Nonverbal communication in autism

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Socialization and nonverbal communication in atypically developing infants and toddlers

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**Introduction**

Emphasis on the early diagnosis of atypical development has increased as research shows the benefits of early intervention.

The majority of research on interventions for people with autism spectrum disorders (ASD) has focused on communication and social skills. These skills are closely linked to quality of life and other aspects of autism.

**The study**

The focus of the study was to examine impairments in socialisation and nonverbal communication in individuals with Down’s Syndrome (DS), Cerebral Palsy (CP) and children with both CP and ASD. The study included 211 children, between 17 and 35 months of age (127 males and 83 females).

Researchers used the ‘Baby and Infant Screen for Children with uUTism Traits – Part 1’ (BISCUIT) to assess the level of impairment severity of each child’s. the BISCUIT is completed by parents and caregivers.

The scale used a three-point scale to assess the extent of the severity (0= not different; no impairment, 1= different; mild impairment, and 2= very different; severe impairment).

**Findings**

It was found that individuals in the CP and ASD group displayed higher levels of impairments on the socialisation and nonverbal communication subscale than children with DS and CP. In turn, children with CP experienced greater impairments than those with DS.

The children with CP therefore also experience nonverbal communication difficulties which may impact on their ability to communicate and interact with others.

**Conclusion**

Children with ASD already benefit from early interventions targeting specific difficulties given the association with their quality of life.

Given the findings from this study, it seems that children with CP would also, more than likely, benefit from early interventions aimed at increasing nonverbal skills too. This is especially important given research showing that communication difficulties in children with CP are often associated with impaired motor skills.
Intentional communication in nonverbal and verbal low-functioning children with autism

J. Maljaars, J. Noens, R. Jansen, E. Scholte & I. van Berckelaer-Onnes
Journal of Communication Disorders (2011)

Introduction

A large number of low-functioning individuals with autism spectrum disorders (ASD) do not develop language as well as other children do. Typically developing (TD) children learn to use different types of communication skills simultaneously (e.g., social interaction and joint attention). Children with ASD meanwhile, seem to develop these skills one at a time.

Children with ASD prefer to use basic hand or body movements in order to communicate to make up for their difficulties with eye contact, gestures and speech. It is important to improve communication skills as they can lead to a reduction of challenging behaviour.

The study

The main purpose of the study was to explore the profiles of communicative skills of 26 children with low-functioning ASD and intellectual disability (ID). Their profiles were compared to those of 26 TD children, with the same nonverbal mental age (2-5 years).

Videotapes of all participants were analysed using a standardised observation scheme, namely the Communication and Symbolic Behaviour Scales – Developmental Profile (CSBS-DP). Measures were also taken of eye contact, use of gestures and vocalisations and verbalisations.

Findings

The results indicated that intentional communication was significantly lower in children with ASD and ID than TD children.

Nonverbal children with ASD showed the most atypical and limited communication profile compared to verbal children with ASD and TD children. TD children used communication more to share attention and interact with others than to regulate their behaviour. This pattern was the reverse in low-functioning nonverbal children with ASD who primarily used communication to regulate others’ behaviour. Verbal children with ASD in contrast used combinations of the three different communicative forms when communicating with others.

Conclusion

The study shows that communicative patterns differ in low-functioning verbal and non-verbal children with ASD, and that, not surprisingly, these patterns differ from TD children. While verbal children with ASD were more likely to use a combination of two communicative forms, nonverbal children tended to use communication forms aimed at regulating others’ behaviours.

Future research should look into communication during various activities, including social activities without toys.
Introduction

Siblings of children with ASD (Autism Spectrum Disorders) are more likely to develop the condition. Studying face-to-face interactions is one way to examine possible autistic symptoms at 6 months of age.

The study investigates whether difficulties in social gaze and expressing emotion as well as in joint attention behaviours (i.e., eye contact, and gestures) are evident at 6 and 12 months of age in infants at high risk of developing autism -because they had a sibling with autism.

The study

Three groups of children took part in the study: 1) 17 siblings of children with autism that later on received a diagnosis of autism, 2) 84 siblings of children with autism that later on did not develop autism, and finally 66 typically-developing infants with no siblings with autism.

At 6 months, infants’ gaze and emotions were measured during a free play interaction with their mothers and then a procedure to see how they react to their mother lack of response, the still face paradigm.

Then at 12 months, infants were observed on their nonverbal communication skills using the Early Social Communication Scales (ESCS).

Findings

Infants with ASD were not found to be different from the other two groups at 6 months in terms of frequency of gaze, smiles, and vocalisations directed towards their mothers, and also in their reaction to their mothers’ lack of response.

