



**Conveying a New Understanding of Interaction
Findings from Interviews and Talkback Testing**

A FrameWorks Research Report

Prepared for the Frameworks Institute

By

Andrew Brown, Ph.D.

Axel Aubrun, Ph.D.

Joseph Grady, Ph.D.

April 2006

BACKGROUND

This report constitutes a step forward in the National Scientific Council’s continuing effort to refine the ways in which it explains key aspects of early childhood development (ECD), including the Core Story that relates ECD to policy. Part of this ongoing effort involves using empirical methods to determine which aspects of the story can be improved on, as well as the most effective ways of improving them.

More specifically, the research reported on here focuses on improving the Council’s ability to convey the role in ECD of Interaction between young children and significant others, as well as important information about what positive Interactions look like. As we discuss in the next section, this is one of many areas where current misunderstandings, or lack of understanding, lead to real difficulties in engaging lay people on an important issue.

NEED AND SITUATION ANALYSIS

Why is there a need to improve on how people understand interaction? A priori it might seem that everyone knows that children need to be interacted with, need attention, need to be loved, and so forth. Yet there are a range of patterns in lay people’s current thinking that make it difficult for them to see or learn about aspects of interaction that are quite important from the expert perspective.

Counterproductive patterns of thinking

The following default understandings about children and their development—discussed in previous research reports from Cultural Logic and other FrameWorks research partners¹—lead to counterproductive perspectives on interaction:

The Mentalist Bias

The “Mentalist Bias” in people’s thinking about ECD leads them to focus on explicit Learning, and other ways in which child development is like “Filling a Vessel” – and to neglect a perspective in which child development is more like “Building a Structure.”

¹ Works accessible through the FrameWorks Institute website include: Aubrun, Grady and Bales, “Opening Up the Black Box: A Case Study in Simplifying Models”; Aubrun and Grady, 2003, “Moving the Public Beyond Familiar Understandings of ECD”; and Bostrom, 2002, “The Whole Child – Parents and Policy.”

The consequences of this bias are significant: From the Mentalist perspective, for example, the *quality* of relationships isn't necessarily important (as long as key lessons and information are imparted); *neglect* is understood as being about a lack of instruction and role modeling rather than attentive interaction; and *babies* are not even part of the same interaction picture (since they don't "learn" in the same easily recognized way as older children).

Default Development

The notion of Default Development suggests that development proceeds more or less properly regardless of the conditions a child grows up in. (The child is something like a plant that matures on its own schedule without much intervention.) From this perspective, interaction obviously doesn't play a critical role; neglect (except in the most extreme forms) is not much of an issue; daycare providers don't need any special knowledge or training other than protecting the child from obvious harm; etc.

The Passive Child

Default understandings of the Passive Child—e.g. as a "sponge" that soaks up whatever goes on around it—encourage people not to notice the active role that children take in seeking out the interactions and other experiences they need for healthy development.

The Family Bubble

The Family Bubble perspective is another key, counterproductive understanding about ECD. It includes the misconception that all important interactions are between children and parents, and it minimizes the importance of all the other interactions and relationships that shape a child's development. The fact that this is also an *ideal*, that is, people believe the child should ideally be contained and protected by the Family Bubble, makes it especially hard to introduce information about how other influences can and ought to play a role in ECD.

Interaction Associated With the Older Child

An additional default pattern, that emerged with new clarity during the research reported on here, is that "interaction" is strongly associated with *conversation* in the literal sense, and more generally, with types of activities that involve older children. In other words, babies and very young children are not a good cognitive fit with common prototypes of interaction. This is likely a consequence of the Mentalist Bias, which focuses people's attention on the kinds of mental processes (explicit learning, making judgments, setting values and priorities) that are much more naturally associated with older kids and adults.

This pattern obviously represents a significant obstacle to communicators who want to promote healthy interactions during very early and developmentally critical periods.

General Resistance

Even more generally, previous FrameWorks research has established that there is strong resistance to ideas that don't fit comfortably within people's current "wisdom" about children and what they need. On any number of particular topics there is a strong tendency for people to (mis)hear new information as confirmation of familiar ideas. (E.g., in an earlier round of research, Cultural Logic found that explanations about "connections" between brain cells were often misheard as messages about the importance of "connecting" with one's child.)

