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Augmentative and Alternative Communication Assessment: Considerations for Autistic Children Who Are Beginning Communicators

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Abstract

The overall goal of this chapter is to provide some considerations for augmentative and alternative communication (AAC) assessment which could improve AAC protocols for autistic children. This is considered important as improved AAC assessment protocols could lead to improved overall AAC outcomes. A brief overview of augmentative and alternative communication (AAC) and its relevance for autistic children who are beginning communicators is provided. An overview of the AAC assessment process focussing on the Participation Model as the framework is discussed. The inclusion of sensory processing as part of the AAC assessment process is considered as a means of improving AAC assessment protocols for autistic children. Relevant research which has described the sensory processing characteristics of the participants is presented for consideration.

Keywords: AAC; Autism; AAC Assessment; Sensory Processing; Child Characteristics.

Many children with autistic spectrum disorder (ASD) present with little or no functional speech and these children are often referred to as beginning communicators (Tager-Flusberg & Kasari, 2013). Such children are in the early stages of language development and therefore use communicative behaviours such as gestures and facial expressions to express themselves (Holyfield, 2019). Recent estimates indicate that as many as 40% of children diagnosed with ASD may be beginning communicators (Centres for Disease Control and Prevention (2018).

Difficulties in social communication and social interaction are a key diagnostic criterion for ASD (American Psychiatric Association, 2013). These difficulties may impact the child's ability to communicate their needs, preferences and ideas (Lund et al. 2021). Such difficulties are also likely to influence societal inclusion. Finding ways to support communication development is therefore important because the ability to communicate has also been linked to outcomes in both education and employment (Iacono, 2016). For these children, augmentative and alternative communication (AAC) is often considered as an intervention strategy.

Augmentative and Alternative Communication

ISAAC (2021) states that AAC refers to tools and strategies which are used to support communication. AAC may be implemented to replace speech in situations when it has not developed, or to augment existing speech when it may not meet the individual's communication needs. Recently, AAC is also used to teach the child about the process of communication as well as to support language development (Hustad & Miles, 2010).

AAC may include both unaided and aided means of communication. Unaided AAC strategies refer to the use of the body including the use of manual signing and gestures. Aided communication systems are considered as forms of assistive technology and may be low tech in nature e.g., the use of pictures and communication books which are paper based. Aided AAC also includes systems which provide voice output and are typically computer based. Such systems are referred to as high tech AAC systems and may include mainstream technology such as a tablet with AAC software or application or dedicated AAC systems which are built for the purpose of communication.

The use of AAC to support the communication of individuals with ASD is considered an evidence-based practice by the National Clearinghouse on

Autism Evidence and Practice (Steinbrenner et al., 2020). While both aided and unaided AAC have been demonstrated to be effective for children with ASD, there are challenges in the selection of AAC systems and/or strategies for individual children especially in situations when no previous AAC has been implemented (Ganz et al., 2023).

AAC assessment

Assessment for AAC is a complex process in which a team of practitioners aims to select the most appropriate AAC systems and/or strategies for a particular individual. This process is particularly challenging for practitioners for many reasons; large amounts of information about the individual need to be collected and integrated, and the wider communicative context and practitioners must be aware of rapid advances in AAC options. There is also huge heterogeneity to be found within the population of individuals which require AAC (Lund et al., 2017). While assessment should lead to the selection of the most appropriate communication modes for an individual, this is considered the start of a long journey in which the individual eventually learns to use AAC to communicate with many communication partners in multiple communication contexts. In view of this, assessment does not stop at the identification of the AAC system and/or strategy but also aims to identify intervention strategies which support the individual and communicative environment to use the AAC system and/or strategies (Naughton et al., 2019).

One framework which is typically utilised to guide the AAC assessment process is the Participation Model (Beukelman & Mirenda, 2013). This model may be utilised by the AAC Team to establish the best fit in terms of AAC systems and/or strategies but also supports the Team to consider the intervention strategies which will be utilised to teach the child how to use the AAC. It begins by identifying the individual's participation patterns and communication needs. An assessment of opportunity and access barriers then follows.

Opportunity barriers refer to barriers which may be identified in the individual's extended environment and may include policies and practices, facilitator knowledge and skill, as well as attitudes. Assessment of these barriers allows the AAC Team to consider wider issues such as communication partners, which may present a potential barrier in the implementation of AAC thus mitigating the risk of potential device

abandonment which is prevalent in the field of AAC (Sievers et al., 2018). The assessment of access barriers refers to the individual's capabilities and is focussed on the individual who potentially could benefit from AAC. This includes assessment of current communicative skills, motor, cognitive, linguistic, literacy, and sensory perceptual skills (vision and hearing) as well as the child's potential for natural speech and possible environmental adaptations that could support communication.

It has been suggested that the Participation Model may need to be applied differently according to the individual's diagnosis e.g., Agius & Borg (2022) and Lund et al. (2017). This is because although the Participation Model provides a model of best practices, it does not provide specific guidelines on assessment protocols for individual populations such as children with ASD (Lund et al., 2017). This is important when it is considered that children with ASD present with unique difficulties in the area of social communication which could impact the selection and learning of AAC.

