Can we ever see eye to eye?

An investigation into the impact of eye contact on relatedness between children with autism in mainstream reception classes and their teaching assistants

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Editorial comment

Helen Blatchford is a senior speech and language therapist who has worked with many children with autism. This paper reports on a study completed as part of her Masters degree. Helen was aware that when children do not make eye contact with others, be they parents, staff or children, then others can feel less connected and interactions may decrease and the quality of the relationship and opportunities for learning can be reduced. This study sought to examine the nature of the relatedness between teaching assistants (TAs) and young children with autism and its relationship to eye contact, and to ascertain whether training and a specific intervention can enhance this relationship. This paper is of interest to parents and professionals alike across the lifespan.

Note: all names in the paper have been changed

Introduction

Beurkens, Hobson and Hobson (2013) suggest that the amount of eye contact made by children with autism affects the success of parent-child interactions, with those making less eye contact having less successful interactions. This author argues that a similar pattern can be found between children and their teaching assistants. Children who are able to give some feedback to their TA (eg verbal, gestural or looking towards the adult) receive more sustained, effective input from their TAs than those who cannot yet give this feedback. The study reported here highlights the negative impact that reduced eye contact can have on the adult–child relationship and suggests possible ways to reverse this effect.

The study

A total of 25 children with autism in their reception year in mainstream primary schools were assessed for eye contact with their TAs in a five-minute play session. The TAs were also assessed for their degree of relatedness to the child during this interaction. Four different levels of intervention were then offered by the local Speech and Language Therapist (SLT), as follows:

1. advice only

2. advice and training

3. advice and individual intervention sessions

4. advice, training and individual training sessions

This study found a correlation between the degree of child eye contact and adult relatedness. It also found that intervention can increase the eye contact that a child gives. Finally, it suggests that training and individual intervention sessions can support adults to develop a higher level of relatedness to the child even in the absence of consistent feedback.

Research methods
Dyads
Dyads were created of 25 mainstream pupils with autism from the reception class of the academic year 2013 – 2014 and a TA who worked with them on a regular basis.

Filming
Each TA was asked to take the child to a quiet room, with no other children present. They were left for approximately ten minutes to settle with the child (with the SLT present but not interacting). TAs were given a standard set of appropriate play materials (cars, books, small world toys and sensory toys). The author then filmed a five-minute segment of play, without participating in the session. Care was taken to ensure that there was as much consistency as possible in the preparation of each video in terms of environment, content and materials.

A second video of each dyad was made under the same conditions approximately 12 weeks from the first visit.

Bucket activities
During the first visit, the SLT modelled the use of bucket activities with each of the children, and discussed the method with the child's TA. This method of intervention was also the focus of follow-up visits with the TA and child. The bucket activities were conceived by Gina Davies (www.attentionautism.com) to support their communication and interaction. They are relatively easy to model and low in resources: both essential factors when choosing interventions to take place in schools. Motivating toys (usually with a sensory element) are removed from the bucket and manipulated by the adult. The child is able to watch (without touching the toys) and to participate by indicating when they would like the activities to start and stop. The bucket activities were modelled to all TAs who were then given a summary

sheet and ideas for suitable resources. TAs were explicitly warned against asking the children to look at them or telling them to make eye contact. Instead, they were encouraged to carry out the motivating and engaging activities in front of their faces and to focus on the toys rather than the child.

SLT discussion with TAs focused on the development of key interaction skills, which were primarily taken from the Transactional Support section of the SCERTS (Social Communication Emotional Regulation Transactional Support) principles (Prizant et al, 2006) and included:

- Following the child's lead
- Giving the child time to communicate
- Looking for signs of communication that do not involve speech (eg eye contact, gesture, proximity)
- Making communication irresistible for the child

TAs were specifically asked to look for a range of methods of communication and feedback from their child, and advised that eye contact was not always achievable for children with autism.

Training
The training covered two days and was delivered by the SLT. It included information given, practical demonstration, videos of children carrying out activities and opportunities for the TAs to practise. Topics covered were:

- using Gina Davies' Attention Autism strategies, including demonstration of bucket activities
- making communication irresistible for the child
- understanding the impact of the three areas of difference in autism (social communication, flexibility of thought and sensory perception)
- understanding communication (especially the nonverbal component)
- applying and using appropriate visual support in a mainstream setting
- understanding the communication message behind challenging behaviour
- applying strategies to support communication and behaviour

The training aimed to provide TAs with an understanding of the different learning styles of children with autism, as well as with practical strategies to use in their educational settings. TAs were given explanations of different methods of communicating non-verbally, and encouraged to look for them in their children. Eye contact was offered as one method of receiving feedback from the child, but TAs were told about alternative feedback methods to look for in children with autism, such as gesture, proximity and individual mannerisms.

Video interaction guidance

At the end of the study, TAs were invited to watch their interaction session with the SLT in order to consider interaction and communication with the child. Feedback was given in accordance with the principles of Solution Focused Brief Therapy (SFBT), (Molnar and de Shazer, 1987). Aims were then set for the child with the TA.

Measures
Eye contact

The five minute videos were analysed for the number of times the child made eye contact with the adult. Eye contact was counted, rather than analysed for function, to test the author's belief that adults 'tune into' seeing the child look at them and that this is sufficient to keep the adult engaged in the interaction. Each child was compared to the other children in the study to assess for above or below average eye contact within this cohort.

Relatedness

The degree of adult relatedness was measured using an adapted version of the Dyadic Coding Scales (Humber and Moss, 2005). Each adult was compared to the other adults in the study to assess for above or below average relatedness within this cohort.

