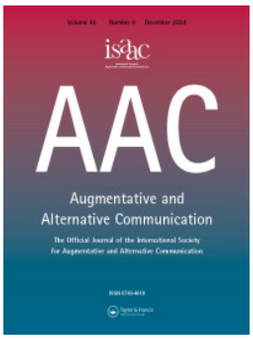

Augmentative and Alternative Communication

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/iaac20

# Empowering Parents for AAC: a training and coaching intervention to support parents to implement a core board with fringe vocabulary with their children in New Zealand

Sam Brydon, Sally Clendon, Elizabeth Doell & Tara McLaughlin

**To cite this article:** Sam Brydon, Sally Clendon, Elizabeth Doell & Tara McLaughlin (05 Feb 2025): Empowering Parents for AAC: a training and coaching intervention to support parents to implement a core board with fringe vocabulary with their children in New Zealand, Augmentative and Alternative Communication, DOI: 10.1080/07434618.2025.2458856

**To link to this article:** https://doi.org/10.1080/07434618.2025.2458856

Published online: 05 Feb 2025.

AUGMENTATIVE AND ALTERNATIVE COMMUNICATION
https://doi.org/10.1080/07434618.2025.2458856

Taylor & Francis
Taylor & Francis Group



CASE REPORT

# Empowering Parents for AAC: a training and coaching intervention to support parents to implement a core board with fringe vocabulary with their children in New Zealand

Sam Brydon, Sally Clendon, Elizabeth Doell and Tara McLaughlin

Institute of Education, Massey University, Auckland, New Zealand

**ABSTRACT**

Low-tech core boards with attached fringe vocabulary are increasingly popular as an entry-level AAC system in New Zealand and beyond, but they require skilled support from communication partners to be used successfully. This article describes the results of a year-long multiple case study carried out in New Zealand, which involved the provision of a 77-cell core board with extensive fringe vocabulary for six preschool children, alongside a training and coaching intervention for one of their parents. This intervention combined group workshops with in-home coaching and provided ongoing maintenance coaching. Quantitative and qualitative data was collected throughout the year, which provided information on the progress of both the parents and the children, as well as exploring each parent's journey with implementing AAC. All the parents learned to use the supportive AAC strategies with consistency and skill and maintained these over the year and their children made significant gains in their communication skills. The parents reported on a range of barriers and supports around implementing AAC; all six parents felt that the training and coaching intervention was essential for the successful implementation of the core board.

**ARTICLE HISTORY**
Received 31 January 2024
Revised 24 October 2024
Accepted 26 December 2024

**KEYWORDS**
Augmentative and alternative communication; parents; communication partners; training; coaching; core board

In New Zealand, low-tech 77-cell core boards (Figure 1) are now widely used with children who are non-speaking or have very delayed development of spoken language, alongside a range of other AAC systems. Their popularity is such that some local authorities are now situating large versions in public places such as playgrounds. Core boards are often introduced as a beginning AAC system; they are also used as a back-up for speech generating devices. They are used in both early intervention services and in schools. They are promoted as a useful AAC tool by the TalkLink Trust, the organization contracted by the New Zealand government as the AAC assessment service (TalkLink Trust, 2023). Most core boards for personal use include a sizeable fringe vocabulary attached in strips at the top, but the key feature of the standard core board used in New Zealand is the printed, color-coded grid containing a stable core vocabulary.

Children who have not developed spoken language benefit from early implementation of AAC systems (Romski et al., 2010; Walters et al., 2021). Parents play a vital role in the success of AAC systems for younger children (Romski & Sevcik, 2005; Sawyer et al., 2022) because they typically spend the most time with their child and engage in a wide range of daily activities and contexts with them (Binger et al., 2008). Furthermore, parents have expressed their desire to learn the necessary skills to support their children using AAC (Baxter et al., 2012; Parette et al., 2000). Participation in well-structured parent training and coaching programmes has been shown to have positive effects on parents' confidence, their use of communication strategies and their children's communication (Backman et al., 2024; Brian et al., 2022; Fäldt et al., 2020). Unfortunately, in practice, adequate parent training is often lacking during the AAC implementation process (Kent-Walsh et al., 2015).

It is not enough to simply include parents in the process of AAC implementation; consideration also needs to be given to how to put each family at the center of the process. Over the past several years, there has been a shift toward more collaborative, family-centred approaches when working with preschool children who need communication support (Brian et al., 2022; Kemp & Turnbull, 2014). When implementing AAC as part of early intervention services, professionals are recommended to use a family-centred approach that emphasizes high levels of parent or caregiver involvement, choice, and decision-making (Mandak et al., 2017).

As part of the AAC implementation process, parents need to become familiar with some of the key supportive AAC strategies identified through practice and research (Gevarter & Zamora, 2018). A systematic review conducted by Biggs et al. (2018) emphasized the importance of training various key communication partners to use the strategy of aided language modeling. Other strategies that benefit children who are learning to use AAC include: creating enhanced opportunities for the child to communicate (Fäldt et al., 2020; Kaiser & Roberts, 2013), using a variety of prompts (Holyfield et al., 2017; Romski et al., 2010), and responding in an appropriate and contingent manner (Gevarter & Zamora, 2018). These

**CONTACT** Sam Brydon sam.brydon@empoweringparentsaac.nz Institute of Education, Massey University, Auckland, New Zealand

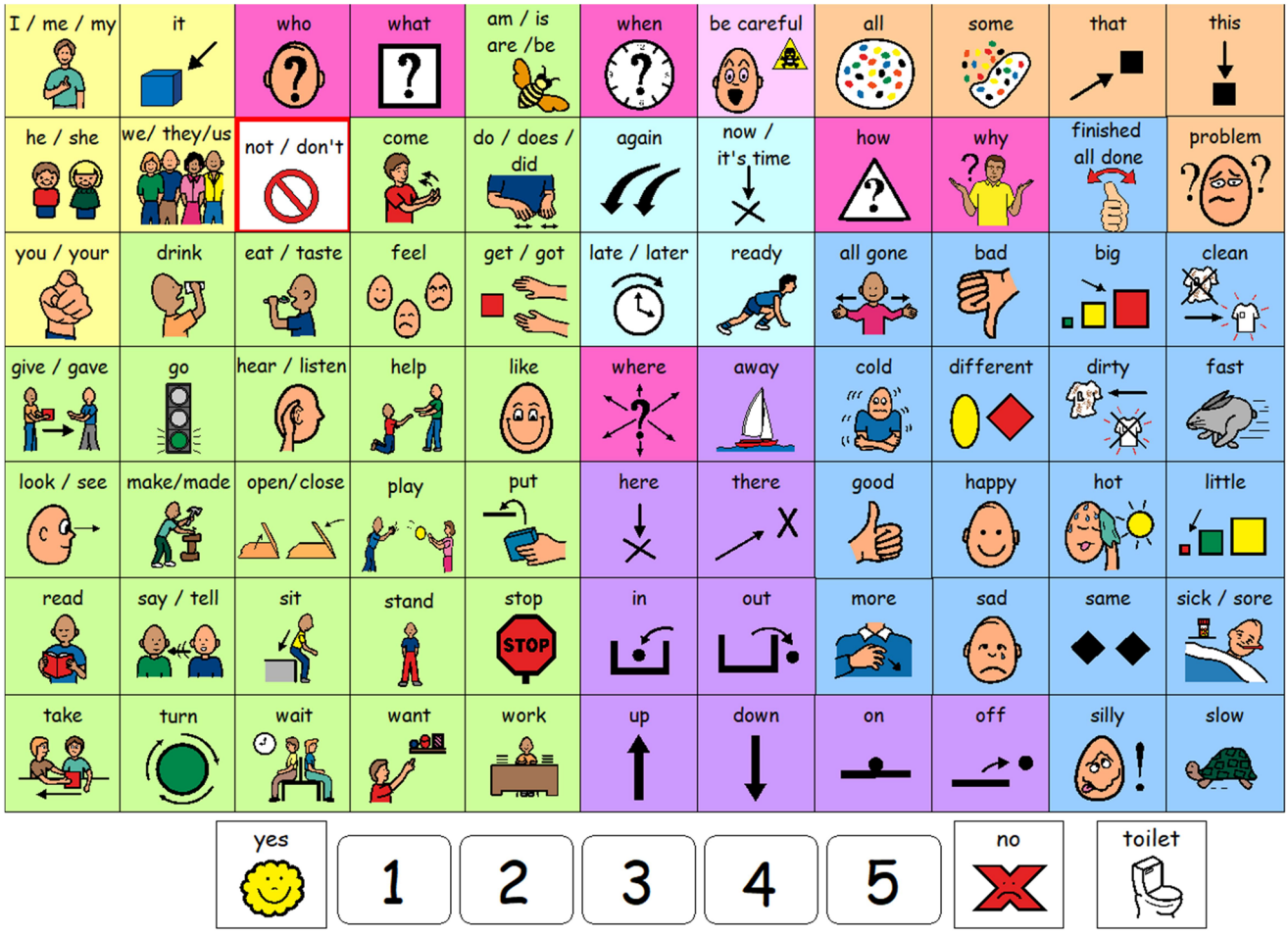


**Figure 1.** 77-cell Core Board used with attached fringe vocabulary in this study

four strategies formed a focus for the training and coaching intervention used in the present study.