The Expert Model and the Core Story

As in many other phases of the communications research, the effort reported on here first involved an assessment of key aspects of the "Expert Model" of Interaction. In our experience, even the most limited expert models inevitably contain more ideas and information than can realistically be conveyed to the general public. As a result, a basic task in any simplifying models project is to identify a "core" story that represents an effective compromise between faithfulness to the expert model and cognitive/cultural viability for the broader public.

This analysis yields the elements that an explanatory strategy might usefully focus on: It includes the key ideas that the public doesn't fully appreciate, and without which productive engagement on helpful policies is unlikely. The following diagram represents a simplified breakdown of some of the key ideas of the interaction story.

A Child's	Interaction With	An Adult	Leads To	Effects On Development
Includes babies	FORM	Esp. in Secure Relationship	Interaction as critical factor	Development of basic capacities
Child as Initiator	Attentive Frequent Caring affect Repeated/ Reciprocal	Can be extended to Community, Environment	MECHANISM: “Happy Chemicals” Reinforce particular circuits	Development of brain
	CONTENT i.e. info Including psychological info		Parameter setting Teaching	

A Child's ...

One key expert understanding not fully appreciated by the public is that interaction is as critical for *babies* as it is for older children.

Another missing understanding is that the child acts as an *initiator* in interactions. It seeks out the kinds of experiences and interactions that it needs for healthy development.

... Interactions with ...

Much of the analysis in this phase focused on the nature of healthy interactions, as understood by experts. A central organizing point here is that interactions have both Form and Content.

FORM of interactions

In order for development to proceed in a healthy way, children need to have interactions with the following characteristics:

- Caring in affect, tone
- Frequent (many times a day)
- “In sync,” attuned, symmetrical (i.e. involving exchanges where adult and child are expressing similar affect, often in similar ways)²

CONTENT of interactions

This is by definition almost infinitely variable (and is *information*, in both everyday and technical senses).

The content of interactions should include information about the psychological world, to help children develop an understanding of this central dimension of experience.³

... *An Adult* ...

One important idea not fully appreciated by lay people is that the interactions that do most to promote healthy development occur within the context of stable, secure relationships.

Another important fact missing from the non-expert models is that a child’s interaction “partner(s)” can also be extended to refer to the broader community, or even to the environment more generally (including toys and other objects the child interacts with).

² See the Appendix for an excerpt from an expert discussion of this aspect of interaction.

³ See “An Interview with Ross Thompson,” posted at <http://www.developingchild.net>: “Adults live in a psychological world in which feelings, intentions, motives, beliefs, and thoughts are essential to how they understand everyday experiences; when adults converse with children, they naturally convey this kind of understanding. Why did my brother get mad at dinner? When Mom explains that he was angry about having to quit his computer game, a young child begins to make the connections between feelings and actions, past events and current emotion, frustrated desire and anger. A child’s understanding of the psychological realities of human experience is built on conversations like these.”

... *Leads to* ...

The interactions are a crucial ingredient for development and there are concrete, physical mechanisms at work.

... *Effects on Development.*

The effects of interactions are not just mental (thoughts and knowledge), but include the structure of the brain and the physical foundations for all later capacities that children will need as they continue to grow and develop.

Objectives

Given the expert model of interaction schematized above, as well as the counterproductive patterns people currently tend to default to, and previous experience with trying to convey new perspectives about early childhood development, the following emerged as key goals for improving communication.

Explanations should:

- Suggest an Active rather than Passive child
- Be faithful to the “attuned” nature of interaction
- Be compatible with a Materialist perspective—work against the understanding that ECD is about Filling the Vessel⁴
- Make Interaction *mandatory*— and work against folk models of Default Development
- Be compatible with the Brain Architecture model
- Sound like new, relevant information
- Work against the Family Bubble (Note—this objective turned out not to be a focus of this phase of research. See the “Family Bubble” section of the report.)

⁴ It is worth emphasizing again that, like many other counterproductive understandings, ideas about Teaching, Explicit Learning and so forth are not *wrong*. But they are *limited and limiting* – they act to block out awareness of other dimensions of the topic.

