

# STaR Research Report

The use of peer mediation and educator facilitation to promote turn taking in young children with autism spectrum disorder in inclusive childcare



## The use of peer mediation and educator facilitation to promote turn taking in young children with autism spectrum disorder in inclusive childcare

In 2014 a collaborative study was conducted to investigate whether the turn-taking skills of children with autism spectrum disorder (ASD) would improve when their educators trained and coached typically-developing peers to support development of these skills, using an iPad game. An additional focus was whether any improvements would be maintained without continued educator support. For both the educators and the peers, the ability to successfully implement the intervention was also measured.

The research team consisted of Macquarie University academics Associate Professor Jennifer Stephenson and Dr Coral Kemp in collaboration with STaR staff members Megan Cooper and Dr Kerry Hodge. A Macquarie University grant enabled the research to take place. The findings, with illustrative video footage, were presented at a 2015 national conference in special education and at a state early childhood intervention conference in 2017. Audiences at the 2016 and 2019 conferences of the International Society on Early Intervention also had the opportunity to learn of this research. The study has been published in an international academic journal, *Infants & Young Children* (see details below). This is a summary of the article.

### Why this particular study?

Successful inclusion of children with disabilities in preschools and childcare should involve active promotion of engagement and social participation, including being able to take turns. Turn-taking relies on the ability to attend to a person or object with another person (known as 'joint attention'); for children with ASD this might require a specific intervention program. Involving the child's peers in the program ('peer-mediated intervention') is one way to approach teaching such skills, but preschool-aged children have rarely been used in peer-mediation research. Would it work? Another unknown element in this study was whether educators working in naturalistic settings could reliably implement a peer-mediated intervention without the intensive training and support that implementers in previous studies had received.

Touch screen technology was chosen as a vehicle for turn-taking because studies have shown both its value in developing the skills of children with disabilities and its attractiveness to young children.

### Who took part?

Three boys with a diagnosis of ASD took part, along with eleven peers with typical development (all with family permission) and two educators of these children (one female, one male). They were from two privately owned childcare centres in north-western Sydney. The individual education plans of the three target children included priority goals relating to social interaction and turn taking. These children had been attending their centres for between 12 and 31 months. Pseudonyms are used here.

*Kenny*, aged 56 months as the study began, was diagnosed with a mild developmental delay, a severe language disorder and ASD. He spoke in short sentences, but he frequently used movie scripts and was echolalic. He did not easily tolerate other children's company in his favoured play activities (construction, bikes) and sometimes responded aggressively to interruptions.

*Adam*, aged 54 months as the study began, was diagnosed with severe global delay and ASD. He spoke in single words and was learning corresponding key signs. He needed support to remain on task for 3 minutes during play, with sand and playdough his preferred play materials. A priority goal was increased social interaction with his peers.

*Noah*, aged 57 months at the commencement of the study, was diagnosed with moderate global developmental delay, ASD and severe anxiety. He frequently watched other children playing and was beginning to tolerate having them near him. He had little expressive language despite understanding many single words. Noah often avoided tasks and cried or screamed when routines changed. Ordering letters and numbers appeared to soothe him.

The *typical peers* were in the rooms of the target children and attended on the same days. Parents were approached for permission for these children to participate because they played alongside or showed interest in a target child.

The *educators* of these children consented to participate. They had worked in their centres for 4 and 8 years.

### **How did we conduct the research?**

The research used a 'single-case, multiple probe across participants' design, suitable for measuring the effects of the turn-taking intervention. The data collected in baseline (pre-intervention) and intervention phases were graphed and analysed by visually inspecting the graphs. Maintenance data were also collected once the target children were 80% successful in opportunities to take turns. In baseline and maintenance sessions the educator gave no training or coaching to the peers.

The iPad app was Peekaboo HD (Version 1.6, Gotclues Inc., 2013), used in a previous study by this research team to successfully engage a child with a severe disability. The game involved touching a habitat or cover to reveal an animal, listening to the animal's sound and again touching the habitat to hide the animal. The three app versions – farm, jungle and safari – were rotated across sessions to maintain children's interest.