Supporting a child to use an AAC system effectively requires intentional application of the AAC strategies (Ganz et al., 2013). These skills are complex and require systematic instruction and practice to be used effectively (Kent-Walsh et al., 2015). Parents must understand how these strategies work and be able to adapt them as their child develops (Brown, 2016). Given the unpredictable nature of learning for children who use AAC, parents need to learn the full range of strategies and apply them skillfully (Kaiser et al., 1995).

Effective parent training needs to incorporate active learning, multiple opportunities for practice, and time for reflection and problem-solving to be effective (Sone et al., 2023; Trivette et al., 2009). Short-term training models are insufficient for achieving long-term changes in adult learners (Kent-Walsh & McNaughton, 2005). While group training can provide benefits such as peer support and cost-effectiveness (Fäldt et al., 2020; Kaiser et al., 1995), it should be supplemented with individual coaching, especially when families face additional challenges (Barton & Lissman, 2015). Individual practice with feedback and reflection is considered necessary (Kent-Walsh et al., 2010). Interventions should be flexible, considering the time constraints and specific needs of each family (Brian et al., 2022). Many parent education interventions described in the literature are short term in nature, and there is a lack of evidence that strategies are maintained over time (Kent-Walsh et al., 2015).

In conclusion, communication partner training is crucial for the successful implementation of AAC systems. Parents play a vital role in supporting the communication development of children who use AAC. Training programs should go beyond short-term demonstrations and incorporate active learning, extensive practice, and opportunities for reflection. By equipping parents with the necessary skills and strategies using a family-centred approach, AAC implementation can be more effective, leading to improved communication outcomes for children.

The present study involved the development and implementation of a training and coaching intervention for parents, named "Empowering Parents for AAC" (EP-AAC). The study aimed to describe the AAC journey of six children and their families and examined the supports required to make AAC implementation successful in the early years. The guiding questions were as follows:

1. What happens to parents' skills and confidence when they engage in a family-centred training and coaching intervention while implementing a low-tech core board with fringe vocabulary with their child?
2. What happens to the communication skills of preschool children with minimal or no spoken language

when they are provided with a core board with fringe vocabulary and supported to use it by their parent?
3. What barriers and supports do parents experience with implementing AAC?

## Method

This study was a year-long, multiple case study undertaken as part of doctoral research in New Zealand. The EP-AAC parent intervention, the data collection, and analysis was all carried out by the main researcher, apart from the final interview, which was carried out by a research assistant unknown to the participants. Pseudonyms are used throughout.

### *Research design*

This multiple case study consisted of six cases, each containing a parent and child dyad. The intervention components were the simultaneous implementation of (1) a training and coaching intervention for the parents and (2) the introduction of a core board with fringe vocabulary as an AAC system for the child. The quantitative data provided a means to measure the outcomes, which were: (1) the parents' use of the AAC strategies, and (2) the children's communication behaviors. The qualitative data contributed to an understanding of what helped to make the implementation of AAC successful as well as providing information about the parents' and children's progress outside of the systematic observations.

Using a case study research design enabled the gathering of data using a range of methods over an extended period and produced a nuanced account for each case. It also allowed for a naturalistic intervention that set families up for long-term AAC success and aligned with the practice frameworks in New Zealand that value child and family-centered practices along with flexible and tailored models of support (Ministry of Education, 2023). The case study design allowed for understanding of a complex event with many variables of interest, taking place in a real-world context (Yin, 2014). Gerring (2017) proposed that case studies can be rigorous, systematic, and replicable. The data collected was extensive and only some elements can be highlighted within the boundaries of a research article.

A full ethics application was completed, and ethics approval was granted by the university's ethics committee. The research was conducted by an experienced speech-language therapist. The interviews were conducted by a trained research assistant, also a speech-language therapist. The same research assistant also completed the inter-observer agreement testing for the observational data. The researcher was supported and advised by a team of three supervisors, who are the coauthors of this article.

### *Participants*

The families recruited came from the same geographical area. The child participants were between 3;4 and 4;2 years at the start of the study and had little or no spoken language. One parent from each family elected to participate in the research: all were mothers. The families were recruited with the help of the local Ministry of Education office. They had little or no prior input from a speech-language therapist and had not used AAC before the study. Altogether, 12 families were referred. From these, six either declined to participate, or the child was using more than 10 functional spoken words when screened for inclusion. Details of the families are outlined in Table 1.

### *The EP-AAC intervention*

This study was based around a training and coaching intervention developed as part of the study called "Empowering Parents for AAC" (EP-AAC). The intervention phase took place over a 9-week period and consisted of four group workshops attended by all the mothers, and four individual coaching sessions, usually in the home. The maintenance phase carried on to the end of the year, during which coaching continued

**Table 1.** Participant details.

| Case | Child | Sex | Age | Ethnicity/Language | Parent | Family Information | Diagnosis and Communication Profile at Baseline |
|---|---|---|---|---|---|---|---|
| 1 | Blaine | M | 3;6 | NZ European<br>Language: English | Emma | Two parents at home. Emma worked full time in social care and was pregnant at start of study, giving birth in month 3. Blaine was the oldest of three children. | Childhood apraxia of speech, ADHD. May have had >10 spoken words at baseline, but all were unintelligible. Receptive language thought to be typical for age. |
| 2 | Grace | F | 3;7 | Māori/NZ European<br>Language: English | Kate | Two parents at home. Kate worked full time as a preschool teacher. Grace had teenage brother. | Spina Bifida with complications. No spoken language but clear yes/no gestures at baseline. Receptive language thought to be typical for age. |
| 3 | Eli | M | 4;2 | Pacific Island/Māori<br>Language: English | Sarah | Two parents at home. Sarah was in full time study and pregnant during study, giving birth eight months in. Eli was an only child at start of the study. | Chromosome deletion/autism. Approximately five NZSL signs used infrequently at baseline, no spoken words. Receptive language described as one key word in context. |
| 4 | Regan | M | 3;7 | Māori/NZ European<br>Language: English | Ashley | Two parents at home at the start of the study, but later separated. Ashley worked full time in retail. Regan was the oldest of two children. | Autism. Approximately 10 spoken words at baseline, including numbers 1-5. Receptive language difficult to gauge, able to follow one-two key word instructions if motivated. |
| 5 | Tina | F | 3;4 | Indian<br>Language:<br>Punjabi and English | Puja | Two parents at home. Puja worked full time in real estate. Tina was an only child. | Global developmental delay, later diagnosed as a chromosomal disorder. No spoken language. Parent unsure of receptive language level, possibly one key word. |
| 6 | Dallas | M | 4;1 | NZ European<br>Language: English | Jo | Two parents at home. Jo worked part-time in retail. Dallas was the oldest of two boys. | Childhood apraxia of speech; approximately five spoken words at baseline. Receptive language thought to be typical for age. |

every 2 months. The full study, including the EP-AAC and the data collection, is represented in the diagram in Figure 2.

