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## Promoting Peer Interaction

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### 1. Introduction

Positive experience from peer interaction is a key to language as well as cognitive and social development. On the other hand language skills, i.e. the ability to understand and make oneself understood, is a prerequisite for gaining access to peer interaction. Social status in peer relations is crucial for self esteem. In peer interaction identity and awareness of self – both positive and negative - emerge and develop.

Problems with peer interaction and peer communication can occur both as a core symptom and as a secondary consequence in several developmental diagnoses during childhood. Such problems are often secondary in for example specific speech- and/or language impairment and developmental language disorder, while they are part of the core problems in for example autism spectrum disorders. For children with problems in language and communication, this scenario entails a risk for marginalization and exclusion in peer play. This is particularly problematic, since these children need more, rather than less, experiences from peer interaction to support their development of language and communication skills. It is therefore important to identify intervention models that address peer interaction and peer communication.

Peer interaction is something that children commonly manage by themselves already at an early age, and therefore are supposed to manage without too much involvement from adults. As soon as an adult is involved, it is per definition no longer primarily a peer interaction. This turns out to be a dilemma both for parents and professionals working with children with problems of language and communication. What seems so easy and natural in typically developing children is something that for children with problems is so hard to enhance, promote and compensate for in professional intervention. Therefore models for intervention need to take their point of departure in spontaneously occurring interaction between peers, and aim to increase and optimize such interactions. Such interactive experiences from familiar and meaningful contexts enhance flexible and generalized use of communication skills (Landa, 2007).

In this chapter we discuss factors to take into account when promoting peer interaction in children with communication problems, based on our studies of children with specific language impairment (SLI) in interaction with different types of peers. We begin by giving a background picture of the importance of positive experience from practicing peer interaction for the development of language and communication skills. After that we present some risk scenarios for children with problems in language and communication. We

then describe the methodology and the results from our research addressing the question of how interaction between children with SLI and peers with typical language development can be enhanced and promoted. The main focus is on contextual influence and how systematic variation of contextual factors can be used as an intervention model. The issue is how children with language and communication problems can get enough support and scaffolding as well as challenges, in order to develop their language and communication skills. Our intention has been to focus on how the main results from our research can be interpreted and generalized to a wider spectrum of children with language and communication problems.

## **2. Background**

### **2.1 Peer interaction**

Language and communication skills emerge and develop in social interactions before they can be used as strategies in individual learning. From the Vygotskian perspective follows the picture of social communication being a joint venture characterized by reciprocity and co-construction, in which both partners rely on each other and are mutually dependent in shaping each other's context (Linell, 2009).

Another main idea relies on the assumption that contextual factors are highly relevant for the emergence of social communication skills (Linell, 2009). Contextual factors or conditions, for example the situation and the partner that you are interacting with, seem to govern the extent to which you manage and succeed in social language skills. This is true from both a perspective of possibilities and a perspective of constraints in communication skills (e.g., Perkins, 2007). It is particularly true for children with serious problems with language and communication, who are in great need of support and scaffolding from their interactional partner. The more severe problems the child has, the more s/he will rely on the support that the conversational partner can offer.

Furthermore, depending on the type and extension of communication problems, it is reasonable to assume that the child will develop more or less functional coping strategies. From this perspective, communication skill is both a goal in language development, and a coping strategy to manage verbal interaction. Therefore it is important to identify conditions that enhance, promote and motivate the child to develop his/her communication skill. Earlier studies have pointed out that the way the conversational partner acts will affect how the child with language problems contributes to the dialogue (Nettelbladt et al., 2001). On the other hand, the interactional as well as the linguistic behavior of the child with language and communication problems will affect the way the conversational partner acts (Conti-Ramsden & Dykins, 1991). This mutual influence opens up for possibilities, as well as for risk scenarios for the child with language and communication problems. If the conversational partner offers scaffolding, coherence in the dialogue may be promoted, while too much scaffolding may lead to dependence. There is a risk for the child to become too dependent on adults to scaffold and interpret what s/he is saying. This might preserve a dependence of support, and the child may avoid and then miss more challenging situations, which could promote development towards more independence.

Another argument why peer interaction is important is that everybody contributes to his/her own language input. The more verbally active a child is the more language input s/he receives from his/her interactional partner in reactions, answers, new questions and

comments. The importance of peer interaction in play cannot be overemphasized; it is a prerequisite for further development. Play situations are characterized by a reciprocal focus, a high level of activity with dynamic exchanges, not limited to “joint attention” but also entail “joint action”. Since they are frequently and regularly occurring in everyday situations generalization is promoted (Landa, 2007, p. 22).