However, at 12 months, infants that were later diagnosed with autism showed lower rates of joint attention and requesting behaviours relative to the other two groups of children. Interestingly, infants that were diagnosed at 36 months were just as likely to interact with their caregiver at 6 months as the siblings that did not received a diagnosis later.

Conclusion

The results support previous findings of reduced social interaction, eye contact and smiling at 12 months in infants who are then later diagnosed with autism. However, the finding that infants who go on to receive a diagnosis of autism, at 6 months are just as likely to interact as low-risk children is surprising.

Further research needs to investigate these surprising findings as there are several possible explanations. It may be for instance, that the ability to have one-to-one interactions is intact in ASD, but interactions involving external objects or people (e.g., pointing to an interesting event) are impaired.
Auditory-motor mapping training as an intervention to facilitate speech output in non-verbal children with autism: A proof of concept study

C.Y. Wan et al
PLOS One (2011)

**Introduction**

Although up to 25% of children with autism spectrum disorders (ASD) are non-verbal, there are very few interventions that focus on increasing speech output. A recently developed intervention called Auditory-Motor Mapping Training (AMMT), trains the association between sounds and articulatory actions (e.g. movement of lips and tongue). This uses a combination of singing (intonation) and a pair of tuned drums with the aim to help speech output.

**The study**

The purpose of the study was to evaluate the effectiveness of AMMT in facilitating speech.

Six non-verbal children with ASD, between the age of 5 and 9 years, participated in the study. All children underwent individual 45-minute AMMT sessions five times per week over an eight-week period.

Each child’s speech was analysed based on their word production and the number of correctly-produced vowels and consonants. Assessments took place three times before the intervention. Then, every five sessions from session 10. To assess whether changes observed during therapy persisted after treatment finished, children were assessed again 4 and 8 weeks after the intervention.

**Findings**

Prior to the intervention, all children displayed low levels of correctly consonant-vowel (CV) approximations. Within 15 sessions of AMMT, all children showed clear improvements in speech sound production. This was maintained in the follow-up sessions not only in their production of trained set of items, but in items in which they were not trained.

This indicated that the children successfully learned how to vocalise and produce speech sounds when provided with a model, irrespective of whether the words were specifically practiced during the training sessions.

**Conclusion**

From the results, it seems that AMMT can be an effective method for helping non-verbal children with ASD to increase the range and complexity of the speech sounds they. Gaining speech sounds and word approximations through AMMT provides a foundation for later speech therapy.

It is important that future studies include a comparison group, that does not receive training, to ensure that improved speech sounds is a result of the intervention rather than natural improvements due to age.
A communication-based intervention for nonverbal children with autism: What changes? Who benefits?
K. Gordon, G. Pasco, F. McElduff, A. Wade, P. Howlin & T. Charman
Journal of Consulting and Clinical Psychology (2011)

Introduction

Over the past 20 years, there has been increasing evidence for the effectiveness of psychosocial programmes for young children with autism. However, because of the design of studies, it has been difficult to examine the detail of exactly what changes and who benefits as a result of these interventions.

It has been highlighted that one of the most important purposes of intervention for children is enhancing spontaneity in everyday interaction.

The study

The study explores whether training using The Picture Exchange Communication System (PECS) can successfully increase spontaneous communication in children with autism. PECS is an approach that teaches early communication skills using pictures.

To explore this, 84 children, aged 4-10, from 15 schools were randomly allocated to three different intervention groups in what is called a randomised control trial (RCT): The Immediate Treatment Group received immediate training after initial assessment, the Delayed Treatment Group received training about 9 months later and the No Treatment Group received no training with PECS. Children were then filmed in their class snack times once initially and then twice inside 20 months.

Findings

Following PECS training, spontaneous communication using pictures, speech or both forms of communication, increased significantly. Spontaneous requesting for objects also increased whereas requesting for social purposes did not. Only spontaneous speech persisted for children in the Immediate treatment group at the 9-month follow-up.

Children with less severe autism symptoms showed the largest increase in spontaneous use of speech. Children with the most expressive language prior to the training showed the biggest increase in their combined use of picture cards and speech.

Conclusion

The findings show that classroom-based PECS training enhances the spontaneity of children’s communication. This was the case not just when using only pictures, but also when using speech, or a combination of the two.

The training also appeared to have an effect on other communication aspects in some children. For instance, some children with little dialogue at the beginning of the study improved their spontaneous speech after PECS training.
The impact of object and gesture imitation training on language use in children with autism spectrum disorder

B. Ingersoll & K. Lolande

Introduction

Imitation is an early-emerging behaviour that has a crucial role in the development of more advanced social-communicative skills. Research suggests that children with ASD may rely more heavily than typically developing (TD) children on imitation for gaining new language skills.