The parents were provided with a core board with an extensive, generic fringe vocabulary arranged in categorized strips (e.g., transportation, verbs, colors, animals) and attached at the top of the board at the first workshop. This 77-cell core board is a design that is commonly used across New Zealand and contains high frequency core words that align with core word lists for younger children (Figure 1). The parents were supported to add personalized fringe vocabulary strips during the intervention: typically, this included strips representing familiar people, favorite toys, books, songs and TV shows. The amount of personalization requested varied between families.

The group workshops were held fortnightly and lasted between 2 and 3 h. They aimed to provide a relaxed environment where the mothers could share their experiences of AAC implementation. Each workshop focused on one of four strategies: aided language modeling, creating communication opportunities, prompting, and responding. The workshops were designed to provide initial instruction on the strategies through information sharing, video examples, demonstration, and opportunities for role-play, while the individual coaching sessions that followed each workshop allowed for practice of the strategies in meaningful, personalized contexts. Each parent was provided with a resource folder at the first workshop containing paper resources related to the course content, including information sheets, workshop slides, and action plan templates.

Each workshop concluded with support to write up a structured, parent-led action plan for practice at home. This was an opportunity for the parents to consider what daily routines were important for them to focus on communication with their child, and what aspects of their new learning they wanted to practice. The action plan formed the basis for the subsequent coaching visit, which always took place within a week of the previous workshop. The use of collaborative coaching was an instrumental part of the EP-AAC intervention. Coaching sessions were held at the parents' chosen location, usually their own homes, but also included a supermarket visit, a walk outside, and playground visit for different parents over the year.

Following the written EP-AAC coaching protocol, the coaching sessions involved revision of the action plan, video-recorded observations, video review, feedback, reflection, problem-solving, and completing a new action plan (see Figure 3). This coaching protocol was informed by the Practice-Based Coaching model described in Snyder et al. (2022), and other coaching models commonly used in early intervention (e.g., Conklin et al., 2018; Rush & Shelden, 2020).

## Procedures

### Baseline

Each family participated in a baseline visit at home. This involved the taking of a detailed case history including information about the child's current communication skills, and the first quantitative data collection through systematic observation. All information about the child's current communication abilities was gained through parent report; this was a deliberate decision to encourage the parents to view themselves as experts in their own child's communication, rather than casting the researcher in the expert role. Only one baseline observation was obtained to minimize inconvenience to the families.

### Intervention phase

Shortly after completing the baseline visits, the intervention phase began, lasting for 9 weeks. This consisted of the four group workshops for the parents and four individual coaching sessions at home. Four additional quantitative data collections