Transactional, developmental, and social-pragmatic approaches view language learning as a co-created process shared by child and other. Perhaps the most distinguishing features of the transactional/developmental approaches pertain to the emphasis on reciprocal, affective, self-regulatory, relationship-building, and discovery processes. Through interactions with others, such as joint action routines, shared experiences and meanings are developed. (Landa, 2007, p. 22)

Peer interaction starts early, already at a pre-verbal developmental age, and can be regarded as a prerequisite as well as a predictor of language development. For example, the ability to participate in games and routines has been shown to significantly predict language production in a longer perspective (4-5 years) in children with autism spectrum disorders (Bopp & Mirenda, 2010). Furthermore, peer interaction can be viewed as a platform for sharing of experiences and co-learning in adopting others’ perspectives, which is essential for both social and cognitive development (Williams, 2007). One important quality in peer interaction is to be able to take other’s perspectives, to mentalize, which is essential in social interaction. Social communication in peer interaction entails opportunities to practice listening and language comprehension, a prerequisite for responsiveness, as well as expressing oneself, a prerequisite for assertiveness. Reading other people’s minds as well as asserting oneself with body posture, gestures, eye movements can be seen as precursors of interactive skills (Halliday, 1975; Tomasello, 2008).

## 2.2 Communication problems in children

Regardless of specified diagnosis, children with constraints in language and communication and/or neuropsychiatric functioning, e.g. autism spectrum disorder (ASD), attention deficit/hyperactivity disorder (ADHD), conduct disorder, all have problems with communication. In some cases the core problem primarily affects structural language, but also has consequences for the use of language, since these children may have reduced speech intelligibility, which makes it hard for other children to understand what they are saying. In other cases the primary problem is the use of language in social contexts, i.e. a pragmatic language problem. However, the relationship between structural language skills and functional language in social communication has not been found to be straightforward (Bonifacio et al., 2007). This means that problems with peer interaction have to be addressed separately, and it cannot be taken for granted that they disappear as language structure develops.

Communication problems can also occur in combination with other problems often referred to as co-morbidity. It is well known that there is an overlap – or sharing of symptoms – across disorders identified during childhood (Gillberg, 2010). Some of the most commonly occurring symptoms that elicit concern in parents, pediatricians and teachers already at an early age involve language, communication and social relations. The symptoms can also be found in the fields of behavior, activity, attention, and motor coordination as well as mood (Gillberg, 2010). Such commonly occurring problems have been shown to persist over time, sometimes with changes in manifestations. Therefore, according to Gillberg (2010), children

with any of those symptoms manifested at an early age, need a general neurodevelopmental clinical examination with a broad focus (ESSENCE: Early Symptomatic Syndromes Eliciting Neurodevelopmental Clinical Examination, Gillberg, 2010). Another example of overlap or co-occurrence was found by Gilmour et al. (2004), who identified pragmatic language problems, i.e. problems with social communication, in two-thirds of children diagnosed with conduct disorders. As suggested by Gilmour et al. (2004), co-occurrence of symptoms may also have implications for intervention, e.g. by ameliorating social and communicative skills, disruptive behavior is likely to decrease.

A further characteristic is instability in diagnoses involving language and communication problems. For example, diagnoses such as developmental language disorder and specific language impairment (SLI), have both been shown to be unstable over time. Children diagnosed with developmental language disorder at an early age may have symptoms characteristic of autism spectrum disorder at a later age (Norbury & Bishop, 2002; Bishop & Norbury, 2002; Bishop et al., 2008; Mouridsen & Hauschild, 2009). For these reasons it is wise to address a wide perspective of diagnoses involving language and communication in assessment as well as in planning intervention for children with such problems.

### **2.3 Peer interaction in children with communication problems**

All children with language and communication problems share a common core problem or risk, namely to be ignored and marginalized by peers and to have trouble in gaining access to social interactions with peers. As a consequence they miss valuable social experience and language input as well as practice of language skills (Corsaro, 1979; Craig & Washington, 1993; Brinton & Fujiki, 1999; 2005; Horowitz, 2005). According to Ladd (1984) peer relationship difficulties can be manifested in at least three ways: “peer isolation/withdrawal, lack of popularity (including peer neglect and rejection) and friendlessness” (Ladd, 1984, p.326). However, these manifestations of peer relationship difficulties may be regarded as secondary, i.e. consequences that originate from different underlying problems, either related to a core problem of the child him/herself, or to contextual factors.

Regardless of specific diagnosis, all children with problems with social interaction and communication have a “moment 22” dilemma in common: first, social communication skills are stimulated and enhanced in peer interactions, and second, social communication skills are required to gain access to peer interaction. The consequences of such a dilemma can be understood through the following: in peer interaction each participant creates and sets the limits for his/her own language input and learning. The more responsive and assertive a child is in relation to others, the easier it will be for others to respond, comment, and thereby prolong and deepen the conversation. If there is a risk for not being involved in spontaneous peer interactions, e.g. as is the case for children with language and communication impairments, the problems of marginalization and exclusion will increase as the child falls further behind. Children with language problems seem to find it easier to communicate with adults, in particular with professionals, probably because they scaffold and give support in a systematic way. This has been shown in studies which have found that adults are preferred as conversational partners (Rice et al., 1991). However, the dependence on rich support from adults can also develop into a lack of interactional independence and turn into a constraining factor as the child becomes older.



