



## The Influence of Joint Engagement and Maternal Language on Young Children's Language Development

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Picture the following:

An 11-month old boy sits on the floor with his mother. There is a pile of blocks between them and the mother is building a tower. Suddenly the tower falls down. The boy smiles and looks at his mother, then down at the messy pile of blocks, then back at his mother, as if to say “Hey mom, did you see that? The tower fell down!”

Several months later, the child and his mother are building a tower again, and the same thing happens. The tower falls down. The boy smiles, looks at his mother, then down to the messy pile of blocks, then back at his mother. But this time he says “Blocks...uh oh!”

While this routine seems simplistic on the surface, it actually demonstrates some significant developmental milestones which are essential to a child’s development. In the first example, the little boy demonstrates that he has acquired “joint attention”, the ability to coordinate attention between people and objects (Sullivan, Finelli, Marvin, Garrett-

Mayer, Bauman, & Landa , 2007). This motivation to simply share experiences with someone in the absence of any immediate concrete goal, such as to acquire an object or cease an undesirable activity, is a uniquely human experience (Carpenter, Nagell, Tomasello, Butterworth & Moore, 1998, p.132). In typical development, the emergence of some early joint attention skills precedes the development of language. This is demonstrated in the above scenarios.

The relationship between a child's joint attention abilities and language skills is still under investigation. There are many questions to be answered about this relationship, including:

- **Does the extent to which infants participate in joint engagement with their caregivers influence their later language capabilities?**
- **If so, which aspects of communication development are affected - Gestures? Comprehension? Production?**
- **Does the quality of caregiver input during moments of joint engagement have an impact on infants' language development?**

An article by Carpenter, Nagell, Tomasello, Butterworth, and Moore (1998) addresses these questions. Titled "Social Cognition, Joint Attention, and Communicative Competence from 9 to 15 months of age", this extensive 174 page document provides a review of studies prior to 1998, which examined the development of social cognitive skills in infancy. The document then describes two studies undertaken by the authors.

**Study 1** - sought to establish developmental trajectories for several important social cognitive skills and to find interrelations among these skills. Anyone interested in such milestones would find this study and the preceding literature review very informative.

**Study 2** - is the focus of this article. In this study, the authors sought to determine the effect of joint engagement and maternal language on the development of children's gestures and language (both comprehension and production). This was one of the first studies to examine this relationship, the authors contend. This study is relevant to us as speech-language professionals since our goal is to facilitate a child's communication development. If there are factors such as joint engagement and maternal language that influence communication development, then these should also be a focus of our intervention. Carpenter *et al* (1998) studied 24 mother-infant dyads from infant age 9 through 15 months. The dyads participated in monthly evaluations, which consisted of 10 minute free play sessions with toys, as well as more structured play with an examiner. During the free play sessions, the examiners looked at the dyad's periods of "joint engagement", which they define as the infant's "alternation of gaze from an object to the mother's face and immediately back to the object" (p. 48). The joint engagement episode was considered to be finished when either the infant or the mother "shifted her attention away from the shared object for 3 or more seconds" (p. 49). The examiners also coded

maternal language during these free play sessions. Maternal utterances were coded according to:

- **“following” utterances:** utterances that contained a reference to an object that the infant was holding and/or looking at or that were related to the infant’s ongoing activity with an object. These utterances could be questions, statements, commands, etc.
- **“leading” utterances:** these referred to something other than the object of the infant’s interest
- **“other” utterances:** eg. utterances used in social play (“peek-a-boo”, “thank you”, etc)

Finally, mothers completed the MacArthur Communicative Development Inventory (CDI): Infant Form (Fenson, Marchman, Thal, Dale, Reznick & Bates, 1993) at each monthly visit in order to track the infants’ gestures, word comprehension and production.

The authors reported the following results regarding **joint engagement** in general:

- **Emergence of joint engagement** - by nine months of age, 60% of infants engaged in joint engagement. By 11 months of age, all of the infants had engaged in joint engagement. Therefore, the skill of joint engagement seems to appear in development between 9-11 months, according to this study.
- **Time spent in joint engagement** - mothers and infants spent more time in joint engagement as the infant got older. The change was primarily reflected in an increase in the *frequency* of episodes (the length of individual episodes did not increase significantly with age).
- **Variability in joint engagement** - there were a lot of individual differences in terms of the age at which infants consistently spent at least 5% of their time in joint engagement.

The authors reported the following results regarding **the effect of joint engagement on the development of gestures and language:**

- **Joint engagement and gestures** - infants who spent more time in joint engagement with their mothers between 9-12 months had more gestures some months later (mostly between 11-13 months). The authors hypothesize that there wasn’t a significant result for later months in the study due to the ceiling imposed by the CDI (there are a maximum of 12 gestures possible on this measure).
- **Joint engagement and word comprehension** - infants who began to participate in joint engagement at younger ages (between 11-13 months) understood more words between 11-15 months than infants whose joint engagement skills emerged later.
- **Joint engagement and language production** - the relationship between joint engagement and language production was less clear. The authors utilized a different

procedure to look at language production, in which they used a “criterion level” for joint engagement, rather than chronological age. The criterion level was defined as the infant’s ability to participate in joint engagement for at least 30 seconds in a 10 minute play session. The authors found that there is a “window of time” during which joint engagement and language production seem to be related, which occurs after infants reached the criterion level for joint engagement. The authors conclude that the relationship “between joint engagement and word production does not begin until a significant amount of time is spent in joint engagement” (p. 109).