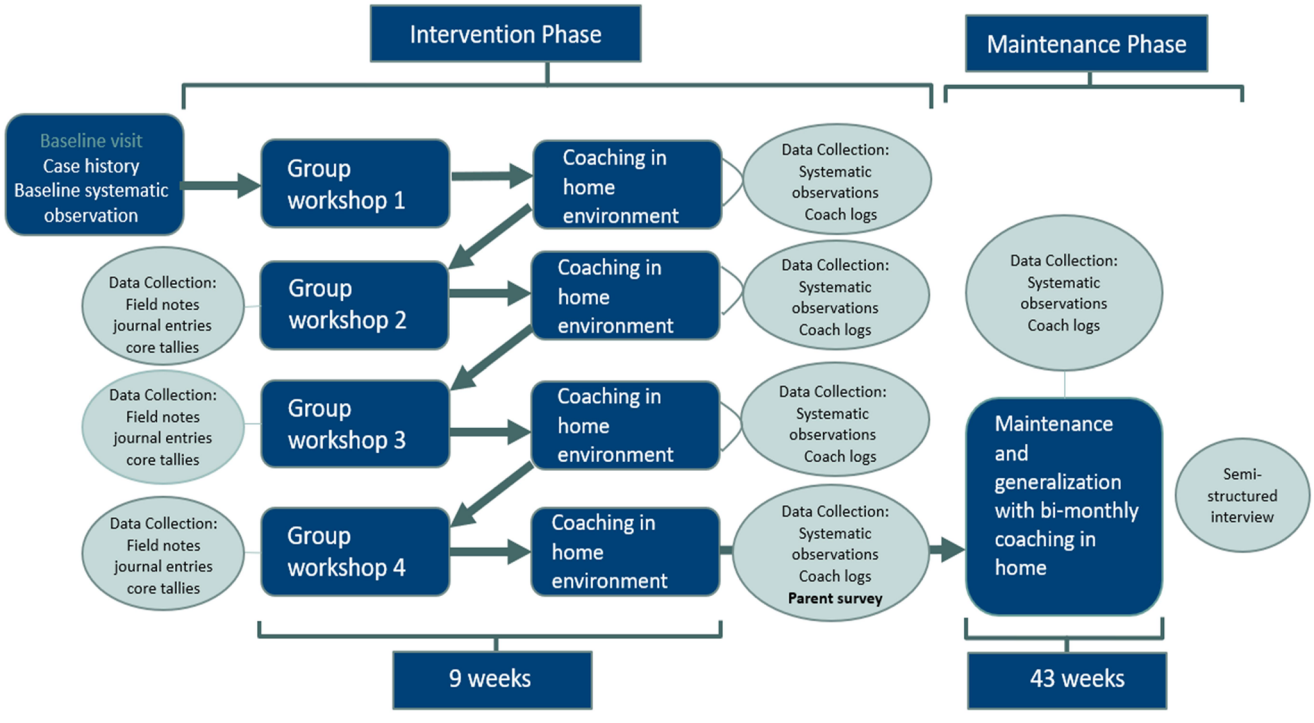


**Figure 2.** Overview of the EP-AAC Intervention with Data Collection

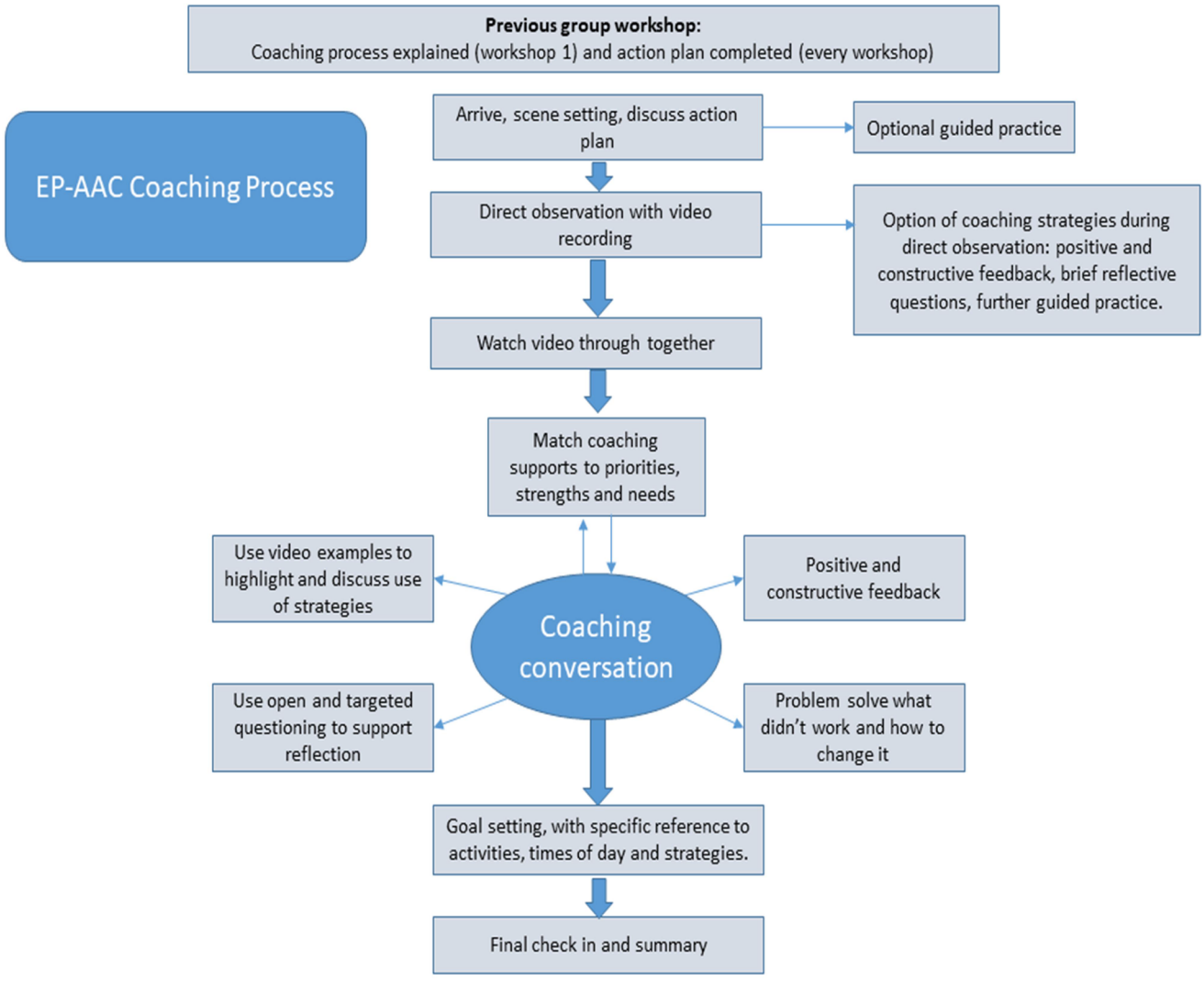


**Figure 3.** Coaching Process

through systematic observations were conducted during this time. At the end of the intervention phase, the parents completed a survey that consisted of some scaled questions and some open questions and sought their opinions about the usefulness of the intervention so far.

### *Maintenance phase*

The study then entered the maintenance phase, during which the parents continued to receive bi-monthly coaching in self-chosen home routines for the remainder of the year. Three more recorded systematic observations were conducted for quantitative data collection at 3 months, 6 months, and 12 months. After the final data collection, the parents participated in semi-structured interviews that explored their journey with AAC throughout the year, including the barriers and supports to implementing AAC with their children.

### *Data collection*

Each systematic observation took place in the home and consisted of 10 min of video recording of the parent and child interacting with the provided materials and with the core board available. There were eight of these observations for each family: one at baseline; four during the intervention phase (spaced 2 weeks apart); and three in the maintenance phase at 3 months, 6 months, and 1 year. Parents were made aware of the general behaviors being observed. The purpose was to obtain quantitative information about the parents' use of the taught AAC strategies, and the children's communication in terms of core board use and spoken language.

Although this study aimed for high ecological validity by carrying out the observations in a natural setting (the home), during a daily routine (play or snack time), and with a familiar communication partner (the parent), several steps were taken to ensure that the observations also allowed for optimal conditions to increase the reliability of the results. This meant addressing issues of consistency and stability, which can be hard to achieve in a home environment with a young child. It was intended that the parents would carry out a similar activity with their child every time over the eight observations, hence the use of provided materials.

Additional data was collected from the parents through the paper survey at the end of the intervention phase, and a semi-structured interview at the end of the maintenance phase. These gathered parents' perspectives on the EP-AAC intervention,

and barriers and supports to implementing AAC. The researcher maintained detailed field notes throughout the study in the form of reflective journals and coach logs. The reflective journals were used to record the researcher's thoughts and question any potential bias as the study progressed, while the coach logs recorded detailed information about each coaching session.

### Data analysis

The recordings obtained during the systematic observations were transcribed and segmented into interaction turns, each containing a single intentional communication attempt by the child. Intentional communication attempts included looking at the parent, gestures, vocalizing, interacting with the core board, or using spoken language. The parents' implementation of the taught strategies was quantified and coded based on predefined criteria that encompassed a range of clearly defined behaviors related to the four strategies. The children's communication attempts were also quantified and coded according to the type of communicative function expressed, the number of core and fringe symbols used, the number of multi-symbol combinations and how many symbols each one contained, and whether each communication attempt was prompted or spontaneous. An overall frequency count was recorded of the total number of symbols used and total number of spoken words used. Descriptive statistics were employed to summarize and present the information collected during the coding process. The parents' answers to the closed-ended questions in the survey were analyzed using descriptive statistics, and their responses to the open-ended questions from the survey and the interview questions were transcribed and analyzed using a process of thematic analysis. The data were integrated to enable within-case and across-case analysis.

### Reliability

Twenty percent of the systematic observations were selected for the process of inter-observer agreement (IOA) testing. These recordings were coded by both the main researcher and a trained research assistant, then results compared. IOA testing was carried out after each data collection round was complete. Some IOA tests had higher levels of discrepancies between coders, for example those that relied on some interpretation of the parents' intentions. After separately coding for each IOA testing, the researcher and assistant met for a discrepancy discussion (Yoder & Symons, 2010). After this, the coding was updated in instances where consensus agreement was reached. Agreement of at least 80% was achieved across all behaviors.

The systematic observations provided a snapshot of each parent's and child's progress over the course of the year. This data was triangulated using the researcher's field notes based on observations during coaching sessions, as well as the data received from parents through informal conversations, coaching conversations, the survey, and interview.

## Results

Retention of participants in this study was unexpectedly high; five of the six dyads remained in the study until the end of the year, the other dyad remained for 8 months. This section will begin with an overview of the changes in the parents' skills and confidence. Following this, the journey for the parent and child dyads will be described to highlight individual changes in the children's communication during the year. Finally, key themes related to the supports and barriers experienced by the parents when implementing a core board with their children will be outlined.

### Overview of parent outcomes

#### Initial strategy use

Although core boards were available and in view during the baseline observations, none of the six parents interacted with them, which meant that none of them used any strategies specific to AAC use, i.e., aided language modeling or prompting (Figure 4). Some of the parents demonstrated a few examples from the strategy covered in the second workshop "creating opportunities for communication," particularly Kate, who was an experienced preschool teacher. Some parents demonstrated response strategies at baseline, but this was dependent on whether their children attempted to communicate with them during the 10-minute recording.

All six parents then recorded an immediate increase across all four strategies after the first workshop and coaching session, during data collection one (marked on graphs as DC1). For all but Puja, this increase was substantial, particularly for the strategy of aided language modeling, which had just been shared in the first workshop and practiced in the subsequent coaching session.

#### Ongoing strategy use

The data collected during the systematic observations showed that all the parents continued to use the strategies throughout their involvement in the study or until their child had enough spoken language to no longer require AAC (Figure 4). However, these observations are not fully representative of the parents' consistency in using and supporting the core board throughout the year. For example, data from the coach logs and other field notes recorded that Sarah and Jo both had periods during the maintenance phase where they stopped using the core board at home. This was addressed in coaching sessions, and their strategy use had increased by the time of the next recorded data collection. Puja shared in her interview that she did not use the core board frequently outside of the observations until 6 months into the study.

#### Strategy use and children's development of spoken language

Four of the six children developed some spoken language (Figure 5), and this affected the amount that the parents used the strategies as time went on. Figure 4 illustrates that some parents (Emma, Kate and Jo) tended to use less aided language modeling as their children developed more spoken language, but others (Sarah and Puja) maintained their levels of this strategy; their children remained non-speaking and continued to rely on AAC for communication.