## 2.4 Intervention targeting peer interaction and communication skills

It is difficult to promote interaction between children with communication problems and typically developing peers with didactic means in direct intervention. As soon as an adult – parent or professional – enters a moment of peer interaction, it is per definition no longer interaction between peers. In the opposite scenario – if we do nothing – children with communication problems will get marginalized and thereby miss even more valuable experience of peer interaction and may get caught in a vicious circle.

Given that peer interaction is hard to promote with direct and didactic means, peer-mediated social skills training aiming at improving communication skills is an attractive alternative. For example, Chung et al. (2007) showed that peer-mediated training was effective in order to improve communication skills in young children with high-functioning autism, although they claim that “there is a tremendous need to develop an effective social skills training manual for teachers, parents, and paraprofessionals” (Chung et al., 2007, p. 435). There are two possibilities when choosing a peer-mediated intervention: either to try to increase the social interaction skills of children with communication problems, or to train typically developing children to interact with peers with communication problems. According to Pollard (1998) the last alternative, focusing on the typically developing peers, seems to be the most common approach targeting preschool children with autism.

Sometimes the intervention is a placement in a preschool (Language Acquisition Preschool; Rice & Hadley, 1995) or school language unit. Such models are based on the assumption that a placement in a smaller group of children with teachers specialized in the field of language and communication, is beneficial in itself. However, there are different set-ups of language preschools and language units. Some models are based on the assumption that children with language and communication problems develop optimally in interaction with peers representing a similar language developmental stage, and moreover also having problems with their language development. Such a segregated group only consists of children with language and communication problems. Other models are based on the assumption that children with language impairment will develop most optimally in mixed groups, where they can interact with peers who offer them both support and challenge. In such an integrated model, children with language and communication disorders are mixed with typically developing children.

First of all the intervention must fit the needs of the child, and be functional in relation to the social needs of the child (Johnston, 1985). Furthermore, the intervention should result in an increase of social experience and be “ecologically valid” as defined by Ladd (1984 p. 331), that is, “relevant to the types of tasks children must perform in the peer group”. This means that research on different models of intervention must be performed in situations where peer interaction typically occurs; otherwise the outcome may not be representative and difficult to generalize. Wang et al. (2011), compared the effectiveness of peer-mediated and video-modeling social interventions for children with autism spectrum disorders, and found both methods to be equally effective. The age of the child predicted the effect significantly: the younger the child at the time for intervention, the better. For this reason, intervention that promotes peer interaction at an early age is often more effective given that it works proactively in aiming at minimizing the risk for marginalization and exclusion. Furthermore, early intervention is motivated by the fact that communication disorders often appear early and affect several aspects of development, not just language and communication

Communication intervention for children with autism will envelop many aspects of development, including social engagement, social reciprocity, joint attention, imitation, play, vocal-manual coordination, language, flexible communicative contingencies, and social communicative abilities. (Landa, 2007, p. 22).

The more language skills are used, the more robust and accessible they become. It is therefore important to enhance and encourage peer interaction. The intervention model must generate many occasions for practice, in order to obtain change and to facilitate generalization to other contexts and to make the acquired skills permanent and stable over time. Therefore it is important to identify contexts that are natural and regularly occurring and that do not require special arrangements. McConkey et al. (2010) recommend an intervention model based on structured communication offered in the children's homes by family members for preschoolers with autism spectrum disorders.

We do not have enough knowledge about how to implement learning outcome from individual training to spontaneous peer interactions, or about how to optimize the conditions for social communication. Most intervention models target structural aspects of language rather than functional language in social contexts. Since children with communication problems often have problems to generalize from one context to the other, functional/social language skills have to be consciously targeted by professionals in natural contexts without "taking over" the responsibility of the interaction.

Leaf et al. (2009) evaluated the effectiveness of a special intervention aiming to increase social skills and pro-social behavior in children diagnosed with autism. The intervention, called "Teaching interaction procedure", was based on reinforcement and priming in targeting four social behaviors: 1. conversation, 2. play, 3. emotional skills and 4. choosing the same friend throughout the day. Leaf et al. (2009) found that the teaching package was effective, but since the study involved only three children during a period of just two months, the question of generalization still remains.

Intervention models must thus include the question of generalization over time and over situations, and not be restricted to what has been didactically practiced within an intervention session. They should take their point of departure in underlying contextual conditions, e.g. by facilitating for children with communication problems to meet and be involved in joint actions with their peers.

### **3. A study of children with specific language impairment interacting with different peers**

One of the aims of our research on children with SLI is to study co-construction and reciprocity in interaction between children with language impairment and typically developing peers. The main focus is not on the individual participants in verbal interaction, but on the dynamics, dominance, and coherence conditions in the dialogues as wholes. The following is an overview of the results reported in Bruce et al. (2010), which we use to discuss from a wider perspective of relevance for all children with communication problems.