Reliability

To improve reliability 50 per cent of the videos were reassessed by another coder, using the same measures. There was a high degree of agreement between the two coders.

Selection of participants

All teaching staff with a child with autism in their reception class were invited to the two-day training course as part of the local SLT offer for children with autism. They also had the option to request specific, targeted support for children in their classes. The decisions they took as to what level of support to accept, assigned them to one of the groups summarised in *Table* 1.

Table 1: Input offered to the four intervention groups

Group	Training	Visits	Summary
A	✗	✗	Minimal intervention
B	✓	✗	Training only
C	✗	✓	Additional visits only
D	✓	✓	Maximum intervention

Groups B, C and D all involved an element of change and were therefore considered as experimental groups and compared both with each other and with Group A. It was impossible to ensure that all of the between and within group variables were the same, as there were uncontrolled influences on the dyads, such as advice from other outside agencies (eg outreach support teams, mainstream SLTs, educational psychologist etc). Although the design methodology would have been more robust, removing these other agencies would not be ethical.

Results

A total of 65 mainstream primary schools were invited to take part in the study; 23 of these responded positively with appropriate children. These schools were asked to seek parental permission, and to state the level of input that they wanted for the child. There were changes within the groups, due to child illness, TA illness, TA moving schools and schools/parents opting out. The final numbers are shown in *Table* 2.

Table 2: Intervention for dyads in the four intervention groups

Group	Training	Additional visits	Number of dyads
A	✗	✗	7
B	✓	✗	3
C	✗	✓	8
D	✓	✓	7
		Total:	**25**

Baseline data – eye contact

The number of times the child made eye contact with the adults was counted. Eye contact was then rated as 'above' or 'below' average according to the group.

Baseline – relatedness

Similarly, the adults were given a score for relatedness. TAs were rated for nine skills such as following the child's lead, and given a score of 'low', 'medium' or 'high' for each skill. A numerical score was given for each adult, 'low' ratings: one, 'medium', two, and 'high' ratings, three. These individual scores were then added to obtain an average score for each TA. Again, the adults were rated as 'above' or 'below' average for relatedness.

