHODOLOGY

This article adopted a narrative literature review approach to synthesise existing studies related to the use of Augmentative and Alternative Communication (AAC) in supporting advanced language skills among students with special educational needs. A narrative review was considered appropriate as it allows for an in-depth and flexible synthesis of diverse research findings, theoretical discussions, and practical perspectives relevant to AAC implementation and language development in special education contexts.

Relevant literature was identified through searches conducted in Google Scholar, Scopus, and EBSCOhost using keywords including Augmentative and Alternative Communication, AAC, advanced language skills, high language skills, special education, AAC strategies, and AAC applications. The review focused on studies published within the last five years (2020–2025) to ensure the inclusion of current research and recent technological advancements. Studies included were those that examined AAC use for school-age children in educational or intervention settings, with a primary focus on language and communication development. Studies involving adult populations or those limited to basic communication functions such as requesting or labelling were excluded. The selected literature was analysed and organised thematically to support a comprehensive discussion of trends, applications, challenges, and implications related to AAC and advanced language development in special education.

DISCUSSION

The following discussion critically reviews the findings from recent literature on AAC with a particular focus on its role in supporting the development of advanced language skills among students with special educational needs. The discussion highlights how AAC has evolved beyond its traditional use for basic communication to support higher-level language abilities, including narrative, literacy, and pragmatic skills, within educational and classroom-based contexts.

Advanced Language Skills in Students with Special Educational Needs

There is no single specific term used consistently in the literature to describe language skills that develop after basic communication abilities have been acquired. In many research and clinical studies, these skills are commonly referred to as school-aged language skills, a term generally used to describe language development in children aged five years and above (Gleason & Ratner, 2022; Roth & Worthington, 2021). In some studies, these skills are discussed more specifically and are referred to directly as narrative skills, literacy skills, numeracy skills, or pragmatic language skills, depending on the focus of the research.

The term school-aged language skills is also commonly used in assessment tools employed by SLTs. These assessments typically include components such as narrative production and storytelling, problem-solving and making inferences, the use of complex sentence structures, and social interaction skills (Shipley & McAfee, 2023; Wiig et al., 2013). This reflects the multidimensional nature of language development that occurs during the school years, extending beyond basic expressive and receptive communication.

According to Gleason & Ratner (2022), during the school-age period, children begin to develop metalinguistic awareness, which allows them to understand jokes, riddles, and multiple meanings in language. At the same time, the development of phonological awareness supports the acquisition of reading and writing skills. Narrative abilities also expand at this stage, with children using more advanced vocabulary and producing stories that include a clear beginning, conflict, and resolution, often incorporating emotional and internal state descriptions (Galeković, 2023). In addition, pragmatic language skills continue to develop, enabling children to use language appropriately according to context and situation, take turns in conversation, interpret implied meanings, and adjust their communication style based on social demands (Shipley & McAfee, 2023).

However, for students with special educational needs, including autistic children and those diagnosed with developmental language disorder (DLD), language development often follows a different trajectory when compared to neurotypical peers. Broc et al. (2021) reported that while some of these children may demonstrate non-verbal cognitive abilities comparable to their peers, they frequently experience difficulties with grammatical structures and narrative organisation. In addition, children with complex communication needs (CCN) may process and understand language using approaches that do not parallel typical language development. This observation is consistent with findings reported by Grau-Husarikova et al. (2024), which suggest that language development and social cognition do not necessarily progress simultaneously.

In earlier developmental stages, typically between the ages of three and five years, children begin to acquire more complex language skills. During this period, there is a rapid increase in vocabulary, the use of longer

utterances, and emerging understanding of concepts such as colours, prepositions, and letters. Pre-literacy skills also begin to develop, including letter recognition, sound awareness, writing one's name, telling short stories, and following longer instructions (Roth & Worthington, 2021). Among students with special educational needs, these skills may develop more slowly and often in a non-linear or atypical manner (Broc et al., 2021; Szarkowski et al., 2024). Nevertheless, these early language abilities remain essential as foundational skills for the development of more advanced language competencies.