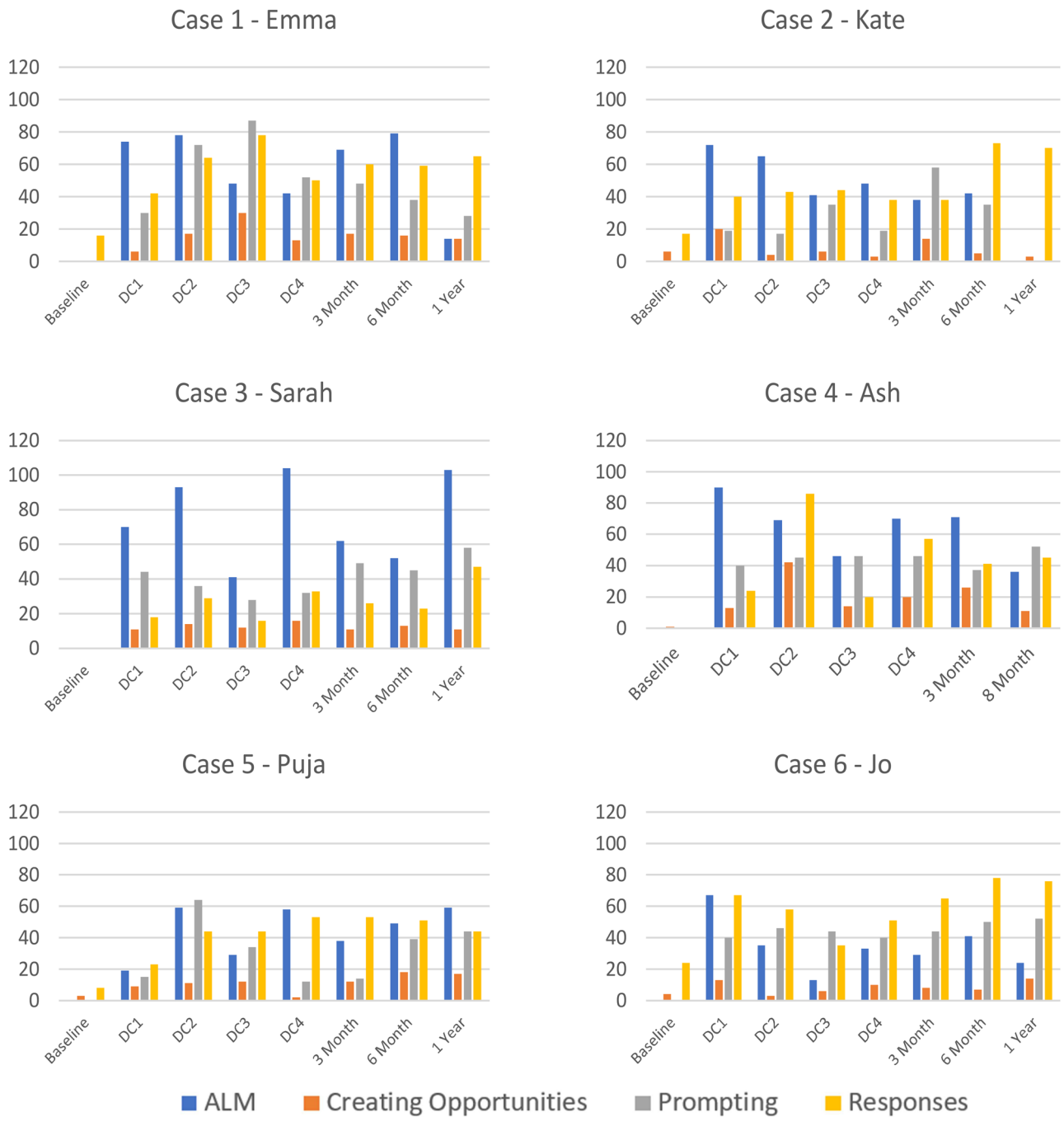


**Figure 4.** Frequency Count of Parents' Use of All Strategies During the 10 Minute Observations. *Note*. DC: Data Collection point during Intervention Phase; Case 2 (Grace) recorded a total of 263 spoken words in her final data collection observation.

### *Use of prompting*

All the parents started to use some prompting from the first data collection (Figure 4), although this strategy had not yet been covered in the workshops. Over the course of the intervention phase, they learned to refine their use of prompts and used them with a higher level of awareness, particularly around the effects that prompting had on their child. Emma, Sarah, Ashley, and Jo maintained similar levels of prompting throughout the study. Grace reacted negatively to overt prompting to use AAC, so this was a strategy that Kate used sparingly. Tina became very resistant to any overt prompting during the latter half of the intervention phase, so her mother, Puja, stopped using this strategy at this time. Field notes also recorded that all the parents overused this strategy during the first 4 weeks of the intervention phase, either during data collections or during coaching observations, causing visible frustration for their children.

### *Parent attitudes*

Data from the survey, interview, and field notes showed that all the parents felt anxious to some degree about their ability to support their children to use AAC at the start of the study. Their confidence grew as they completed the intervention and continued to engage with coaching; they all described themselves as confident to support their child's communication by the end of the year. In the interview, all the parents expressed that they felt that their children's communication had improved because of their participation in the EP-AAC

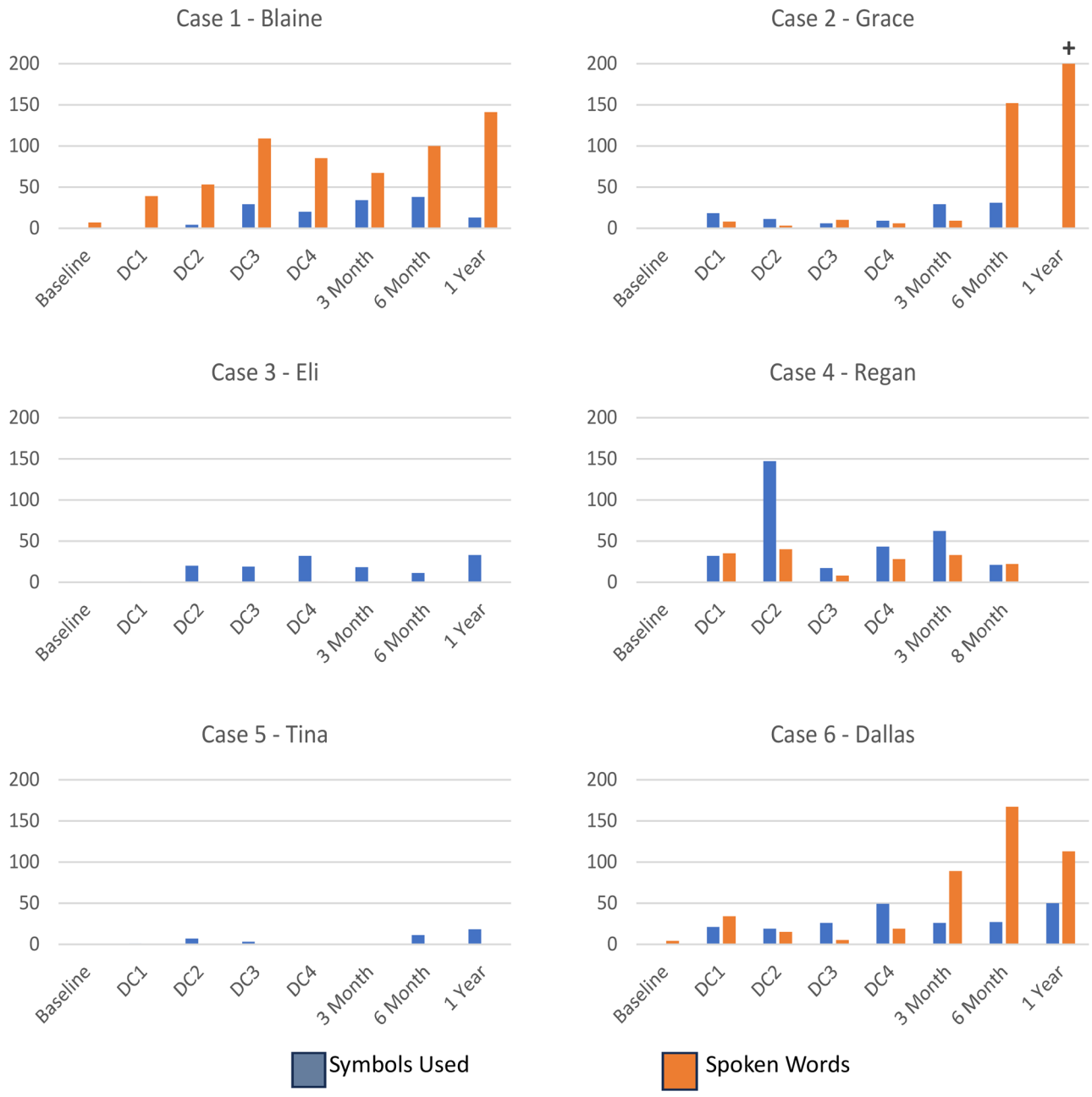


**Figure 5.** Frequency Count of Children's Use of Core Board Symbols and Spoken Words. *Note*: DC = Data Collection point during Intervention Phase; Case 2 (Grace) recorded a total of 263 spoken words in her final data collection observation.

intervention. The parents rated the coaching sessions as the most helpful aspect of the intervention.