Figure 1: Number of times the child made eye contact with their TA (baseline)
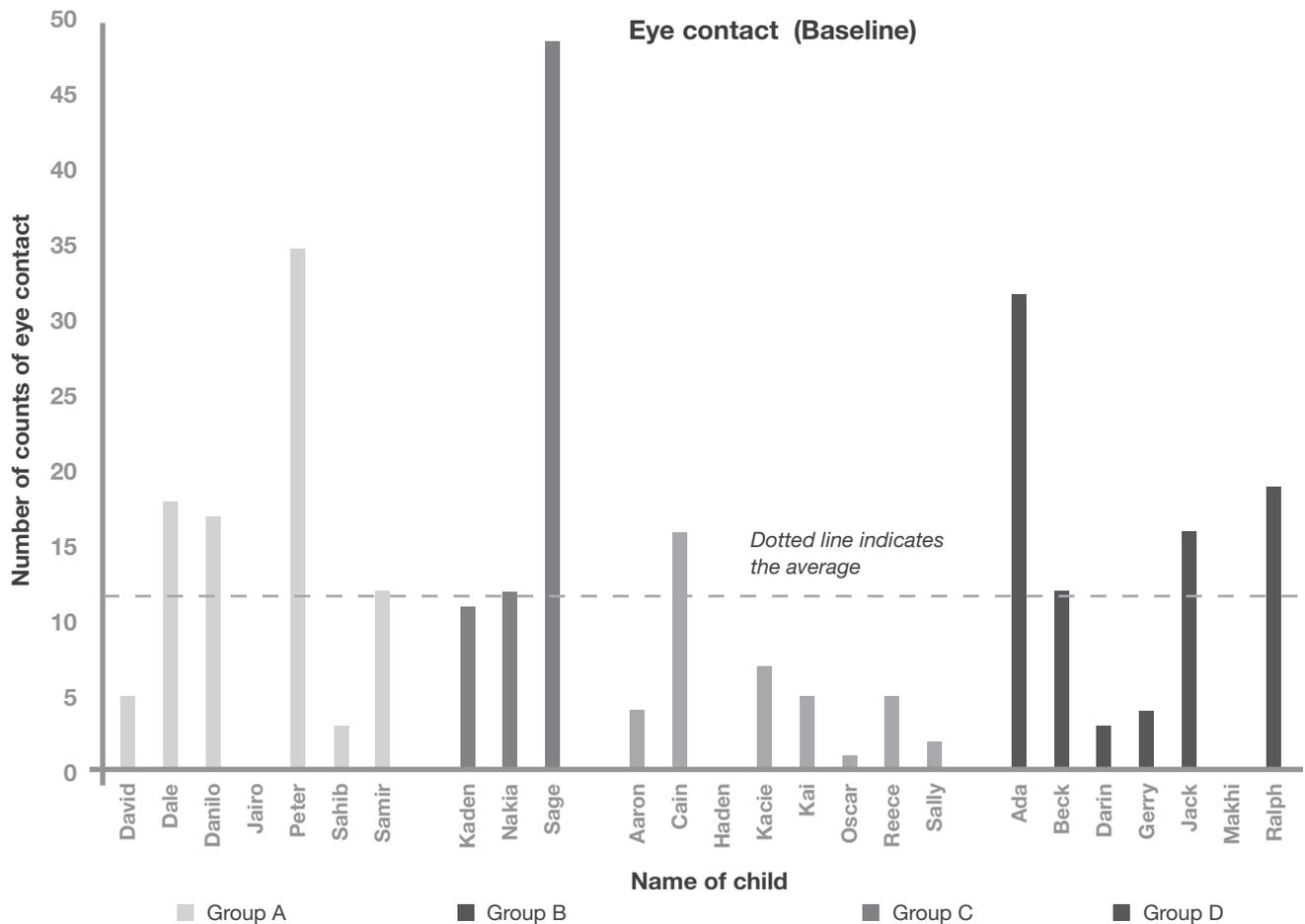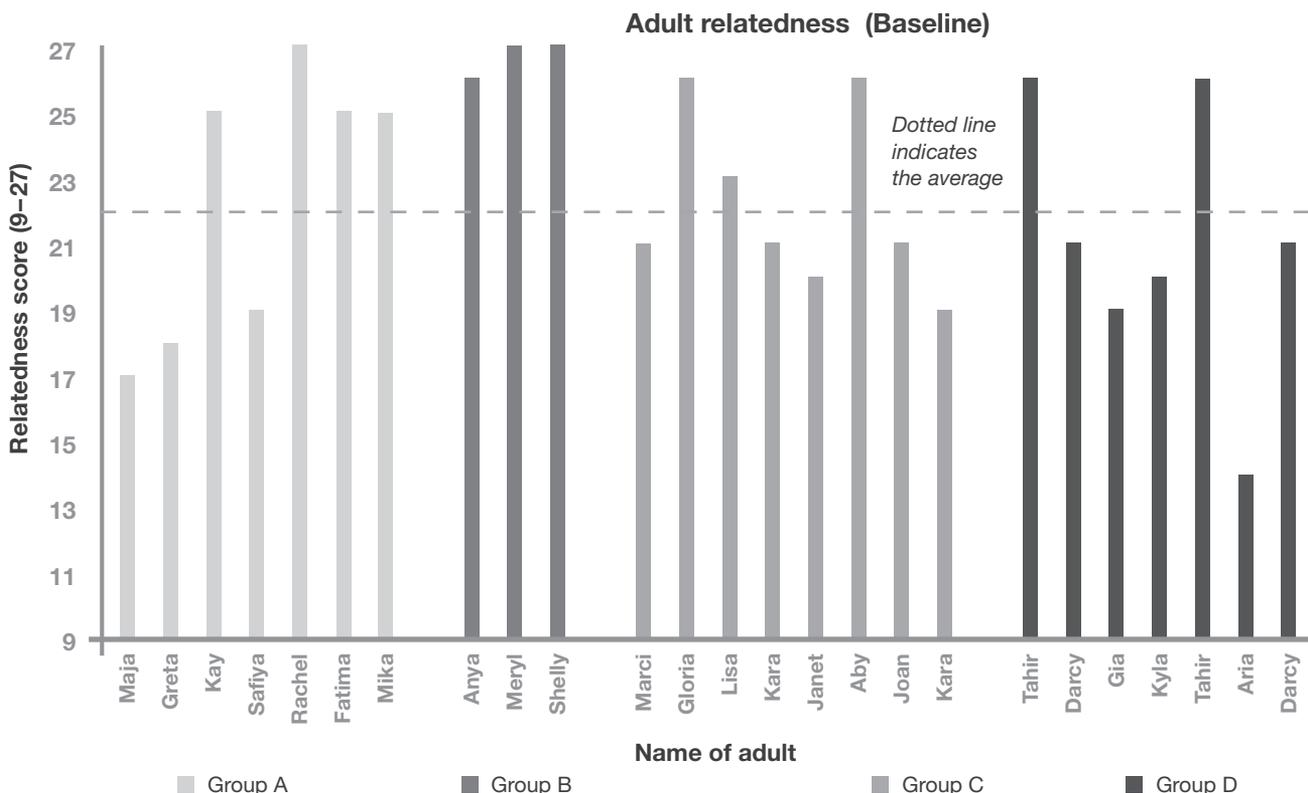
Figure 2: Adult relatedness (baseline)

Adult relatedness (Baseline)

Dotted line indicates the average

Relatedness score (9–27)

Name of adult

Group A   Group B   Group C   Group D

Baseline – correlations

The adult and child ratings were then correlated to look for trends. There was an average 72 per cent correlation where both adults and children in the dyad scored either 'above' or 'below' average for eye contact and relatedness. This high correlation was fairly consistent across all groups as shown in *Table 3*.

It was also apparent in watching the videos that when the children did not respond to the adult's communication attempts, the adults became less related to them towards the end of the five minute video.

Post-intervention – eye contact

The number of times the child made eye contact with the adult was counted after the intervention. Of the 25 children, 76 per cent made eye contact more often in the second video than they had in the first video; 24 per cent made eye contact less often.

Table 3: Correlation between child eye contact and adult relatedness (baseline)

Group	Correlation (%)		
	Negative	Positive	Matched
A	14.3	14.3	71.4
B	0.0	33.3	66.7
C	0.0	25.0	75.0
D	28.6	0.0	71.4

The difference in number of counts of eye contact for each child at the beginning and end of the study is shown in *Figure 3*.