By the time children reach school age, advanced language skills typically emerge across key domains such as literacy, narrative, and pragmatic communication. These skills contribute significantly to academic achievement and social participation within the classroom and broader school environment (Gleason & Ratner, 2022; Shipley & McAfee, 2023). Therefore, there is an increased need to explicitly support and teach advanced language skills among students with special educational needs to ensure their meaningful participation in learning and social interaction.

In Malaysia, this issue is made more challenging by the current system used to support language development. The Ministry of Education provides a developmental checklist, locally known as the *Senarai Semak Perkembangan Bayi dan Kanak-Kanak 1 Bulan hingga 6 Tahun* (translated as Developmental Checklist for Infants and Children Aged 1 Month to 6 Years), but it is only designed for children aged up to six years and does not cover older students who need to develop more advanced language (Kementerian Pendidikan Malaysia, 2023). Because of this, there is limited guidance for teachers on how to support skills such as storytelling, understanding meaning, and social communication in school-aged students. Although Malaysia already has some clinical guidelines, such as the Cochlear Implant Service Operational Policy developed by the Ministry of Health, which includes speech-language support (Ministry of Health Malaysia, 2009), these are mainly focused on medical and rehabilitation settings. They do not provide guidance on how to use AAC in classroom teaching. This shows a gap between clinical practice and what is needed in schools, especially for supporting advanced language development.

The Role of AAC in Supporting Advanced Language Skills

Over the past decade, numerous studies have demonstrated the effectiveness of AAC as a communication method and instructional strategy that supports language development. While earlier research primarily focused on the use of AAC for basic communication skills, more recent studies have begun to examine its potential in supporting higher-level language abilities. These include advanced language skills such as narrative development, literacy, and social pragmatic communication, indicating an expanded role for AAC within educational and intervention settings.

In relation to narrative development, Almubark et al. (2025) reported that AAC-based narrative intervention can support children with special educational needs in organising and producing more structured narratives. Improvements were observed in the sequencing of events and the inclusion of key narrative elements within stories. Notably, the study also indicated that these narrative skills could be generalised beyond the intervention context, demonstrating that gains achieved through AAC-based narrative activities were evident in daily communication. This finding highlights the effectiveness of AAC interventions in supporting functional narrative skills that extend into real-life situations.

AAC has also been shown to contribute positively to literacy development. Light et al. (2021) demonstrated that AAC-supported interventions could assist children with communication difficulties in developing early literacy skills. Through structured AAC use, participants were able to engage with reading- and writing-related activities, supporting skills such as letter-sound awareness, word construction, and comprehension within meaningful communicative contexts. With regard to pragmatic language development, Spencer et al. (2025) found that AAC interventions could promote social communication skills, particularly for communicative functions such as commenting. The study highlighted the use of instructional approaches such as aided modeling and least-to-most (LTM) prompting to support pragmatic skill development during shared activities. Through these strategies, children were encouraged to participate more actively in communicative exchanges, supporting skills such as turn-taking, joint attention, and the appropriate use of language in social interactions.

Integration of AAC in Special Education Settings

Studies have identified differing patterns in the implementation of Augmentative and Alternative Communication (AAC) across educational and clinical settings, as well as between Malaysia and other countries. In Malaysia, evidence from Joginder Singh et al. (2020) indicates that the PECS remains the primary form of AAC used in school environments. In contrast, clinical and intervention settings in Malaysia have shown a growing use of high-technology AAC systems (Abdul Razak et al., 2022). Internationally, particularly in countries such as the United States, recent research has increasingly focused on the effectiveness of high-technology AAC, including tablet-based applications (Alzayer, 2024) and speech-generating devices (SGDs) (Suhr et al., 2024), suggesting broader adoption of these systems within educational and therapeutic contexts.

Effective communication plays a critical role in special education, as it enables teachers to better understand students' needs and adapt teaching strategies accordingly. However, studies have reported that many teachers lack sufficient skills to communicate effectively with students with special educational needs, resulting in instructional approaches that may not fully address students' learning and communication requirements (Ramanayaka, 2024). Limited access to functional communication can also lead to social exclusion from peers and adults, which may negatively affect students' social and emotional development (Suryanti et al., 2024). Ramanayaka (2024) further highlighted that students who experience difficulty expressing themselves are at a higher risk of developing behavioural challenges and may show reduced participation in classroom activities. Therefore, providing AAC as a support communication system allows students to express their needs and opinions, supporting their right to communicate and actively participate in the learning process (Tankosic & Grbic, 2023).