Individual characteristics: Sensory Processing

Apart from the core deficit in social communication and social interaction, the DSM-5 (2013) states that the second core deficit of autism is restricted, repetitive patterns of behaviours and interests making reference to sensory reactivity as a core deficit of ASD for the first time (Ben-Sasson et al., 2019). Sensory processing theory hypothesises that for optimal functioning to occur in daily living environments information received through the senses must be efficiently received and integrated (Baker et al., 2008). Sensory processing difficulties may occur when an individual has difficulty organising and regulating behavioural responses to sensory inputs in accordance with environmental demands (Miller et al., 2007). The DSM-5 includes references to hyper-reactivity and hypo-reactivity. Hyper-reactivity refers to exaggerated, possibly negative responses to stimuli (Uljarevic et al., 2017). Conversely, children who display hypo-reactivity may be slow to respond to incoming stimuli. Sensory-seeking behaviour, a third category, refers to a preoccupation with or a craving for certain sensory experience (Hazen et al., 2014) It is estimated that over 90% of children diagnosed with ASD may present with atypical sensory processing (Ben-Sasson et al., 2019).

The importance of sensory processing

It is theorised that adequate sensory processing underpins all learning laying down the foundation for social, communication and language development (Ben-Sasson et al., 2019; Watson et al., 2011). Research has indicated that some sensory processing profiles, particularly hypo-reactivity and sensory-seeking are more associated with delays in language and communication development (Tomcheck et al., 2015; Watson et al., 2011).

Given the existing research on the relationship between sensory processing and communication development it could be hypothesised that sensory processing assessment should be included in AAC assessments of children with ASD. Typical AAC research often describes children's current communication levels, adaptive functioning as well as the results of cognitive assessments. Much of this information has been synthesised to support practitioners to understand how these characteristics might impact AAC outcomes e.g., Ganz et al. (2023), but information on how children process information through their senses is generally not included. This information could provide the practitioner with important information to plan the AAC intervention programme for specific children with ASD, especially those who are beginning communicators to ensure the likelihood of improved AAC outcomes.

AAC research which includes sensory processing in participant descriptions

Three consecutive single case experimental design (SCED) studies which refer to sensory processing for children with ASD are described by Agius (2019). This research was carried out in a national assistive technology centre in Malta. The aim of the studies, which included a total of 12 young children with ASD described as beginning communicators, was to teach requesting using mainstream tablet technology with the Scene and Heard© AAC application. The sensory processing profiles of each of these children is described using the results of the Short Sensory Profile (McIntosh et al., 2009). This was administered alongside other assessments aimed to assess autism severity, communication level and adaptive functioning.

Study 1, which had four participants, was an adapted alternating design embedded in a multiple probe SCED used to compare learning to request with a traditional grid display format and a visual scene display. Photos of reinforcers were presented in rows and columns in the grid display. For the visual scene display a photo of the reinforcers was taken and hotspots

were created. Two participants were described as sensory-seekers while the other two had typical sensory processing. The results for all four children were similar for the two displays but the two children who had sensory processing difficulties failed to achieve criterion in either of the displays within the allocated number of treatment sessions. As the children also presented with the lowest scores in the areas of adaptive functioning and communication, their difficulties with learning to use the AAC could not be attributed solely to their sensory processing difficulties. The study results did, however, provide a springboard for future research as it led the researchers to question whether the provision of sensory processing interventions in addition to the AAC intervention might have supported these two participants to achieve criterion.

In Study 2, a further four participants were recruited. This study replicated Study 1 with the addition of a sensory processing intervention programme which was tailor made for each child according to the results of their sensory processing assessment (Schaff et al., 2014). In this study, two children were hypo-reactive, one was a sensory-seeker and the fourth was hyper-reactive. Again, all four participants achieved similar results for both displays. Three children achieved criterion within the sessions allocated, the fourth achieved criterion in the post-intervention phase. The children who presented with a hypo-reactive sensory processing required the most sessions of intervention. These children also presented with the lowest levels of communication development and adaptive functioning.

As the children did not demonstrate any significant differences in learning to use the two displays in Study 1 and 2, in Study 3 a further four children were taught to request using only the grid display. Again, sensory processing interventions were provided to support the AAC intervention. In this study, one child presented with a profile of hypo-reactivity, one was hyper-reactive, one was a sensory-seeker, and the fourth fluctuated between hypo- and hyper-reactivity. The child with the hypo-reactive sensory processing pattern took the longest to achieve criterion. The child who fluctuated between hypo- and hyper-reactivity required modifications to the treatment protocol but then achieved criterion. The child who presented with a hyper-reactive profile achieved criterion in the least number of sessions.

As only 12 children took part in the three studies, the conclusions that can be drawn are somewhat limited. When the results of all 12 children

are taken into consideration it was evident that children who presented with typical sensory processing took a fewer number of sessions to learn to use AAC. Children with a hypo-reactive sensory profile took the longest to learn to use AAC suggesting that practitioners and families may need to plan for longer trial and intervention periods. This could be expected given that published sensory processing research indicates that this group of children are the most likely to experience communication delays and be nonverbal (Patten et al., 2013; Watson et al., 2011). Children who were hyper-reactive took the shortest time to learn to use AAC and this correlates with research which has found that these children are less likely to have difficulties with communication (Patten et al., 2013; Watson et al., 2011).

Conclusion

This research indicates that there could be some benefit to considering sensory processing in the AAC assessment protocol to ensure a more comprehensive assessment of AAC. Firstly, this could be integrated in the assessment of access barriers within the Participation Model. In terms of opportunity barriers, it would be important to include the family and educators' skills, attitude and knowledge on the child's sensory processing as part of the information gathering process. Taken together, this additional information could provide the assessment Team with the information that is required to plan interventions. This may take the form of the provision of sensory processing interventions as an adjunct to AAC interventions according to the individual child's sensory processing profile and communication needs.

Consideration of specific sensory processing profiles and their impact on achieving AAC outcomes requires further research. Ultimately, improving AAC assessment protocols for children with autism will lead to improved AAC outcomes.

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