#### **3.1 The participating children**

Thirty children with Swedish as their first language were engaged in the studies. Ten (five girls and five boys) had a diagnosis of specific language impairment (SLI) and 20 were children with typical language development. Of these, ten (three girls and seven boys) were

of similar chronological age as the children with SLI, and ten (five girls and five boys) were on a similar stage of language development. Apart from the requirements with respect to age and language stage, the typically developing peers also had to belong to the usual playmates of the children with SLI. The children in the SLI group were aged 3;9-5;0, the age similar peers 3;8-5;1, and the language similar peers were aged 2;11-3;10. All children had normal hearing and non-verbal cognitive ability. The pre-testing included assessment of phonology, grammatical production and sentence comprehension. The children in the SLI group had significant problems with grammar in language production, whereas only one of them had significant problems with sentence comprehension. They all also had problems with output phonology. The children in the other two groups performed within age expectations. The age similar group scored significantly higher than the other two groups on grammar and phonological production, whereas there was no difference between the SLI and language similar group.

### 3.2 Material and analyses

15 minutes of interaction between each child with SLI and each of their peers was video- and audiotape-recorded. A set of small toys was used in all the dialogues. Altogether, the data consist of 10 dialogues.

The dialogues were transcribed orthographically and coded with respect to how each turn linked backwards to earlier turns, “response properties” and how they carried the conversation forward, “initiation properties” (Bruce et al., 2010, Linell et al., 1988). The typical response properties are linking up with focal (as opposed to peripheral) aspects of the partner’s (as opposed to with the speaker’s own) immediately (as opposed to earlier) preceding turn. Initiation properties contribute new information and can be either statements, which are non-soliciting, or questions/directives, which are explicitly soliciting a response. Most turns have both response and initiation properties. Turns with only response properties are minimal responses and turns with only initiation properties are turns that introduce new topics. Utterances that are not intended or treated as contributions to the ongoing dialogue, for example self-talk or utterances directed to someone else in the room are not treated as turns, and were coded as non-contributing utterances. For a more detailed description of the method for analysis, initiative-response analysis (IR-analysis), see Bruce et al. (2010), Hansson et al. (2000) and Linell et al. (1988).

The different turn codings are scored on a scale from 1 to 6 according to their strength, where solicitation and non-focal, non-local and self-linking get a higher score than non-soliciting and focal, local other-linking turns. Using this scoring, a mean “strength” of the contributions in the dialogue can be computed, an “IR-index”, which is a measure of the dominance conditions and dynamics of the dialogue. A dialogue with a high IR-index ( $> 3$ ) is a dynamic dialogue which is likely to cover different topics and to contain many questions/directives. In a dialogue with a lower IR-index ( $< 3$ ) the participants are likely to stick to the same topic and to contribute new information in statements rather than asking questions. The IR-index is computed for the dialogue as a whole, as well as for each individual participant. The difference between the IR-index of the two participants is the IR-difference and reflects the general dominance conditions within the dialogue.

The coding of response and initiation properties was also used to obtain more specific variables to characterize the dialogues. *Responsiveness* is the proportion of turns that link to the focal aspects of the partner’s immediately preceding turn and also has initiation



properties. *Topic shift* is the proportion of turns introducing a new topic. *Self-linking* is the proportion of turns where the speaker links up with his/her own earlier turn. We also computed the proportion of *non-contributing utterances*. The focus was on the dialogues as wholes, but in order to assess the mutual influence within the dialogues individual values were also computed for each participant.

## 4. Peer interaction; similarities, differences and correlations

### 4.1 Coherence

An important characteristic of a well-functioning dialogue is coherence, that is, that the participants adhere to the topic at hand, and contribute to topic continuation by contributing new information for the partner to respond to. One important aspect of coherence is responsiveness when comparing the two types of dialogues. Responsiveness tended to be higher in the dialogues with age similar peers compared to the dialogues with language similar peers. From another perspective, coherence, or rather lack of coherence, is also reflected in the frequency of topic shifts and self-linkings as well as in the proportion of non-contributing utterances. All these variables tended to be lower in the dialogues with age similar peers than with language similar peers and the differences between the two types of dialogues were significant. The different aspects of coherence in the two types of dialogues at time I are illustrated in Figure 1.

In the individual contributions of the children with SLI, the overall pattern was the same, i.e. their turns contributed to higher coherence with the age similar peer than with the language similar peer, although very few of the differences were significant.

### 4.2 Assertiveness

The IR-indexes in the two types of dialogues were around 3 (mostly slightly below 3), which is expected from a spontaneous conversation between equals. Looking at the IR-difference, the children with SLI were likely to be dominated by their age similar peer (see Figure 2). The IR-difference was negative from the perspective of the child with SLI in nine out of ten dialogues with age similar peer. The children with SLI had a higher IR-index with language similar peers than with age similar peers. The child with SLI had a negative value for IR-difference in five dialogues and a positive value in five dialogues with language similar peers.