The integration of AAC in the classroom is not limited to its use as a communication tool but can also benefit teaching and learning processes. AAC can be utilised as instructional material to support learning across group and classroom-based activities. Zaharudin et al. (2023) described the use of AAC as teaching material by utilising visual symbols and icons to create step-by-step visual instructions through AAC applications. This approach enables students to master learning content progressively and reduces dependency on teachers and Pembantu Pengurusan Murid (PPM), or teaching assistants. These findings are supported by Iacono et al. (2022), who reported that AAC contributes to increased student participation and improved understanding of instructional content during classroom activities.

Despite these benefits, the implementation of AAC in special education settings continues to face numerous challenges. One of the main issues identified is the lack of training and knowledge among teachers, with many educators reporting insufficient exposure to AAC during pre-service or in-service training (Loi et al., 2023; Yasin et al., 2020). This is further supported by evidence showing that AAC is not deeply integrated within professional training programmes, where teacher education often provides limited practical training, and speech-language therapy students receive only basic exposure to AAC, which may affect their confidence in applying it in practice (Joginder Singh et al., 2022; Loi et al., 2023). This challenge is not unique to Malaysia and has been reported globally, particularly in developing countries, where teachers have expressed low confidence in using AAC in classroom settings (Ngcobo & Bornman, 2024). In addition, the absence of structured modules and clear guidelines for AAC implementation often causes teachers to hesitate in using AAC and rely on self-directed learning, informal resources, or external support (Abdul Razak et al., 2022).

To ensure effective AAC integration in schools, clear roles and collaboration among stakeholders are essential. Speech-language therapists (SLTs) typically play a central role in planning and implementing AAC interventions; however, due to limited manpower, some of these responsibilities are often assumed by teachers (Cavagnini et al., 2024). In Malaysia, the lack of school-based SLTs further restricts collaborative practice, as many SLTs are primarily based in hospitals or intervention centres (Chu et al., 2019). Beyond collaboration between teachers and SLTs, parental involvement is also crucial. Including parents as part of the AAC intervention team helps ensure continuity of AAC use at home and within the community, thereby supporting more consistent and meaningful communication development for students (Cavagnini et al., 2024). This observation is consistent

with Malaysian inclusive education research showing that parents continue to require clearer guidance and coordinated support to effectively contribute to inclusive practices for children with special educational needs (Badrul Hisam & Khairuddin, 2022).

Strategies for Teaching Advanced Language Skills Using AAC

Advanced language development among students who use AAC is supported through classroom-based approaches that extend beyond basic communication functions and enable meaningful narrative, literacy, and pragmatic language use. Evidence-based studies have identified several strategies within classroom contexts that support these advanced language domains among students who rely on AAC.

Story Grammar-Based Narrative Approach

Story grammar-based instruction has been recognised as an effective approach for supporting narrative development by explicitly targeting key story elements, including characters, setting, events, and outcomes. Narrative competence is closely associated with academic performance, particularly in reading comprehension and written expression, and therefore represents a critical component of advanced language development (Spencer & Petersen, 2020).

For students who use AAC, narrative interventions that incorporate story grammar supports have been shown to facilitate more organised and complete narrative production. Almubark et al. (2025) examined the use of AAC-supported narrative intervention and reported increases in the inclusion and complexity of story grammar elements in children's narrative retells. The study further documented generalisation of narrative skills to untrained stories and communicative contexts, indicating that AAC-supported story grammar instruction enabled children to apply narrative structures beyond the intervention setting.