Figure 3: Frequency of eye contact by the child with their TA (pre- and post-intervention)
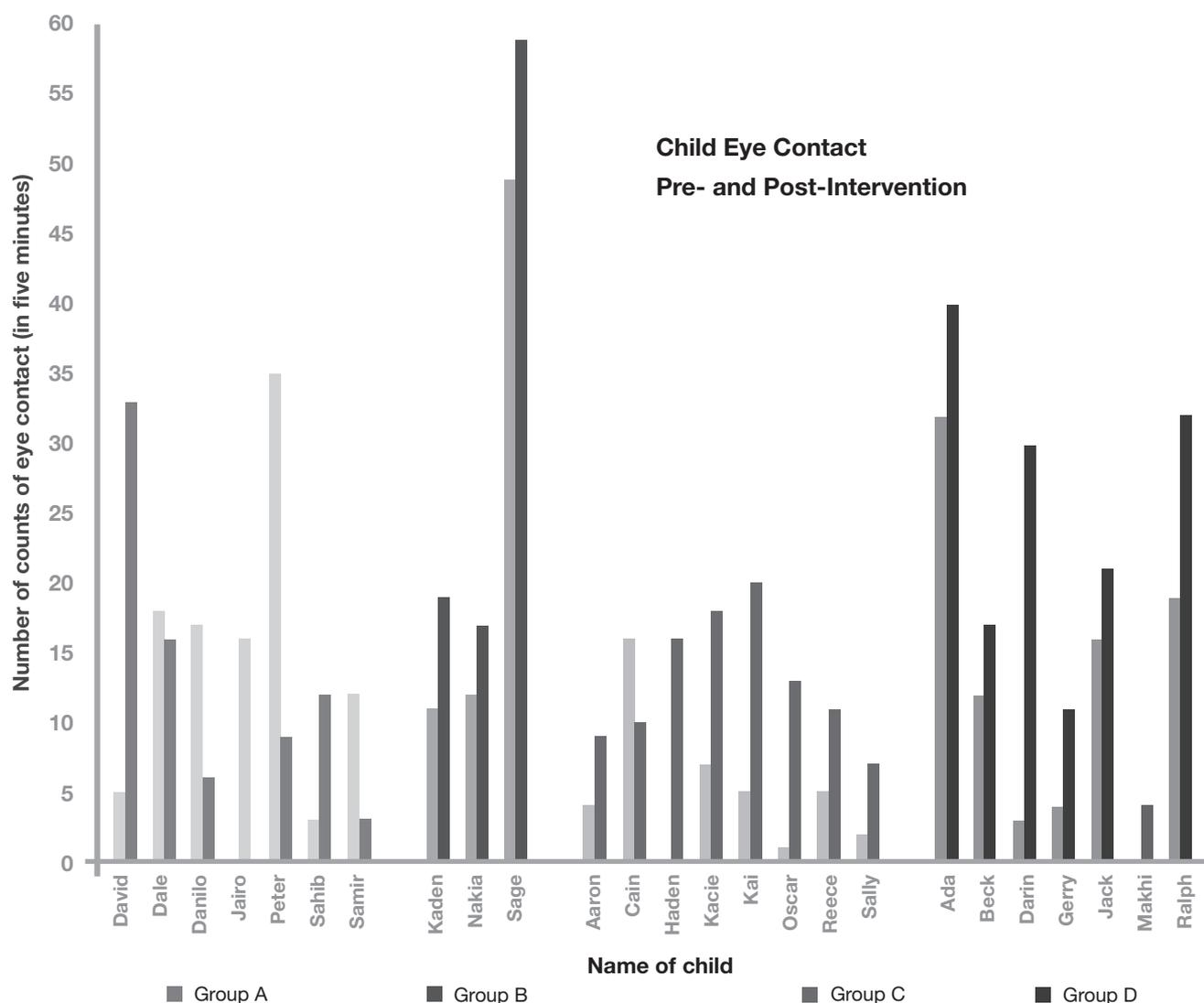
The four experimental groups were considered to ascertain whether the changes were statistically significant. A related t-test was used (see *Table 4*).

The children in Group A, who had no input in the 12 week gap, did not make significantly more eye contact by the end of the study, and neither did the group who received only the training (Group B). The group that received individual visits (Group C) and the group that received individual visits and training (Group D) both demonstrated significantly more eye contact with their TA by the end of the study.

Post-intervention – relatedness

The second videos were coded for adult relatedness with the child. The majority (92 per cent) of adults had increased their level of relatedness with their child with or without intervention.

The four experimental groups were considered to ascertain whether this improvement was statistically significant. A related t-test was used and the results of this are shown in *Table 5*.

Table 4: Statistical significance of eye contact for children in each of the four groups

Group	t-value	Difference	Standard error of difference	p-value	Significance
A	0.294	5	7.936	0.780	Not significant
B	4.333	1	1.500	0.144	Not significant
C	2.937	6	2.869	0.026	Significant
D	2.604	5	3.584	0.048	Significant

Table 5: Results of the t-test on relatedness for each of the four groups

Group	t-value	Difference	Standard error of difference	p-value	Significance
A	0.28	6	2.53	0.787	Not significant
B	1.00	1	0.50	0.500	Not significant
C	5.18	7	0.84	0.001	Significant
D	3.14	5	1.59	0.026	Significant

Figure 4: Adult relatedness (pre- and post-intervention)