## *Individual case studies*

### *Case 1—Emma and Blaine*

Neither Emma or Blaine attempted to use the core board at baseline; Blaine communicated through gestures, vocalizations, and some unintelligible spoken words. Emma reported in both the survey and her interview that he started using the core board for communication almost immediately after its introduction. His communication showed improvements from the first data collection (see Figure 5); he immediately increased his use of recognizable spoken words, alongside pointing to symbols. These spoken words consisted of core words that his mother was modeling frequently on the core board, such as *OPEN* and *MORE*. Although there was variation in performance across observations, he continued to make steady progress throughout the study. He often sequenced up to four symbols to make phrases and he communicated for a range of purposes. His spoken language continued to improve, and he became more intelligible. By the end of the year, Blaine was mainly communicating using spoken language, and only used the core board for specific fringe words when people couldn't understand him. In the interview, Emma shared that she was considering trying a high tech AAC app to give him easier access to fringe vocabulary.

### *Case 2—Kate and Grace*

Grace was non-speaking at the start of the study, but communicated for a range of purposes using looks, facial expressions, gestures, vocalizations, and nodding and shaking her head.

Coach logs, survey data, and interview data recorded that Grace was sometimes reluctant to use the core board and particularly disliked feeling under pressure to communicate. However, she learned to point to symbols to communicate within the first week of the core board being introduced and quickly developed confidence with using it (Figure 5). She used it to communicate for different purposes and connected symbols together to make phrases. Although she sometimes said an approximation of the word 'no' during observations, Grace remained largely non-speaking until unexpectedly developing spoken language around 5 months into the study. After this, her spoken language developed quickly. After the 6-month observation, she no longer needed to use the core board for communication and was talking in sentences by year end.

### *Case 3—Sarah and Eli*

Eli was non-speaking at the start of the study and did not develop any spoken language throughout (Figure 5). Data collected through coach logs, the survey, and the interview showed that while Eli was mostly happy to use the core board to communicate, he sometimes disliked being prompted to use the board and had periods during the year when he was reluctant to use it. Despite this, Eli made fast progress with using the core board to communicate initially and then maintained this level through the maintenance phase. During the study, he communicated for a range of purposes, and often generated multi-symbol combinations using up to five symbols. Sarah, his mother, reported that he used the core board frequently at home but rarely outside the home. In the interview, Sarah stated that he had "become bored" with the core board, and the family wanted him to be assessed for high tech AAC.

### *Case 4—Ash and Regan*

Regan's family left the study at 8 months after a series of difficult life events. Regan made fast progress with using the core board to communicate (Figure 5), and started to use more spoken words concurrently, as he usually attempted to say the corresponding words when he pointed to symbols. Regan is autistic, and his willingness to communicate during observations varied significantly according to his regulation levels and the activity. Data collected from coach logs and the survey provided evidence that he used the core board frequently both at home and at day care. He used a mix of both core and fringe vocabulary, communicated for a range of purposes, and sequenced symbols to make phrases during the 8 months he was in the study.

### *Case 5—Puja and Tina*

Tina was the only child in the study who did not make consistent progress with communication using the core board. She initially struggled to identify and discriminate between symbols on the core board and, after initial enthusiasm for using the core board in a cause-and-effect capacity, she then had 4 months where she was reluctant to interact with it at all (Figure 5). Since the end of the study, Tina has been diagnosed with a chromosomal disorder that affects most aspects of development; she remains non-speaking. Field notes and interview data recorded that Puja (Tina's mother) was struggling to come to terms with Tina's difficulties and she resisted the introduction and use of AAC until 6 months into the study, when an event where Tina became distressed in the community led her to change her views about the use of AAC. After this, Tina started to use the core board again and by the end of the year she was pointing to a few high frequency symbols accurately, and actively seeking out the core board to communicate. In the interview, Puja expressed dissatisfaction with the appearance of the core board, and stated she would prefer Tina to have access to high tech AAC on an iPad.

### *Case 6—Jo and Dallas*

Dallas had some spoken words at the start of the study and presented as having childhood apraxia of speech. Observational data, alongside survey and interview data showed that Dallas was immediately willing to communicate with the core board (Figure 5) and used it across home and day care. Dallas made fast progress, accessing a range of symbols, and developing spoken language that mirrored his symbol use. He communicated using the core board for a range of purposes, including asking questions, and sequenced up to five symbols to express his ideas. He continued to make progress throughout the maintenance phase and used mainly spoken language by the end of the year. His spoken language remained unintelligible to unfamiliar people, and he continued to use the core board to help clarify his messages. In the interview, Jo expressed that the core board would be useful when he started school, but he was no longer using it at home.

## *Survey feedback*

The benefits of the initial intervention phase were also evident in the parents' responses to the survey at the end of this phase. In response to the scaled questions, all six parents agreed that they felt confident to support their child to use a core board, and five out of six agreed that their skills had improved. The parent who was undecided about her skills at this point, Puja, stated in her interview at the end of the study that she felt she had mastered these skills. Five of the six parents felt that their child's communication had improved. At this point in the year of the study, the parents already rated the coaching component as more useful than the workshops.

## *Supports and barriers to implementing AAC*

All the families described significant obstacles to the successful implementation of the core board with their children. This study took place over the COVID-19 pandemic, and the latter half of the study year coincided with the virus' second arrival in New Zealand. Four families reported that COVID-19 and the accompanying restrictions had a negative effect on their abilities to maintain core board use at home at times (e.g., sickness, bereavement, stress).

A common barrier for all six parents was a lack of time. The mothers were all working or studying and most had two

or more children. Most managed the time issue by making core board use part of their routine and fitting it in with everyday activities. On top of the usual busyness of life with young children, some of the parents experienced significant life events, either planned or unexpected, that made it harder for them to stick to the routine of using the core board. Two parents had babies, two experienced relationship breakdown, one family moved home, one set of parents got married and experienced a family bereavement, and nearly all the families got COVID-19. For some families, it meant that core board practice was sometimes put on hold or reduced. Sometimes a planned maintenance coaching session was a reminder to start practicing again, as identified by Jo in her interview: "I think they (the coaching sessions) were very helpful, and it put me back on the track of using the core board."

One barrier to maintaining AAC use, experienced by four parents, was the attitude of their children toward either using the core board or participating in joint play activities. Emma, Sarah, Ashley, and Puja had to manage some strong resistance from their children toward using the core board to communicate at times. Another common reason for parents to reduce or stop using the core board was if their child started to use more spoken language. In one case this was entirely appropriate, as Grace developed spoken language rapidly, and soon had enough language to express most herself. It was less clear cut for Blaine and Dallas, who started to develop spoken language early in the study but remained very difficult to understand.

Despite these considerable barriers to using and supporting the core board, all the parents maintained supporting it for the duration of their involvement in the study, or until it was no longer needed. There were a range of supportive factors for the parents, who were already motivated to help their children and had opted to be part of the study. Five out of six of the parents had a positive outlook toward using AAC from the start of the study according to the initial surveys, and all the parents were concerned about their children's communication. A strong motivating factor for five of the families was the immediate progress that their children made with communication.

There were three supportive factors that were experienced across all six cases. One of these was observing their child's communication progress. The other two were directly related to the EP-AAC intervention; the teaching of the supportive AAC strategies, and the opportunity to practice them with feedback during coaching sessions. Emma stated in her interview: "it'd be so weird if you just like got it and didn't have any training. Like, … I would literally never use it." The parents all identified that initial training on the AAC strategies was essential to get started, and the coaching helped them to apply and maintain the strategies over time.

## Discussion

This study provides evidence that a family-centred training and coaching intervention can effectively support parents in learning, using, and maintaining supportive AAC strategies during home-based routines, and lead to improved communication outcomes for children. The nine-week intervention phase, which included approximately 10 h of group-based instruction and 4–5 h of individualized coaching during home routines, resulted in all six parents successfully utilizing all four strategies with skill. Moreover, the parents reported increased confidence in supporting their child to use a core board. These findings are consistent with previous research on parent training for communication strategies and specific AAC interventions (Biggs et al., 2019; Roberts et al., 2019).