These findings indicate that story grammar-based approaches, when combined with AAC, effectively support advanced narrative language by providing an explicit organisational framework that enables students to generate more structured and coherent discourse using symbolic communication systems. Across narrative-focused AAC studies, narrative gains appear to be driven less by the AAC system itself and more by how narrative structures are made explicit through adult modelling and guided interaction. Consistently reported outcomes include improvements in event sequencing, inclusion of internal states, and overall narrative coherence. Importantly, these gains are most evident when AAC is embedded within meaningful storytelling contexts rather than isolated language drills, underscoring the fundamentally interactional nature of narrative development for AAC users (Almubark et al., 2025; Spencer & Petersen, 2020).

AAC Supported Shared Book Reading

Shared book reading (SBR) is a well-established literacy activity that facilitates oral language, vocabulary development, and comprehension through interactive engagement with texts. For children with complex communication needs, participation in SBR is often limited by reduced access to expressive language; however, research indicates that integrating AAC into SBR can support more active communicative participation (Bhana et al., 2020).

Bhana et al. (2020) demonstrated that AAC-supported shared book reading enabled children to comment, respond to questions, make predictions, and engage in story-related discussion by providing access to contextualised vocabulary embedded within the reading activity. The authors reported that AAC supports reduced the attentional demands associated with managing books, communication partners, and devices simultaneously, thereby increasing opportunities for interaction during literacy activities.

Complementary findings were reported by Wence et al. (2024), who examined AAC use during shared book reading interactions and found that AAC-supported SBR was associated with longer interaction duration and increased use of language-facilitating strategies, including modeling, commenting, and expanding children's

communicative acts. Their analysis showed that children relied on multimodal communication during SBR, indicating that AAC functioned as a scaffold for expressive language rather than replacing interaction.

Together, these studies indicate that shared book reading supported by AAC contributes to advanced language development by enabling extended discourse, reciprocal interaction, and meaningful engagement with literacy content. Evidence from AAC-supported shared book reading research consistently shows that literacy outcomes are strengthened when AAC is used to promote dialogic participation rather than passive responding. Common elements identified across studies include aided language modelling, access to contextualised vocabulary, and adult responsiveness to children's communicative attempts. Collectively, these features suggest that AAC functions most effectively as a scaffold for literacy-related discourse when embedded within interactive reading routines that prioritise meaning-making over symbol accuracy (Bhana et al., 2020; Wence et al., 2024).

Dialogic and Interaction-Based Approaches for Pragmatic Language

Advanced language development also includes pragmatic skills such as turn taking, negotiation of meaning, and social participation within classroom interaction. Dialogic and interaction-based approaches, including dialogic literacy-based practices such as Dialogic Literary Gatherings, have been identified as important contexts for supporting these skills among students with diverse learning needs (Fernández-Villardón et al., 2021).

Research examining dialogic reading supported by AAC has shown that dialogic approaches create structured opportunities for children to initiate, respond, and contribute to shared interactions. Studies using AAC supported dialogic reading reported increases in communication turns, symbolic communication, and multi symbol utterances, highlighting the role of interactive contexts in supporting social pragmatic language (Quinn et al., 2020).

Beyond structured dialogic activities, interactional research by Ibrahim et al. (2024) provided a detailed analysis of how children who use AAC establish common ground and exercise agency within multimodal classroom interactions. The study demonstrated that pragmatic language development is shaped by both children's use of aided and unaided communicative resources and the responsiveness of teaching staff to these resources. When teachers oriented to children's multimodal communicative actions, students were better able to participate in interaction, negotiate meaning, and influence the direction of classroom tasks.

To conclude, findings from studies examining pragmatic language development indicate that AAC-supported interaction is shaped primarily by the responsiveness of communication partners rather than by the sophistication of the AAC system itself. Opportunities for turn-taking, commenting, and negotiation of meaning increase when teachers recognise and respond to multimodal communicative acts, including gaze, gesture, and partial symbol use. Taken together, these findings reinforce the view that pragmatic competence for AAC users is co-constructed through interaction and contingent adult support within classroom discourse (Ibrahim et al., 2024; Quinn et al., 2023).

Framework for AAC-Supported Advanced Language Instruction in Classroom

To address the lack of clear, practitioner-oriented guidance for implementing AAC within advanced language instruction, this review synthesises evidence from AAC modelling, shared book reading, and narrative intervention research to propose three structured, classroom-ready implementation frameworks.