Adult relatedness
Pre- and Post- Intervention
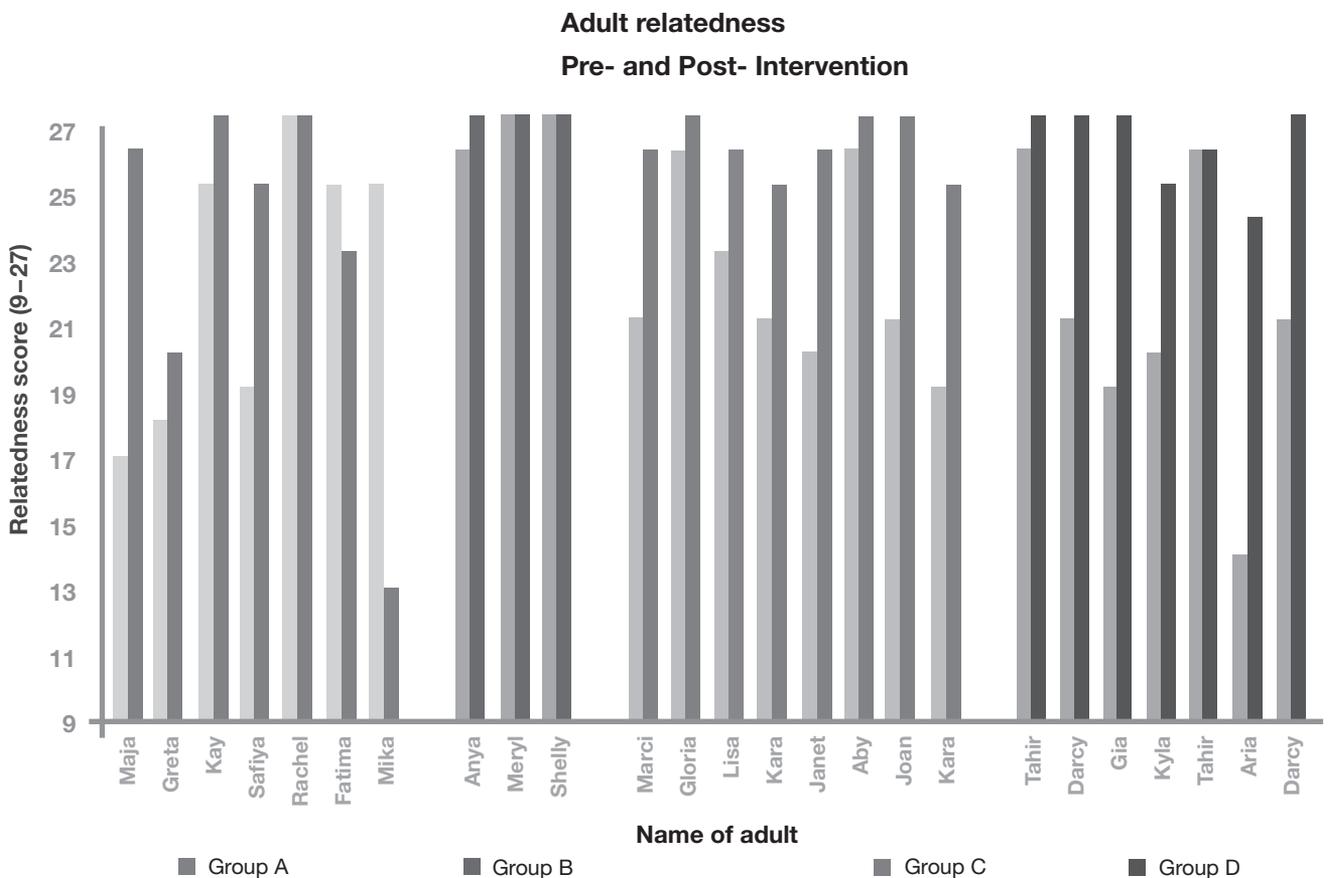
Neither the group which had no input in the twelve week gap (Group A) nor the group which received only the training (Group B) had made a significant improvement in their levels of relatedness with their children. Conversely, both the group which received individual visits (Group C) and the group which received individual visits and training (Group D) demonstrated a significantly higher level of relatedness by the end of the study.

The largest number of TAs showing below average relatedness in Video 2 were in Group A (55 per cent of the TAs), as opposed to 0 per cent in Group B, 25 per cent in Group C and 20 per cent in Group D.

Again, it was ascertained whether children and adults showed a correlation between the amount of eye contact and relatedness, post-intervention (*see Table 6*).

Table 6: **Correlation between eye contact and relatedness (post-intervention) for each of the four groups**

Group	Correlation (%)		
	Negative	Positive	Matched
A	0.0	28.6	71.4
B	0.0	33.3	66.7
C	0.0	62.5	37.5
D	0.0	28.6	71.4

After the intervention, the correlation between eye contact and relatedness had reduced from an average of 72 per cent to an average of 60 per cent, but had been replaced by an increase in the amount of positive correlations seen. In 40 per cent of cases where the children had less than average eye contact, the adults showed above average relatedness.

Discussion
Correlation between eye contact and relatedness – baseline
The impact of eye contact on relatedness was already apparent at the beginning of the study, when the TAs had only been working with the children for a few weeks. Seventy-two per cent of dyads showed a correlation: if the children did not use eye contact to demonstrate that they were interested in their TAs, the TAs already showed less positive relatedness towards the children and vice versa. Particularly notable, this pattern clearly increased during the five-minute video. Observation suggested that the TAs generally began the interactions in a positive manner, but then a clear split occurred: those who received eye contact from the children continued in this positive manner, whereas those who did not receive this feedback, gradually became less related to the child.

There were three examples of a negative correlation, where the child gave above average eye contact, but the adult was below average on the relatedness score as shown in *Table* 7.