#### *Training for the educators*

One of the researchers trained the educators in two 1-hour sessions. This involved following scripts for the three phases (baseline, intervention and maintenance) and scripts for training and coaching the peers. They were filmed as they practised the scripts with children not participating in the study and were given feedback while viewing the footage.

#### *The sessions*

Over two months, the educators were filmed implementing the sessions each day that the target child attended (1-3 times per week) and were guided by the scripts. If a peer chose not to take part that day another participant peer took part. All sessions took place in an indoor play area while other children played outdoors. They lasted approximately 8 minutes, allowing the children to play outdoors afterwards. Before their very first session, the educator gave each peer detailed modelling and practice opportunities for supporting their friend. Prior to subsequent sessions, the peers briefly rehearsed with their educator the prompts they should use to help the target child to understand whose turn it was. In each session the educator sat behind the two children who were seated side by side with the iPad in front of them on a mat on the table. The educator had a script for coaching the peer if needed during the iPad game (e.g., reminding them to wait before prompting the target child to take his turn).

#### *Analysing the data*

A video camera was used to film all sessions, including the training. The footage was downloaded to a computer for coding of the turn-taking behaviours and the accuracy ('fidelity') with which the educators followed the scripts and the peers implemented their role. A second observer coded a proportion of the footage to calculate the reliability of the initial coding.

### **What did the study tell us?**

There was an intervention effect for all three children in this important social skill. Clear improvement in turn-taking behaviour occurred quickly for Kenny and Noah and their improvement continued. Adam needed a second intervention phase because of difficulty sharing the iPad with his peer; once the script was changed, however - with the educator telling the peers to take their turns quickly – Adam's turn taking increased beyond levels shown before and during the first intervention. Noah's improvement was the most striking; once the peers supported his turn taking with the iPad, his earlier focus on trying to secure the educator's attention ceased.

Kenny and Adam maintained high levels of turn taking even when the educator withdrew support to their peers. Time restrictions prevented measurement of maintenance of Noah's turn taking.

The educators were able to use most of the coaching strategies consistently (mean 95%) except for using appropriate waiting strategies (66.7%). Nevertheless, a robust change in turn taking was observed in the three target children.

The peers' support for the children with ASD was sufficient to promote turn taking, even though they were more likely to allow the target children to take their turns than to take their own turns. They prompted appropriately 95% of the time that their accuracy was measured, but they did not always wait before prompting. It is not clear whether the number of supporting peers per target child (i.e., opportunities to practice support strategies) had any effect on the peers' accuracy in following educator instructions (two peers for Noah, four for Adam, and five for Kenny).

### **How might others use this information?**

#### *Practitioners and Researchers*

Rigour in research is important, but it is important to know that practitioners, rather than highly trained research assistants, can cooperate in implementing a promising practice in a naturalistic setting. Even when the educators and peers did not follow scripts exactly, this study showed the value of coaching peers to support children with ASD in inclusive settings.

Both practitioners and researchers can benefit from such research collaborations, which can help to address the gap between research and practice. It would have been valuable to determine the degree to which the educators saw value in the intervention and felt confident in their ability to implement it well.

Replication of this study with other children – with ASD and with other disabilities – and in other settings is needed. It would also be valuable to explore the relationship between joint attention and turn taking.

### **Where can you read a full report of this study?**

This study was published in the peer-reviewed journal, *Infants and Young Children* in 2019. The Chair of the International Society on Early Intervention, Professor Michael Guralnick, selected this article as the free download for 2019 from the Society's website. From the home page <<https://depts.washington.edu/isei/>>, click on the Infants and Young Children tab; select Archived Free Articles and scroll down to find this article.

The correct article citation is:

Kemp, C., Stephenson, J., Cooper, M., & Hodge, K. (2019). *Infants & Young Children*, 32(3), 151-171.