AAC-Supported Narrative Instruction

This framework is based on narrative intervention research and AAC-supported narrative studies that emphasise clear story structure, adult modelling, and guided use of symbols. Narrative theory identifies story grammar as a key scaffold for advanced language development and academic discourse (Spencer & Petersen, 2020). Research on AAC-supported narratives further shows that children with complex communication needs can produce more organised and coherent stories when narrative structure is made explicit through AAC (Almubark et al., 2025).

Across studies, improvements in narrative skills are linked to how narrative elements are taught through interaction rather than to AAC access alone. Common instructional features include aided language modelling, guided retelling, and gradual support toward independent narrative generation (Almubark et al., 2025; Quinn et al., 2020). Table 1 presents an implementation framework showing how these evidence-based practices can be applied in classroom settings.

Table 1. Implementation Framework for AAC-Mediated Narrative Construction

Step	Teacher's Action	AAC Application
1	Select a story with clear narrative structure (character, problem, action, outcome)	Program story grammar icons and key vocabulary
2	Model the narrative using aided language input	Teacher points to AAC symbols while narrating
3	Conduct guided retelling with prompts	Provide sentence starters and story frames on AAC
4	Facilitate independent narrative generation	Student constructs multi-symbol utterances
5	Promote generalisation	Apply narrative structure to daily routines and recounts

AAC-Supported Shared Book Reading for Literacy Development

This framework is synthesised from AAC-supported shared book reading research that emphasises dialogic interaction, aided language modelling, and access to contextualised vocabulary. Empirical studies by Wence et al. (2024) and Bhana et al. (2020) demonstrate that when AAC is systematically embedded within shared book reading routines, children with complex communication needs engage more actively in extended discourse, display greater communicative initiation, and participate meaningfully across literacy-related tasks. Based on recurring instructional features reported across these studies, Table 2 presents a structured framework illustrating how AAC may be operationalised before, during, and after shared book reading activities to support advanced language and literacy development.

Table 2. Implementation Framework for AAC-Supported Shared Book Reading

Phase	Instructional Strategy	Role of AAC
Before reading	Pre-teach target vocabulary and concepts	Core and fringe vocabulary programmed on AAC
During reading	Commenting, predicting, responding to prompts	Visual scene displays and aided language modelling
After reading	Retelling, inferencing, responding to text	Sentence construction and multi-symbol utterance support

AAC-Supported Pragmatic Language Development (Interaction-Based)

This framework draws on interactional and pragmatic research examining how AAC use supports social participation, turn-taking, and meaning negotiation in classroom discourse. Findings from Quinn et al. (2020) and Ibrahim et al. (2024) consistently indicate that pragmatic language development among AAC users is shaped less by the sophistication of AAC systems and more by the responsiveness of communication partners and the availability of structured interactional opportunities. Table 3 operationalises these findings into a practical framework for supporting pragmatic language through AAC within everyday classroom contexts.

Table 3. Implementation Framework for AAC-Supported Pragmatic Language

Context	Pragmatic Language Target	Classroom AAC Practice
Group work	Turn-taking and responding	Wait time and prompted AAC responses
Classroom discussion	Commenting and topic maintenance	Least-to-most prompting strategies
Play-based interaction	Negotiation and justification	AAC-supported choice-making and explanations

Challenges and Research Gaps in Current AAC Practices

Despite growing interest in AAC across educational and clinical settings, several critical research gaps remain unresolved. While previous sections have highlighted challenges in implementation, training, and technology use, existing literature often addresses these issues in isolation rather than examining them as interconnected systemic gaps.

One significant gap lies in the limited integration between educational-based and healthcare-based AAC research. Studies conducted in school contexts have primarily focused on teachers' knowledge, attitudes, training, and classroom implementation challenges (Joginder Singh et al., 2020; Loi et al., 2023; Yasin et al., 2020). In contrast, AAC research within clinical and healthcare settings has largely examined intervention strategies, device usability, and communication outcomes, frequently from the perspective of speech-language therapists (Almubark et al., 2025; Du et al., 2022; Light et al., 2021). Although both domains consistently report persistent issues related to insufficient knowledge, training, and confidence among practitioners, limited research has attempted to bridge these two perspectives or explore AAC practices that are transferable across educational and clinical contexts (Chu et al., 2019; Loi et al., 2023). This fragmentation hampers the development of unified AAC practices that can be effectively applied across settings where children use AAC daily.