Table 7: **Negative correlation between child eye contact and adult relatedness**

Group	Child	Eye contact	Adult	Relatedness
		(Average: 11.5)		(Average: 22.4)
A	Dale	18	Greta	18
D	Beck	12	Darcy	21
D	Ralph	19	Darcy	21

The quality of the eye contact in Dale's interaction with his TA appeared to be a protest and carried out with the purpose of requesting that she move away from the interaction. His TA became quiet and unresponsive towards the end of the five minutes. For children Beck and Ralph who made above average eye contact, their TA, Darcy demonstrated a quiet passivity and a level of anxiety towards them. She later reported that she had felt overwhelmed. These examples remind us

that although eye contact can be a positive element of interaction, it must be considered within the wider context of interaction and human relationships.

An examination of the four occasions of positive correlation, also gives interesting information, as shown in *Table* 8.

Table 8: Positive correlation between child eye contact and adult relatedness

Group	Child	Eye contact (Average: 11.5)	Adult	Relatedness (Average: 22.4)
A	Sahib	3	Fatima	25
B	Kaden	11	Anya	26
D	Haden	0	Lisa	23
D	Oscar	1	Aby	26

Fatima is an experienced TA who approached the task by setting up a formal interaction session with a timetable. She remained focused and engaged throughout, although she only got minimal feedback from the child.

The other three children who did not give eye contact, but who received high levels of relatedness from their TAs all had an alternative method of giving feedback. Kaden is verbal, Haden regularly approached his TA, Lisa, and moved her hands to objects and laughed, and Oscar used vocalisations and single words to interact with Aby.

Post-study correlation

At the second point in the study, the correlation between eye contact and relatedness had reduced to 60 per cent. There were no examples of negative correlation (with the child giving more than average eye contact and the TA giving less than average relatedness). In the dyad of Dale and Greta, who received minimal intervention (Group A), both demonstrated below average skills by the end of the study. More encouragingly, Darcy, the TA in Group D (maximum input) demonstrated above average levels of relatedness for both of her pupils after intervention (see *Table 9*).

Table 9: Correlation between child eye contact and adult relatedness

Group	Child	Average	Adult	Average
A	Dale	Below	Greta	Below
D	Beck	Below	Darcy	Above
D	Ralph	Above	Darcy	Above

In Group C (additional visits), five out of the eight TAs (62.5 per cent) show a positive correlation: although their children gave them less than average eye contact, the adults demonstrated higher than average degrees of relatedness.

The study suggests then, that there is a correlation between eye contact in children with autism and relatedness in their TAs, but also that intervention can have a positive impact on this correlation. The nature of this intervention will now be considered further.

Impact of training

Unfortunately, as Group B, who received training only, ended up being so small, it was not possible to get statistically robust data. It was however, possible to get feedback from the staff who attended the training, as well as to observe subsequent changes.

The response to the training on the day was overwhelmingly positive. Although training was specifically designed to have maximum impact on the working practices of the TAs, transferability to the school context may be difficult. Incidental feedback from schools was, however, very reassuring. Darcy and Tahir (TAs in Group D) both work in the same school, and they reported that their whole practice had changed after the training. In particular, Darcy reported that they worked as a team and that she felt supported and confident. Tahir reported that he now "wakes up in the morning looking forward to work rather than dreading it" and directly attributed this to the training. Shelley (Group B) reported that she had introduced the strategies and ideas across the school by carrying out staff training and that "it really works!". Five SENCos contacted

the SLT to report that they had noticed considerable changes to practice in school following the training, and requested whole school training for their staff.

Impact of the intervention (eye contact)

The eye contact data shows insignificant change in eye-contact with their TAs for the children in Group A (who received minimal input). In fact, four out of the seven children in this group made less eye contact at the end than at the beginning. It is notable that 83 per cent of the children in Group A demonstrated below average amounts of eye contact when compared to the participants as a whole. This suggests that modelling of the bucket activities once, and a discussion about communication was not enough to lead to an increase in eye contact. In contrast, the children in the three experimental groups, B, C and D, showed an average increase in eye contact from start to the end, which suggests that the use of bucket activities by TAs with a good understanding of communication, can encourage children to look towards familiar adults. All three children in Group B (training only) increased the amount that they used eye contact. With such a small experimental group however, this was not sufficient to achieve statistical significance. The children in Groups C and D both demonstrated significantly more eye contact by the end of the study.

Although the study simply counted eye contact, rather than looking at the function of the communication, the clinical notes of the children taken at the time show some positive trends. In particular, children in the experimental groups used eye contact to comment and to share interest and/or humour more frequently than children in Group A who predominantly used eye contact to get their needs met. This is consistent with the type of intervention carried out. TAs were encouraged to carry out motivating and engaging activities in front of their faces. In this way, children became used to looking towards the adults' faces for exciting things to happen. The fact that the children in all three experimental groups are using eye contact for social purposes as well as to get their needs met, also suggests that they are not finding the experience unpleasant or uncomfortable. At no point in the process were they forced to make eye contact with the adults; the activities used simply motivated them to do so.

Impact of the intervention (relatedness)

The study also considered whether adults could be taught to look for communication cues other than eye contact and to use these to gather feedback from their children. Given the innate desire in humans to receive eye contact (Cozolino, 2006), this could have been unrealistic. Again, however, the data suggest that there was a significant improvement in adult relatedness in two of the experimental groups (C and D) but not in Group A or B.

The impact of training alone needs further investigation however, as the adults in Group B showed exceptionally high levels of relatedness at the beginning of the study (average of 26.7 out of 27) and therefore had almost reached ceiling before any impact of the intervention could be measured. The small number of dyads in Group B does not allow firm conclusions to be drawn; further research is needed here.