### 4.3 Mutual influence

Mutual influence was explored through correlation analyses between the participants' individual values for the different variables. The responsiveness of the conversational partner was positively associated with the responsiveness of the child with SLI, and negatively with topic shift, as well as percentage of non-contributing utterances in the child with SLI. This illustrates how important scaffolding and challenges from the conversational partner are for the development of communication skills. All of the results reported are confirmed and strengthened in an ongoing follow-up study with the same participants, using the same method. Most differences between the two types of dialogues seem to remain and the differences between the two types of dialogues are mirrored in the comparison between the first and second occasion (Bruce et al., manuscript).

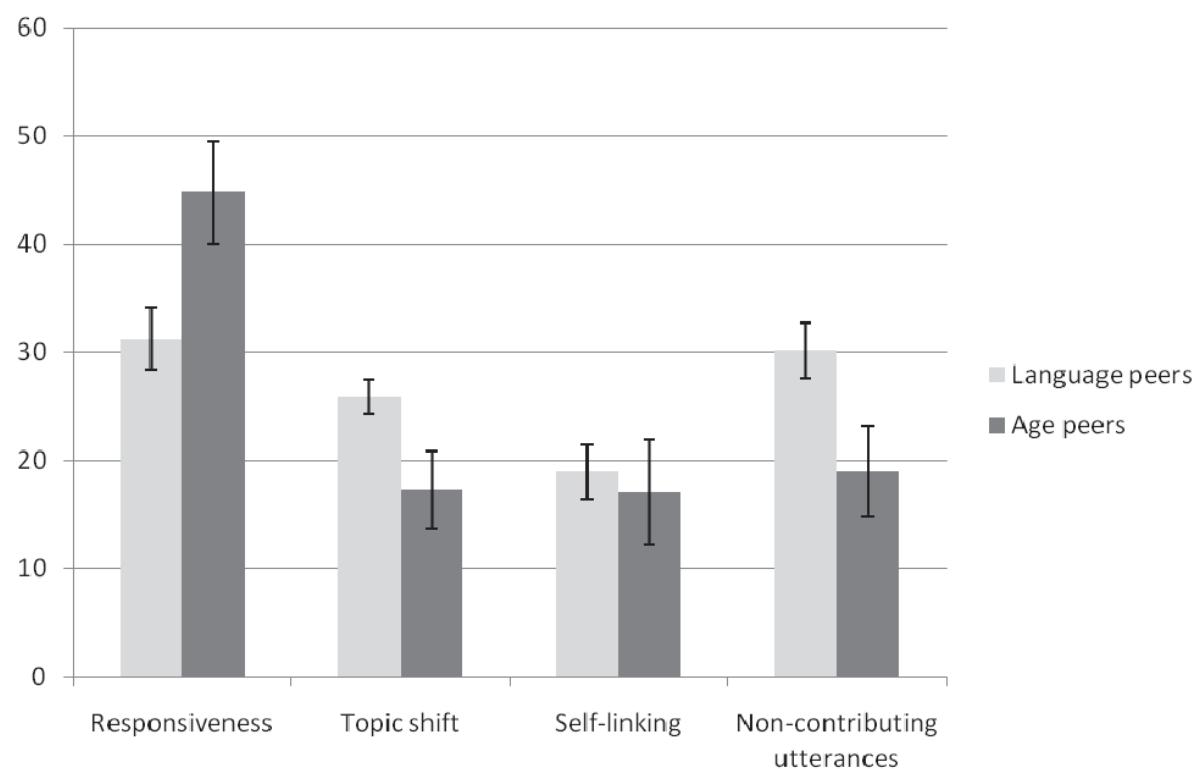


Fig. 1. Mean percentages and standard error of the mean for the measures of coherence, i.e. responsiveness, topic shift, self-linking, and non-contributing utterances in the two types of dialogues as wholes.