Reciprocal Imitation Training (RIT) is a behavioural intervention that teaches imitation to children with ASD within a social-communicative context. It has been shown to be effective at teaching spontaneous, gesture, and object use, imitation during play.

The study

The purpose of the study was to examine the effects of RIT on language use in four young children with ASD over a 10-week period.

The children, aged between 35 to 41 months, all received training in object imitation to begin with, and gesture imitation was soon added using RIT. Then the two types of imitation training were alternated every session. This was used to examine whether the children were more likely to use verbal imitation during object or gesture imitation training.

All assessments took place before and after treatment and at a two-month follow-up.

Findings

Three of the four children showed a stable pattern of language use during the object imitation training phase. This pattern increased after gesture imitation was added. Once they began alternating, all four children were more likely to use verbal imitation in gesture imitation sessions rather than in object imitation sessions.

All children made improvements in their object and gesture imitation skills from pre- to post-treatment. All participants experienced general improvements in language skills on both an observation assessment as well as a parent report. The improvements were maintained after the intervention was completed.

Conclusion

These findings suggest that adding gesture imitation training to object imitation training can lead to increased language use than object imitation alone. The reason why this may be the case is that gestures are naturally communicative whereas object play is not.

The results of this study need to be taken with caution as the training was only given to 4 children. Also, the study did not include a comparison group to test whether improvements in language use were due to natural improvement with age rather than improvements due to training.
Introduction
The right side of the brain is largely responsible for melody and rhythm skills, which are assumed to be relatively spared in Autism Spectrum Disorders (ASD). Previous research suggests that speech and language can be acquired even after the age of 5 by using these spared musical abilities.

Melodic Based Communication Theory (MBCT) is a new treatment that proposes to make use of the presumed musical strengths of the child with ASD in order to increase verbal output.

The study
The aim of the study was to compare the effectiveness of MBCT in generating speech relative to traditional speech and language therapy (SLT). The children taking part in the study were 12 nonverbal children with ASD aged 5-7.

The children were randomly placed in either the group receiving traditional SLT or the MBCT group. All participants received four 45-minute individual sessions a week for five weeks.

For the group receiving traditional SLT, the clinician stated a word while holding up the item asking the child to repeat the word. For the MBCT group, the children listened to a recording of the word set to a melody while the therapist held the item and then asked to repeat the word.

Findings
In the MBCT group, the number of verbal attempts and correct words increased after each of the first four weeks and after weeks one and three respectively. The number of verbal attempts in the traditional group increased after weeks four and five.

No significant differences in the number of verbal attempts and correct words were noted between the groups following treatment. However, parents reported a big change in the number of new words heard at home and in other settings in the MBCT group. The same group also showed a larger increase in the number of imitative attempts than the traditional group.

Conclusion
While the results suggest that both therapies were effective, MBCT appeared to provide quicker results as well as greater overall gains in verbal attempts and imitative attempts. It also shows that individuals with ASD prefer musical tasks which, in turn, increases motivation.
Brief report: Impression formation in high-functioning autism: Role of nonverbal behaviour and stereotype activating information

C. Schwartz, T. Dratsch, K. Vogeley & G. Bente

Introduction

Many studies focus on the ability of people with Autism Spectrum Disorders (ASD) to understand what other people are thinking. However, little is known about how people with autism form impressions about people given that these impressions are formed on the basis of non-verbal cues.

Also, little is known about whether people with ASD apply social stereotypes when they are forming an impression of someone. For instance, people’s impression of someone varies if they are given information about the profession of the person. This study aimed to investigate impression formation in autism and whether or not this is influenced by social stereotypes.

The study

The study included 17 people with High-Functioning autism (HFA), aged 20 to 53. The study also included 17 non-HFA participants who were matched for age, gender and IQ to the HFA group.

Participants were shown three non-verbal short films of virtual characters in a job interview situation without verbal. The participants were told that the films were regarding an interview for an engineer job or a factory worker. No information was given regarding the profession in the third film.

Impressions were measured in a scale covering issues such as whether the person was likeable or not.

Findings

It was found that the participants with HFA generally made more positive judgements. Surprisingly, profession stereotypes did not influence impression formation of the HFA participants or the non-HFA participants.

Nonverbal behaviour, in both groups, influenced ratings of items like, “competent”, “strong” and “calm”. This suggests that the adults with HFA were able to make to combine non-verbal information into an impression judgement of people.

Conclusion

In contrast to expectations, HFA participants were as sensitive to nonverbal cues as the non-HFA participants.

This may be because virtual characters are less difficult and socially demanding compared to real people, which may lead to HFA individuals feeling more comfortable with this kind of social cue. The bias towards making more positive judgments about people may be a result of a strategy to compensate for their difficulties in nonverbal communication cues.