All of the adults in Groups C and D showed improvements in their levels of relatedness by the end of the study. In particular, the adults were more in tune with their children, and followed their lead considerably more often. Also of note, was the fact that the adults in these two groups demonstrated higher levels of fun and motivating engagement, whereas adults in Group A tended towards controlling relationships with the children. This was particularly notable in the relationship between Sahib and her TA, Fatima (Group A). In the original video, Fatima's relatedness with Sahib was above average. By the second video however, her degree of relatedness had reduced considerably. The relationship that started as positive and engaging, became controlling and adult-directed, with many missed communication attempts from the child. In contrast, Gia's relationship with Darin, the TA (Group D) started in a very adult-directed manner and had become child-led and warm by the end of the study.

Information from the adult–child interaction sessions

All staff were offered the chance to observe their intervention session with the SLT, and followed the solution focused brief therapy (SFBT) (Molnar and de Shazer, 1987), which focuses specifically on looking

for solutions and any change or difference in behaviour, which is thought to progressively lead to more change and satisfaction (Quick, 2008).

The adults in Group A were generally more critical of both themselves and the children they worked with. They made comments such as, "It's because he can't talk", and needed encouragement to look at the positive aspects of interaction. The adults in the other groups all responded well to the process, and reported that it was very helpful. They all noticed at least one aspect of communication in their child that they had not noticed before. Kay, the TA, (Group A) was very excited that although Danilo spent the majority of the session with his back to her, he still invited her to interact with him on a number of occasions by pushing a toy car towards her. Lisa was particularly pleased that Haden paused in his activity every time she spoke and looked to the object that she named.

Impact of not providing input (information from the case study)

One dyad from Group A (Samir and Mika) and one from Group D (Makho and Aria) was chosen for further comparison. At the beginning of the study, both children were nonverbal and used unconventional means of getting their needs met such as running, pushing, screaming and biting. Neither of the children had an established communication system (verbal or nonverbal), and neither communicated with others to express pleasure or to share enjoyment. TAs, Mika and Aria, were shown the bucket activities and the other ways in which the children were demonstrating interest were pointed out to them. An explanation sheet and list of resources were offered.

In the end-of-term visit with Samir and Mika (Group A), Mika reported that Samir was "very difficult" and did not listen to her. She had tried to carry out the bucket activity but this "did not work". She reported that Samir was now on his own timetable, outside the classroom. She spent all day on her own with him in the corridor. During the observation with Samir and Mika, it was apparent that Mika was feeling very anxious and overwhelmed with the situation. Samir was often distressed and screamed regularly. Mika used a large proportion

Table 10: Response to input: one dyad from Group A and one from Group D

	Group A Samir and Mika		Group D Makhi and Aria	
	Pre	Post	Pre	Post
Eye contact	12	3	0	4
Relatedness	25	13	14	24
Child's level of verbal language	None	None	None	Single words
Child's use of gesture to communicate	None	Pushing TA away	Pushing TA away	Pushing and leading TA
Expression of shared enjoyment	None	None	None	Eye contact, smiling and laughing
Child's use of facial expressions to communicate	None	None	None	Smiling, frowning

of physical handling when Samir moved (to prevent him from running), and Samir responded to this by screaming and pulling against her. Samir's eye contact had reduced since the initial visit, and Mika's interaction with Samir had become controlling and adult-led with many missed communication opportunities.

The term for Aria and Makhi (Group D) was very different. Aria attended the two-day training with another TA from her school. She also received two more school visits before the final video session. Initially, Aria's interaction style with Makhi was adult-directed and controlling. When Makhi ran down the corridors, she chased him and often held his hand tightly so that he could not run. She also used a lot of language.

Following the training, Aria reported that she now understood why Makhi responded by running and hitting. She also reported that she understood why it was so important to follow his lead. In the first school visit after the training, Aria had already begun to implement the use of resources throughout the school day, such as objects of reference for Makhi's transitions around school. In this visit, the SLT demonstrated the use of the bucket activity with Makhi for Aria to observe a second time. This time, Aria commented on the way that Makhi was pausing when the song started, and the way he looked towards the SLT to initiate interactions. In the third visit to the school, the SLT watched as Aria carried out the bucket activity with Makhi. She used the strategy well and with confidence. In the fourth visit, the SLT watched the filmed interaction session with Aria and used this to look at the interaction of both Aria and Makhi. Aria reported that she felt much more confident working with Makhi and that she enjoyed it considerably more than at the beginning of term. She was also delighted by the progress that Makhi made, pointing out each time he initiated communication (both verbally and nonverbally).

Samir and Mika have since been offered further input, and their relationship is improving, but this highlights the importance of early intervention on child–adult interaction in schools.

Concluding comments

The results suggest a correlation between eye contact and adult relatedness both at the very beginning of the relationship and once a relationship has formed. It is therefore important to show staff and parents that children can demonstrate their connectedness in other ways. It is also true that people these children meet will not all have had training to recognise other methods of communication, and will therefore continue to rely on eye contact as a method of receiving feedback from the child. It is therefore important too that children with autism are helped to look towards others from an early age.