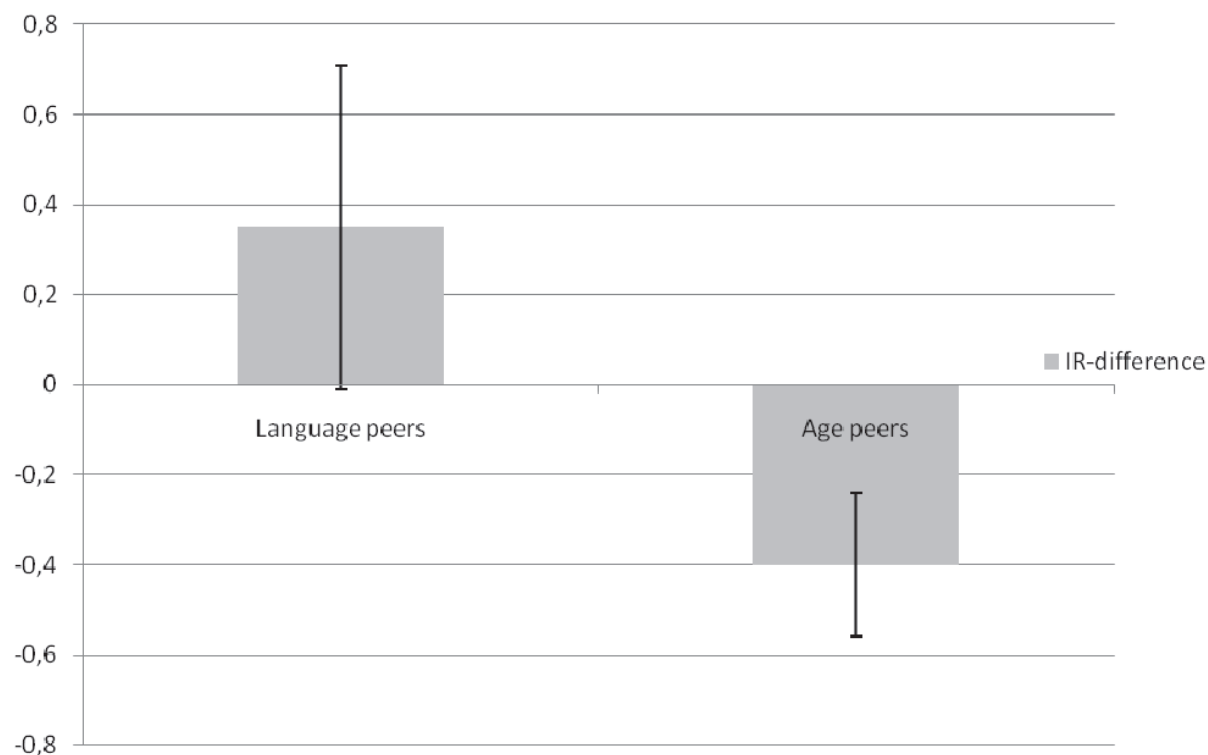


Fig. 2. The IR-difference, i.e. the difference in "strength" between the participants in the two types of dialogues.

## 5. Discussion

We will use these results to discuss how interaction between the larger group of children with language and communication problems, including children with ASD and typically developing peers, can be promoted. Our focus is on what is going on in different peer interactions, and particularly on the contextual conditions for peer interaction to be initiated as well as maintained, and from this identify relevant implications for intervention. Children with severe communication problems, in particular children with ASD, are also in great need of direct training programs performed and supervised by professionals, but this might be complemented by efforts to promote peer interaction.

### 5.1 Early proactive intervention

Promotion of interaction between peers of different age and language developmental stage can be made with an ambition to work proactively using indirect intervention methods. Early proactive intervention could focus on optimizing the contextual conditions for peer interaction to occur. All children, in particular children with language and communication problems, need qualitatively as well as quantitatively rich input as well as experiences of practicing their communication skills. The more children will be able to engage in conversations, the more reactions, answers and comments they will get back as responses. Early proactive intervention aims at preventing the risk of communication problems to grow permanent and at decreasing the risk of negative consequences, e.g. bullying and marginalization. Experience from early social interactions, that have been systematically varied and tailored to the abilities and needs of the child seems to promote the emergence of social communication skills (Landa, 2007). Such an association is derived from the discovered principle of an experience-dependent neuroplasticity of the brain, and generates implications for intervention (Landa, 2007). The main idea of our work was to “break ground” for initiating and maintaining peer interactions in children with communication problems. This was performed by selecting a specific conversational partner and vary qualities of the conversational partner, such as age and level of language development. Using this strategy in a systematic way might lessen the risk for marginalization of children with language and communication problems. Making children meet and take part in joint actions and reciprocal interactions will increase their experience of participation, which is a prerequisite for communication. This kind of indirect intervention, often called incidental or naturalistic intervention model takes its point of departure in spontaneously emerging situations in everyday life. However, to be able to promote such valuable situations in everyday life requires awareness of how important peer interactions are, and how interaction with peers can be initiated, and sustained (Bygdeson-Larsson, 2005).

We sort our findings and reflections under the main headings *support*, *challenges*, and *mutual influence*. These aspects represent aspects that are essential for all children in order to develop language and communication skills. Furthermore, they highlight the importance of contextual factors such as the preconditions for peer interactions to occur, as well as different qualities in different types of peer interactions. Peers representing different age and language developmental stage offer different proportions of these aspects, but there is scaffolding as well as challenges in all. Interactions with typically developing peers of similar age - *age similar interactions* - mainly seem to promote coherence, while interactions with peers representing similar language development - *language similar interactions* - mainly offer challenges and chances to “grow” from the perspective of a child with vulnerability in language and communication.