The parents in this study were able to practise the strategies during coaching sessions in a range of self-chosen daily routines, including dinner time, shopping, walks, play, watching TV and shared story. Many researchers have proposed that communication interventions need to take place during naturalistic routines that are familiar to the child, because this is where most language learning occurs, particularly in the preschool years (e.g., Gevarter & Zamora, 2018; Woods, 2008). The use of coaching gave the parents opportunities to share their knowledge about their child and take a collaborative role in planning the next steps. All the parents reported high levels of satisfaction with this process, and the exceptional retention of families over the year of the study is a strong indicator that the parents felt that the intervention was useful.

This study also achieved its intention of supporting the implementation of a core board with fringe vocabulary with young children using principles of best practice, including a family-centred approach that was holistic and naturalistic. As well as training and coaching for the parents, sustained data collection across a year occurred during naturalistic routines in the home environment. This allowed for a detailed study of realistic AAC intervention across six children with different diagnoses, providing information about the effects of introducing a core board with fringe vocabulary on children's communication development.

There appear to be no other similar examples in recent literature of studies conducted using a low-tech core board with fringe vocabulary as an AAC system for children, particularly involving parents interacting with their children in daily routines. Jonsson et al. (2011) used a low-tech communication board with the children in their study, but it contained a much smaller vocabulary than the board used in this study and did not collect data on child outcomes. Other studies have looked at the effects of communication partner training on specific aspects of children's communication behaviors. Kent-Walsh et al. (2010) found that children took more turns on their AAC devices and used a wider range of symbols when their parents were supported to use aided language modeling. Binger et al. (2008) taught parents to use supportive AAC strategies during storybook reading and found that children generated more multi-symbol combinations.

This study collected data through systematic observations for a year, which is longer than other recent studies that have examined AAC implementation (e.g., Kent-Walsh et al., 2015; Shire & Jones, 2015). During this time, the parents received maintenance coaching sessions once every two months. All the parents maintained the ability to use the supportive AAC strategies for as long as they were needed, and the children continued to make gains in their communication. The use of maintenance coaching clearly played a role

in these positive outcomes. Other researchers have found that parents and other communication partners can struggle to maintain the use of strategies over time without some form of ongoing support (e.g., Ganz et al., 2013).

Although the quantitative data recorded that the parents maintained the strategies during the maintenance phase, in practice their strategy use had often dropped off before maintenance coaching visits. These visits provided motivation to continue with supporting the use of the core board and using the strategies. Four of the parents confirmed this observation in their interviews. The use of bi-monthly coaching appeared to be sufficient for most of the parents in this study. One parent struggled more to maintain and generalize the strategies and may have benefited from more frequent coaching. Bi-monthly coaching sessions require minimal professional input in terms of time and represent a realistic approach for stretched early intervention services.

### *Implications*

This study supports the growing evidence that a training with individualized coaching approach is beneficial to help parents to learn and maintain AAC strategies, which in turn can have a positive influence on children's communication skills. The coaching component of the intervention was identified as the most helpful by all six parents. The flexibility and personalization of coaching sessions were appreciated by the parents and contributed to their engagement and progress. The use of maintenance coaching sessions contributed to helping parents maintain the use of AAC strategies over time.

The study's emphasis on generalization across various natural routines is a significant strength. By encouraging AAC use in a range of contexts, the intervention aimed to facilitate the transfer of skills and strategies to real-life situations. Additionally, the research highlights the importance of family-centered interventions that take place during naturalistic routines familiar to the child. By involving parents in joint action planning and providing autonomy over strategy selection and routine implementation during the coaching sessions, the intervention respected the family's strengths and preferences, leading to high levels of satisfaction and successful outcomes.

### *Research design and limitations*

This study was a year-long multiple case study that incorporated rich data integrated from a range of sources about the children and parents (much more than can fit within the boundaries of a research article). This study design is not intended to provide experimental control across or within participants. The focus was on high ecological validity, and research methods that endeavor to generate deeper understanding of the experiences of families. These methods have been called for in the AAC literature; such methods have been identified as having alignment with the aspiration of delivering truly family-centered services (e.g., Doak, 2021; Parette et al., 2000). For these reasons, the work was guided by the Trustworthiness Framework laid out by Guba and Lincoln (1985) incorporating key principles including prolonged engagement with the participants to foster openness and trust; reflective journaling and frequent supervision to maintain reflexivity; and robust data collection and analysis procedures to enhance dependability. In addition, the doctoral dissertation upon which this article is based provides detailed descriptions of the research setting, participants, and procedures to enable readers to assess the transferability of the findings to their own contexts.

Nonetheless, there are limitations to consider in this study related to the conduct of case study. For example, certain aspects of the intervention were structured in a way that prioritized ease of data collection and analysis rather than representing best practices in AAC. For instance, only one parent from each family participated in the training and coaching, which is not ideal as knowledge transfer to other important communication partners in the children's lives was compromised. Additionally, the study primarily focused on supporting the immediate family and did not fully consider other environments and contexts in which the child interacts, such as daycare facilities. Staff at these facilities, who serve as key communication partners, were not directly involved in the intervention, which may have impacted the implementation and overall success of the intervention.

It is important to acknowledge that the AAC system used in this study was a standardized 77-cell core board with attached fringe vocabulary, a system that is widely used as a beginning or back-up AAC system in New Zealand. While parents had the opportunity to personalize the fringe vocabulary, the same AAC system was employed across the diverse backgrounds and needs of the six participating families. This did not account for the individual needs, cultural identities, and diverse languages represented within the participant group.

The methods of data collection, particularly the systematic observations, may have introduced additional benefits for the families beyond the training and coaching provided by the EP-AAC intervention. This could have influenced the parents' performance during the observations, potentially deviating from their typical day-to-day interactions.

## Conclusion

Overall, this study contributes to the growing body of evidence supporting the effectiveness of parent training and coaching interventions in promoting AAC use in children. The findings highlight the importance of ongoing support, flexible coaching approaches, and a focus on naturalistic routines for successful implementation and maintenance of AAC strategies. By empowering parents to take an active role in supporting their child's communication, interventions like the EP-AAC have the potential to make a meaningful and lasting impact on children's communication outcomes and increase the likelihood of successful implementation of AAC systems in the early years.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## ORCID

Sam Brydon http://orcid.org/0009-0007-3423-9545
Sally Clendon http://orcid.org/0000-0002-1238-596X
Elizabeth Doell http://orcid.org/0000-0002-4142-8922
Tara McLaughlin http://orcid.org/0000-0001-6754-7244

## References

Backman, E., Johnels, J. A., & Thunberg, G. (2024). Parental perceptions of social life before and after attending a parent training program for children with complex communication needs: The ComAlong example. *Augmentative and Alternative Communication (Baltimore, Md.: 1985)*, *40*(1), 46–56. https://doi.org/10.1080/07434618.2023.2262036

Barton, E., & Lissman, D. (2015). Group parent training combined with follow-up coaching for parents of children with developmental delays. *Infants & Young Children*, *28*(3), 220–236. https://doi.org/10.1097/IYC.0000000000000036

Baxter, S., Enderby, P., Evans, P., & Judge, S. (2012). Barriers and facilitators to the use of high-technology augmentative and alternative communication devices: A systematic review and qualitative synthesis. *International Journal of Language & Communication Disorders*, *47*(2), 115–129. https://doi.org/10.1111/j.1460-6984.2011.00090.x

Biggs, E., Carter, E., & Gilson, C. (2018). Systematic review of interventions involving aided AAC modeling for children with complex communication needs. *American Journal on Intellectual and Developmental Disabilities*, *123*(5), 443–473. https://doi.org/10.1352/1944-7558-123.5.443

Biggs, E., Carter, E., & Gilson, C. (2019). A scoping review of the involvement of children's communication partners in aided augmentative and alternative communication modeling interventions. *American Journal of Speech-Language Pathology*, *28*(2), 743–758. https://doi.org/10.1044/2018_AJSLP-18-0024

Binger, C., Kent-Walsh, J., Berens, J., Del Campo, S., & Rivera, D. (2008). Teaching Latino parents to support the multi-symbol message productions of their children who require AAC. *Augmentative and Alternative Communication (Baltimore, Md.: 1985)*, *24*(4), 323–338. https://doi.org/10.1080/07434610802130978

Brian, J., Drmic, I., Roncadin, C., Dowds, E., Shaver, C., Smith, I., Zwaigenbaum, L., Sacrey, L., & Bryson, S. (2022). Effectiveness of a parent-mediated intervention for toddlers with autism spectrum disorder: Evidence from a large community implementation. *Autism: The International Journal of Research and Practice*, *26*(7), 1882–1897. https://doi.org/10.1177/13623613211068934

Brown, J. (2016). Coaching in parent-implemented early communication interventions: Understanding and overcoming individual-level implementation barriers. *Perspectives of the ASHA Special Interest Groups*, *1*(1), 144–153. https://doi.org/10.1044/persp1.SIG1.144

Conklin, C., Weitzman, E., Pepper, J., McDade, A., & Stein, T. (2018). *Making Hanen happen: It Takes Two to Talk®—The Hanen Program® for parents. Leader's guide for certified speech-language pathologists* (8th ed.). Hanen Early Language Program.