This fragmentation is also reflected in existing professional guidelines. International frameworks such as those developed by the American Speech-Language-Hearing Association (ASHA) and the Royal College of Speech and Language Therapists (RCSLT) provide guidance on AAC assessment, intervention, and service delivery. However, these guidelines are largely focused on clinical practice and the role of speech-language therapists, with limited emphasis on how AAC can be implemented in classroom teaching.

In addition, they do not specifically address the development of advanced language skills such as narrative, literacy, and pragmatic communication within educational contexts. This further highlights the gap between clinical guidance and classroom application, particularly in supporting advanced language development for students who use AAC.

Another notable gap concerns the development of AAC applications tailored to the local Malaysian context. Recent initiatives have begun to design locally relevant AAC applications, such as MySuara, with promising findings related to usability and user satisfaction (Kalaimathi et al., 2024).

However, existing studies have largely focused on technical design and short-term evaluation, with limited investigation into how these applications are implemented in real-world educational or therapeutic settings. There is a lack of evidence examining sustained use, integration into therapy routines, or classroom-based application, resulting in a disconnect between local AAC development and practical implementation (Abdul Razak et al., 2022; Loi et al., 2023).

More broadly, AAC research conducted in Malaysia remains limited in scope and depth. Most local studies have focused on awareness, attitudes, or perceived challenges among teachers and practitioners, with fewer empirical investigations examining how AAC is used to support advanced language development in everyday practice (Abdul Razak et al., 2022; Chu et al., 2019; Joginder Singh et al., 2020). Consequently, there is insufficient evidence capturing practitioners' lived experiences, decision-making processes, and the alignment between AAC tools and intervention goals, particularly for advanced language skills such as narrative, literacy, and pragmatics.

Finally, while international AAC research has increasingly emphasised high-technology systems and classroom-based implementation, such practices are not yet normative in Malaysia. Overseas studies frequently assume access to advanced technology, structured AAC support, and integrated school-based services (Alzrayer, 2020), whereas local contexts continue to face constraints related to training, resources, and cross-disciplinary collaboration (Abdul Razak et al., 2022; Loi et al., 2023). This disparity raises concerns regarding the transferability of international findings to Malaysian practice and highlights the need for context-specific research that reflects local educational and healthcare realities.

Collectively, these gaps underscore the need for research that examines AAC use across contexts, incorporates practitioner perspectives, and focuses on how AAC applications support advanced language development in real-world settings. Addressing these gaps is essential to inform the development of AAC tools and practices that are both evidence-based and locally relevant.

CONCLUSION

Recent literature demonstrates that AAC has progressed beyond its traditional role in supporting basic communication and holds substantial potential for advancing narrative, literacy, and pragmatic language skills among students with special educational needs. Classroom-based approaches illustrate how AAC can function as a language-enabling medium that supports participation, reciprocity, and communicative agency. However, the effectiveness of these approaches depends less on technology alone and more on how AAC is embedded within meaningful interaction and supported by responsive communication partners.

Despite growing evidence, persistent gaps remain in AAC research and practice, particularly in the fragmentation between educational and clinical perspectives, the limited scope of Malaysian AAC research, and challenges in transferring international findings to local contexts. These gaps highlight the need for context-specific research that examines AAC use across settings, prioritises practitioner perspectives, and explores how AAC can realistically support advanced language development in everyday classroom practice. Addressing these issues is essential to inform more integrated, sustainable, and locally relevant AAC implementation that supports meaningful communication outcomes for students with special educational needs. In this regard, efforts to strengthen AAC implementation also align with global commitments such as the SDGs, particularly those focusing on inclusive education and reducing inequalities, where effective communication access plays a key role in enabling meaningful participation.

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