This study suggests that children can learn to look towards their TAs during motivating, joint attention sessions and this enhances the quality of the relationship. The children in both Groups C and D increased the

amount of eye contact they gave by the end of the study and continued to do so in normal play sessions (outside of the bucket activities). Incidental observation showed that the quality of this eye contact also changed: children in Groups C and D used eye contact to share enjoyment and for interaction as well as to make requests or to get their needs met. This was not the case with the children in Group A. Although the children in Group B showed increased eye contact at the end of the study, the small sample size meant that it was not possible to measure treatment effects in this group.

Finally, the results from Groups C and D suggest that intervention can have a positive impact on adult relatedness. Not only did the adults in this group improve in the quality of their relatedness, but they continued to do so, whether or not they received eye contact from their children. The adults in Group A, who had only minimal input, did not demonstrate this improvement, and neither did the adults in Group B (although this may need further investigation due to the small sample size).

Implications for practice and research

Developing good relationships with TAs at the beginning of the year is helped by:

- the child giving feedback (eye contact, gesture, words, body language)

- a TA with knowledge of autism and the ability to look for non-conventional signs of feedback and not expecting eye contact

These should therefore be an integral part of the intervention offer for children with autism.

The study highlights the need for further investigations into the specific elements of the intervention that have the most impact. Furthermore, although the children in Groups B, C, and D made eye contact without prompting and purely voluntarily, it will be important to monitor their eye contact as they get older, and whether they continue to do so. Long-term studies on the impact of making eye contact with adults in the school setting would also be beneficial, as would investigation of the communication functions of the children's eye contact. Although the study focused primarily on eye contact

as a method of giving feedback, incidental observation throughout the process suggested that there are other successful methods of giving feedback, such as speech and gesture; these should be investigated.

This study offers further evidence to suggest that the quality of the adult–child relationship has a considerable impact on the development of skills for children with autism. It also suggests that both children and adults have the ability to overcome instinctive responses and to learn to improve their interactions with one another. Information has been gathered which will inform and improve future SLT provision for children with autism and the adults who work with them.

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Appendices

Next steps

Adult name: ....

Child name: ....

Things I am pleased to notice about myself:

1.

2.

3.

Things I want to do more of:

1.

2.

3.

Key messages:

1.

2.

3.

Current aims for the child:

1.

2.

3.

Dyadic coding scales - criteria

Adapted from Humber and Moss (2005)

Interaction	Poor quality	Moderate Quality	High quality
Coordination	**Little or unproductive interaction**	**Sometimes unclear or unbalanced interaction**	**Excellent**
	Adult lead	Follows the child's lead some of the time	Follows the child's lead most of the time
Communication	**Inconsistent, incongruent**	**Sometimes indirect or routinised**	**Clear, direct, meaningful**
	Ignoring of child's messages	Some missed messages	Responds to child's messages
	No sign of messages being understood	Messages sometimes reflected back to child	Messages reflected back to child
	Irrelevant talking	Some irrelevant talking	Appropriate use of language
	Verbal/nonverbal incongruences	Some appropriate use of nonverbal communication	Words and gestures clearly congruent
Appropriate role assumption	**Dominant role**	**Functional control**	**Appropriate**
	Adult asserts dominance through verbal or physical force	Some inappropriate assertion of dominance	Appropriate assertion of dominance
	Predominantly focused on undesired behaviours	Some focus on positive behaviours	Adult rewards desired child behaviours
Emotional expression	**Disruptive emotional expression**	**Moderate balance of emotional expression**	**Affective expression enhances flow**
	Difficulty with both expressing and responding	Positive and negative expressions	Emotional expression encouraged
	Very constricted	Physical posture implies some accessibility	Full range of emotions accepted
	Intense, overcharged	Emotions blended	Physical posture implies openness emotionally
			Balanced response pattern
Responsivity / sensitivity	**Missed cues**	**Basic levels of response**	**Balanced response pattern**
	Poor interpretation of cue	Regards the other but sometimes does not gauge cue appropriately	Evidence of ability to see other's perspective
	Under involved of intrusive	Sometimes aloof	Good attention to other
	Distracted, inhibited	Pays moderate attention	Accepting, empathy
Tension / relaxation	**Tense, anxious**	**Moderate anxiety**	**Open, relaxed**
	Nervous mannerisms (eg foot shaking)	Nervous mannerisms but not prevailing	No anxiety evident on either part
Mood	**Negative**	**Mixed quality**	**Positive**
	Exceptions to negative mood are infrequent and brief	Negative mood less than 10 per cent and positive mood less than 25 per cent of the time	Exceptions to positive mood are related to something obvious and real
Enjoyment	**Little pleasure**	**Moderate**	**Acceptance**
	Low approval of child	Approval of child at some point	High approval of child
	Rebuffs contact attempts	Warmth evident at some point	Long or frequent engagement in activity
	Cold, bored	Detached some of the time	Empathic involvement
Overall rating	**Poor quality**	**Moderate quality**	**Continuous responsive**
	Basically not interested in the other	Balance of interaction	Continuous enjoyment
	Inaccessible	Appears accessible, moderately responsive	Harmonious, agreeable
	No pleasure	Some enjoyment	Quality of interaction is high
	Much discord and conflict	Positive atmosphere half of the time	

Dyadic coding scales – score sheet

Adapted from Humber and Moss (2005)

Video number:	
Date of video:	
Date of coding:	
Coded by:	

Interaction	Poor quality	Moderate Quality	High quality
Coordination			
Communication			
Appropriate role assumption			
Emotional expression			
Responsivity / sensitivity			
Tension / relaxation			
Mood			
Enjoyment			
Overall rating			
Total	A:	B:	C:

Overall total:

(Total A x 1) + (Total B x 2) + (Total C x 3) =	