The authors reported the following results regarding **the effect of maternal “following” language on the development of gestures and language:**

- **Maternal “following” language and gesture development** - no correlations were found between maternal “following” language and gesture development. The authors explain that this makes sense, as maternal language is not a direct source of information for infants learning to produce gestures
- **Maternal “following” language and word comprehension** - maternal following language was related to infants’ concurrent and later comprehension of words
- **Maternal “following” language and word production** - maternal following language was related to infants’ word production at earlier but not later ages. The authors suggest that this means that infants rely less on this maternal adjustment with age. The predictive value of maternal following language did not extend past 15 months. The authors suggest that “adults’ following into children’s attentional focus is most beneficial at younger ages, when children are less skilled at following into and directing the attention of others” (p. 113).  
A negative relationship was *not* found between maternal “leading” language and infants’ language development (as has been found in other studies).

## Implications

As was determined in this study, joint engagement is a very early developing skill, acquired between 9-11 months of age in typical development. This has important clinical implications for speech-language pathologists.

## Assessments

It is important for clinicians to be familiar with early milestones such as joint engagement, in order to identify key red flags. The milestone of 9-11 months for the emergence of joint engagement should be used in assessments of children. If an 18 month old appears to lack this skill, this would be cause for concern since the inability to participate in joint engagement with a caregiver is a red flag for social communication difficulties, such as

Autism Spectrum Disorder. While speech-language pathologists cannot diagnose Autism Spectrum Disorder, they can initiate a referral to a developmental paediatrician if they have cause for concern.

## Facilitating joint engagement

### *i) Encouraging more episodes instead of longer episodes*

When working on joint engagement with children for whom this skill has yet to emerge or is just emerging, it may be important to keep one finding from this study in mind. The authors found that, as infants aged, they spent more time in joint engagement with their mothers due to the fact that they engaged in *more episodes more frequently*, not because they engaged in longer episodes. Therefore, setting a goal of increasingly longer individual periods of joint engagement may be unrealistic for children who are new to this skill. It seems more likely that encouraging parents to attempt to engage in joint attention episodes more frequently with their child would be a more realistic initial goal, according to the results of this study.

### *ii) Helping parents understand joint engagement as a precursor to language development*

Encouraging parents to promote joint engagement with their child is a valuable goal as joint engagement was found to predict children's gestures, language comprehension, and during certain "windows of time" language production. The authors of this study discuss the "transactional" relationship between joint engagement and language: "As adult and infant become better able and more motivated to enter into extended periods of joint engagement, the infant's communication skills become more sophisticated"...and as this occurs, "the dyad is better able to establish and maintain extended periods of joint engagement – which leads to the acquisition of more new language, and so on, across time" (p. 114). However, the authors maintain that this whole process is kick-started when the dyad first begins to engage in non-linguistic periods of joint engagement (before language production has begun).

The authors' social-pragmatic view of language acquisition is consistent with the Hanen approach. At the heart of all Hanen Programs is the principle of helping caregivers fine tune their interactions with their child as "language learning takes place within good interactions" (Earle & Lowry, 2006, p. 23). Hanen programs often begin with a discussion of *Interaction and Information*, explaining that "interactions must be enjoyable and frequent and should continue over an extended period of time..." and that "During interactions, children need their conversation partners to provide them with information that relates to the topic of conversation" (Weitzman & Greenberg, 2002, p. 10). Part of establishing good interactions involves establishing moments of joint engagement with the child. When speech-language pathologists encourage caregivers to Follow their Child's

Lead, be Face to Face, and at their child's Physical Level, parents create an optimal environment for joint engagement.

### *iii) Follow the child's lead*

Once joint engagement is established, caregivers need to provide good information, or as it is worded in this study, "maternal following utterances". This study highlights the importance of ensuring caregivers and children are focused on the same topic. It is only when they share the same attentional focus that language is promoted. In Hanen programs, "following" is taken further than is described in this study. Not only are caregivers encouraged to be looking at and talking about the same focus as the child, but they are encouraged to use less "directive" styles and language. Waiting is encouraged so that the child can initiate more often. Bombarding a child with questions is discouraged and instead caregivers are encouraged to make comments regarding the child's focus.

## Summary

The authors state that the relationships they found between joint engagement, maternal language, and children's language development may be "especially relevant for – or perhaps even confined to – the earliest stages of language development, before children have found ways intersubjectively to enter into more complex social and communicative situations" (p. 130). For clinicians who work with children at such early stages of development, it is important to keep the goals of joint engagement and "following" language in the forefront due to their significant impact on the later development of communication skills.

## References

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