## 5.2 Support and scaffolding

Responsiveness makes the dialogue progress in a coherent and cohesive way. Topic shifts, self-linking, and non-contributing turns have the opposite effect, i.e. they fragmentize the interaction. Dialogues with age similar peers, compared to those with language similar peers, are characterized by significantly higher responsiveness, which contributes to coherence and the creation of mutually shared meanings. Listening and responding to the interactional partner, generates more coherent dialogues with respect to topic continuation. The ability to listen and respond to each other develops with increased age, maturity, but particularly with augmented experiences of interaction. As the child becomes older, s/he will be less dependent on scaffolding from the conversational partner to keep the topic and maintain the interaction. Coherent, cohesive and well-structured conversations have also been shown to have a scaffolding effect on language development (Bruce et al., 2010; Van Balkom & Verhoven, 2004).

At the same time as responsiveness is promoted in interaction with an age similar peer, fragmenting aspects (topic shift, self-linking and non contributing turns) diminishes (see Figure 1). The age similar peer is more responsive, maybe because of his/her more developed expressive language. On the other hand, in interactions with a less language developed and less experienced partner, the occurrence of fragmenting characteristics will increase. Taking part in such less scaffolding dialogues also adds important experience to conversational skills that the child needs in order to develop into an independent conversational partner. This maturation of conversational skill is indicated by a tendency for fragmentaione to decrease with increased age. All these considerations reflect the influence of contextual factors and are important to be aware of when planning intervention for children with communication problems.

## 5.3 Challenge and assertiveness

There is a risk for the child with communication problems to be dominated by his/her conversational partner, particularly in interactions with typically developing children of similar age. We saw evidence of this in our study. This indicates that it is hard to outgrow the role as being a less assertive conversational partner in peer interaction, see Figure 2. The challenge for the child with communication problems is different in the two types of dialogues. With the age similar peer, the challenge is to be assertive in spite of comparatively lower communicative skills. With the language similar peer the challenge is to take more responsibility for the interaction because the conversational partner does not offer scaffolding. The interaction with language similar peers is likely to be more symmetrical. However, these interactions might also be characterized by less coherence as reflected in more topic shifts, more self-linkings and non-contributing turns. Not unexpectedly, the follow up indicates that verbal interactional skills seem to increase with age and experiences, as shown by an increase of responsiveness, and a decrease of fragmenting features, like topic shifts, self-linking and non-contributing turns.

Dialogues involving older children with more developed language tend to be less dynamic than dialogues involving younger and less experienced children. From the perspective of the child with communication problems, the interactional patterns that reflect conditions of dominance, may be negative in dialogues with more language competent peers. In interactions with language similar peers, the pattern is likely to be more equal or symmetrical. It seems that with a younger peer on a similar language level, a child with language and communication problems will be more likely to take the lead and to take more

of the responsibility in the interaction. This may be gained from experience of interactions with age similar peers, where the child with communication problems is offered more scaffolding. This can be carried over to the dialogue with a peer of the same language developmental stage, in which the child with communication problems takes more responsibility for the interaction. The difference between the two contexts is illustrated in Figure 3, showing the possible combinations of assertiveness and responsiveness. Dialogues with a peer of the same age as the child with communication problems tend to be high in responsiveness and low in assertiveness, while the opposite pattern is likely to be seen in dialogues with a peer representing the same language developmental stage as the child with communication problems. The idea of illustrating different combinations of assertiveness and responsiveness in a graph comes from Fey (1986), who used a cross-table representing presence or absence of these qualities. However, the main point of our figure also representing assertiveness and responsiveness is that such interactional behaviours are fluctuating and contextually dependent – not stable characteristics of an individual.