Doak, L. (2021). Rethinking family (dis)engagement with augmentative & alternative communication. *Journal of Research in Special Educational Needs*, *21*(3), 198–210. https://doi.org/10.1111/1471-3802.12510

Fäldt, A., Fabian, H., Thunberg, G., & Lucas, S. (2020). "All of a sudden we noticed a difference at home too": Parents' perception of a parent-focused early communication and AAC intervention for toddlers. *Augmentative and Alternative Communication (Baltimore, Md.: 1985)*, *36*(3), 143–154. https://doi.org/10.1080/07434618.2020.1811757

Ganz, J., Goodwyn, F., Boles, M., Hong, E., Rispoli, M., Lund, E., & Kite, E. (2013). Impacts of a PECS instructional coaching intervention on practitioners and children with autism. *Augmentative and Alternative Communication (Baltimore, Md.: 1985)*, *29*(3), 210–221. https://doi.org/10.3109/07434618.2013.818058

Gerring, J. (2017). *Case study research: Principles and practices* (2nd ed.). Cambridge University Press.

Gevarter, C., & Zamora, C. (2018). Naturalistic speech-generating device interventions for children with complex communication needs: A systematic review of single-subject studies. *American Journal of Speech-Language Pathology*, *27*(3), 1073–1090. https://doi.org/10.1044/2018_AJSLP-17-0128

Guba, E., & Lincoln, Y. (1985). *Naturalistic inquiry*. Sage.

Holyfield, C., Drager, K., Light, J., & Kremkow, J. (2017). Systematic review of AAC intervention research for adolescents and adults with autism spectrum disorder. *Augmentative and Alternative Communication (Baltimore, Md.: 1985)*, *33*(4), 201–212. https://doi.org/10.1080/07434618.2017.1370495

Jonsson, A., Kristoffersson, L., Ferm, U., & Thunberg, G. (2011). The ComAlong communication boards: Parents' use and experiences of aided language stimulation. *Augmentative and Alternative Communication (Baltimore, Md.: 1985)*, *27*(2), 103–116. https://doi.org/10.3109/07434618.2011.580780

Kaiser, A. P., & Roberts, M. Y. (2013). Parents as communication partners: An evidence-based strategy for improving parent support for language and communication in everyday settings. *Perspectives on Language Learning and Education*, *20*(3), 96–111. https://doi.org/10.1044/lle20.3.96

Kaiser, A., Hemmeter, M., Ostrosky, M., Alpert, C., & Hancock, T. (1995). The effects of group training and individual feedback on parent use of milieu teaching. *Journal of Childhool Communication Disorders*, *16*(2), 39–48. https://doi.org/10.1177/152574019501600206

Kemp, P., & Turnbull, A. (2014). Coaching with parents in early intervention: An interdisciplinary research synthesis. *Infants & Young Children*, *27*(4), 305–324. https://doi.org/10.1097/IYC.0000000000000018

Kent-Walsh, J., Binger, C., & Hasham, Z. (2010). Effects of parent instruction on the symbolic communication of children using augmentative and alternative communication during storybook reading. *American Journal of Speech-Language Pathology*, *19*(2), 97–107. https://doi.org/10.1044/1058-0360(2010/09-0014)

Kent-Walsh, J., Binger, C., & Malani, M. (2010). Teaching partners to support the communication skills of young children who use AAC: Lessons from the ImPAACT program. *Early Childhood Services*, *4*(3), 155–170. https://www.researchgate.net/publication/260124248

Kent-Walsh, J., & McNaughton, D. (2005). Communication partner instruction in AAC: Present practices and future directions. *Augmentative and Alternative Communication*, *21*(3), 195–204. https://doi.org/10.1080/07434610400006646

Kent-Walsh, J., Murza, K. A., Malani, M. D., & Binger, C. (2015). Effects of communication partner instruction on the communication of individuals using AAC: A meta-analysis. *Augmentative and Alternative Communication (Baltimore, Md.: 1985)*, *31*(4), 271–284. https://doi.org/10.3109/07434618.2015.1052153

Mandak, K., O'Neill, T., Light, J., & Fosco, G. M. (2017). Bridging the gap from values to actions: A family systems framework for family-centered AAC services. *Augmentative and Alternative Communication (Baltimore, Md.: 1985)*, *33*(1), 32–41. https://doi.org/10.1080/07434618.2016.1271453

Parette, H., Brotherson, M., & Huer, M. (2000). Giving families a voice in augmentative and alternative communication decision-making. *Education and Training in Mental Retardation and Developmental Disabilities*, *35*(2), 177.

Roberts, M., Curtis, P., Sone, B., & Hampton, L. (2019). Association of parent training with child language development: A systematic review and meta-analysis. *JAMA Pediatrics*, *173*(7), 671–680. https://doi.org/10.1001/jamapediatrics.2019.1197

Romski, M., & Sevcik, R. (2005). Augmentative communication and early intervention: Myths and realities. *Infants & Young Children*, *18*(3), 174–185. https://doi.org/10.1097/00001163-200507000-00002

Romski, M., Sevcik, R., Adamson, L., Cheslock, M., Smith, A., Barker, R., & Bakeman, R. (2010). Randomized comparison of augmented and nonaugmented language interventions for toddlers with developmental delays and their parents. *Journal of Speech, Language, and Hearing Research: JSLHR*, *53*(2), 350–364. https://doi.org/10.1092/4388(2009/08-0156)

Rush, D., & Shelden, M. (2020). *The early childhood coaching handbook* (2nd ed.). Brookes Publishing.

Sawyer, B. E., Hammer, C., Santoro, J., Smith, J., & Feil, E. (2022). Developing parents plus: A parent-implemented intervention for young children with developmental language disorders. *Infants & Young Children*, *35*(3), 205–221. https://doi.org/10.1097/IYC.0000000000000219

Shire, S., & Jones, N. (2015). Communication partners supporting children with complex communication needs who use AAC: A systematic review. *Communication Disorders Quarterly*, *37*(1), 3–15. https://doi.org/10.1177/1525740114558254

Snyder, P., Hemmeter, M., & Fox, L. (2022). *Essentials of Practice-Based Coaching; Supporting effective practices in early childhood*. Brookes.

Sone, B., Lee, J., Grauzer, J., Kaat, A., & Roberts, M. (2023). Identifying effective strategies to instruct parents during parent-implemented intervention: The role of parent practice with feedback. *Early Childhood Research Quarterly*, *62*, 394–404. https://doi.org/10.1016/j.ecresq.2022.09.010

TalkLink Trust (2023). Core boards. *TalkLink Trust*. http://talklink.org.nz/resources/core-boards

Trivette, C., Dunst, C., Hamby, D., & O'herin, C. (2009). Characteristics and consequences of adult learning methods and strategies. *Research Brief*, *3*(1), 1–33.

Walters, C., Sevcik, R., & Romski, M. (2021). Spoken vocabulary outcomes of toddlers with developmental delay after parent-implemented augmented language intervention. *American Journal of Speech-Language Pathology*, *30*(3), 1023–1037. https://doi.org/10.1044/2020_AJSLP-20-00093

Woods, J. (2008). Providing early intervention services in natural environments. *The ASHA Leader*, *13*(4), 14–23. https://doi.org/10.1044/leader.FTR2.13042008.14

Yin, R. (2014). *Case study research: Design and methods* (5th ed.). Sage.

Yoder, P., & Symons, F. (2010). *Observational measurement of behavior*. Springer.