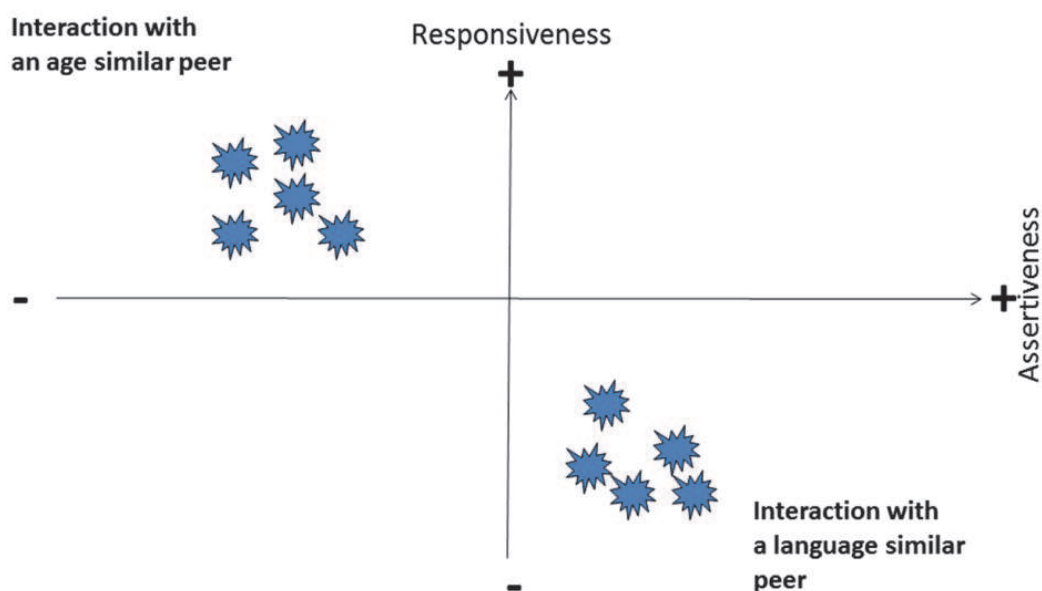


Fig. 3. Possible pattern in interactions between a child with problems with language and communication and typically developing peers of similar age or similar language development.

#### 5.4 Mutual and contextual influence

Conversational partners constitute each other's context and influence each other "for better or for worse" in co-constructing their conversations. Such a mutual influence has been studied primarily in dialogues between adults and children (Conti-Ramsden & Dykins, 1991; Nettelbladt et al., 2001). As seen in Bruce et al. (2010), our research indicates that this also is true for peer interactions with conversational partners representing different age and stage of language development.

The most influential variable seems to be responsiveness in the conversational partner, which is positively associated with both the features of coherence, i.e. responsiveness, and the features of fragmentization, e.g. topic shift, self-linking and non-contributing turns in the contributions of the child with communication problems. This reflects the importance of



support as well as challenge from the conversational partner. However, there are both pros and cons with all peer relations. Therefore it is important to try to identify what different conversational partners can offer in terms of support as well as challenge. Interaction with different conversational partners offers different proportions of scaffolding as well as challenges. Furthermore, the proportions and distributions of these aspects continuously vary during ongoing interactions because of a mutual influence between the interactional partners. What is important is that children with constraints of communication skills should not be left alone to manage initiation in peer play by themselves since this puts them at risk to be ignored. One way to avoid this scenario and to help them “over the threshold” is by introducing them to one – deliberately selected – peer at a time, with an adult still within reach although not actively participating. It is important to bear in mind that a need of scaffolding can easily turn into dependency and a feeling of “helplessness”. At the same time the proportion of challenge will decrease. Furthermore, it is reasonable to believe that there is a transfer from one peer relation to another, for example if a child with communication problems acquires support from his/her interactional partner in one peer relation, s/he might be better able to offer scaffolding in another peer relation, where s/he feels relatively more competent. The mutual influence reveals that context plays an important role for the emergence of conversational ability, which the child cannot acquire without interacting with others. It is therefore important to promote and enhance peer interaction in children with some kind of language and/or communication problem.

### 5.5 Implications

An important and challenging question is how to apply the findings of relevance for peer interaction between children with communication problems and typically developing peers, and furthermore, how already attained goals can be maintained and generalized. Increased awareness of the importance of peer interaction in professionals and methods for systematic variation of contextual factors, such as group size, mix of children representing different age and stage of language development, introduction of one peer at a time, are some ideas. Bygdeson-Larsson (2005) used a model to facilitate professional awareness of social interaction between the children at preschool, with a program called “Educational Process Reflection”, which was shown to “bring a shift of the teacher’s perception of children, and enhanced inter-subjectivity in communication” (Bygdeson-Larsson, 2005, p.161). The model was introduced in Swedish pre-school practice and highlighted democratic values of interaction and play processes. The outcome was enhanced inter-subjectivity in communication, which in turn resulted in more interaction experiences. All these suggestions aim to offer support, scaffolding as well as challenges in order to foster independence and an increased status of children at risk.

## 6. Conclusions

Our conclusion is that different contextual conditions offer different kinds of support and present different types of challenges for children with problems of language and communication. Interaction with age similar typically developing peers are more supportive and can serve as “good models”, while interaction with younger, language similar peers challenges the child to take a more active and assertive role. Children may take different roles in verbal interaction depending on how much support/scaffolding the conversational

partner can offer. Communication – skills as well as problems – is strongly contextually dependent, and varies with general factors like purpose, number of persons involved and their relations, as well as with the characteristics of the conversational partners, like age, language skills and interests. The solution might be to design optimal contextual conditions for peer interaction to occur by deliberately choosing one conversational partner at a time. Contextual factors can be controlled for and systematically altered, but in order to make conscious adaptations and tailoring, we must know more about how, and to what extent different contextual factors influence peer communication.

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Autism spectrum disorders are a major topic for research. The causes are now thought to be largely genetic although the genes involved are only slowly being traced. The effects of ASD are often devastating and families and schools have to adapt to provide the best for people with ASD to attain their potential. This book describes some of the interventions and modifications that can benefit people with ASD.

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