RESEARCH METHOD

The analysis presented here is based on two phases of data-gathering. In the first, Cultural Logic conducted brief (20 minute) cognitive elicitations with 18 subjects from around the US. In the second phase, 8 more targeted explanatory approaches were assessed through TalkBack testing with 54 subjects. It is important to note that this round of research in no way constituted a full simplifying models project, which would have entailed working with several hundred subjects.

Subjects

Subjects were drawn from Cultural Logic's database of research subjects from around the country. Of the 72 subjects in this research, 23 were under age 30, 26 in their 30's, 15 in their 40's and 8 were above age 50. 54 were European American, 11 African American, and 7 were other or mixed ethnicity. In terms of political leaning, 7 were moderate, 24 conservative, 35 liberal, and 6 declined to state.

Elicitations

18 subjects participated in one-on-one, semi-structured, recorded interviews ("cognitive elicitations"), conducted according to methods adapted from psychological anthropology. The goal of this methodology is to approximate a natural conversation while also encouraging the subject to reason about a topic from a wide variety of perspectives, including some that are unexpected and deliberately challenging.

This type of data-gathering—and the analysis of transcripts, based on techniques of cognitive anthropology and linguistics—yields insights not available from standard interview, polling, or focus group techniques. It does not look for statements of opinion, but for patterns of thought that may even be unconscious. It does not look for familiarity with issues in the news, but for more established and long-standing, default reasoning patterns. Some of the clues to these important patterns come from topics that are *omitted*, moments of *inconsistency* where one understanding clashes with another, and the *metaphors* people use to talk about a subject.

Put briefly, this analysis focuses on *how* people think rather than *what* they think.

TalkBack Testing

TalkBack Testing is an approach that includes a number of different specific techniques, all aimed at assessing explanatory models on two broad criteria: Do they have the potential to enter public discourse? And, do they have positive impacts on thinking? In either formal or conversational settings, subjects are presented with prospective explanatory models. After this, their subsequent understandings and ability to express

them are evaluated in a variety of ways. For example, the researchers were interested in how well people absorbed the idea that interaction is *necessary* for development. Another important piece of data was the likelihood that people would repeat a particular term or metaphor that had been presented to them.

In this case, the TalkBack testing was of a preliminary sort, since it involved only 54 subjects (compared, for example, to the more than 400 subjects who took part in the research leading to the development of the Brain Architecture simplifying model.)

Stimulus

The material for TalkBack testing consisted of eight different short texts (roughly 100-130 words), each focused in a particular explanatory approach to the Council's core story of Interaction, e.g.,

People have always known that young children want attention, but scientists are now figuring out how attention plays an essential role in a young child's development. Basically, young children instinctively reach out to adults a thousand times a day trying to have a special and critical kind of interaction the experts call Interplay. Interplay is the way that an adult and child can lock in on each other and get in sync, trading gestures, facial expressions, words and noises. A steady diet of Interplay is just as important as nutrition, because Interplay releases chemicals in the baby's brain that help brain cells grow and connect with each other. And young children have such a strong need for Interplay that it's as though they're hungry for food.

Each of the texts was organized around a particular explanatory approach, which included a core term (e.g. "Interplay") as well as a set of secondary terms and propositions (e.g. "getting in sync" and "attention is like food").

Following exposure to one or another of the paragraphs, subjects were asked to respond to a (consistent) set of questions, plus follow-up probes. These included a direct comprehension question, and also a request to imagine concrete scenarios of Interaction, in order to gauge how thoroughly they grasped the explanation:

- What do you think is the key idea in this paragraph?
- Imagine an interaction that fits the qualities mentioned in the paragraph. Please describe it and explain how it fits.

Subjects were also asked a question to gauge whether the explanation conveyed any sense of causality or mechanism that subjects could articulate, e.g.,

- How do you think this type of interaction promotes healthy development?

The final question of the series was intended to evaluate the memorability and clarity of the paragraphs:

- Please repeat the information that you heard at the beginning as best you can.

Subjects' ability to remember and to express an explanatory model are among the key criteria of its effectiveness. Others include:

- Subjects' ability to use elements of the model in their reasoning, drawing new inferences beyond what they have specifically been told.
- Their tendency to "stay on track," rather than digressing to other topics.
- Their tendency to engage in productive thinking about the topic, and to avoid common counterproductive patterns.

DIRECTIONS CONSIDERED

To better understand the research process involved in this type of effort, it is helpful to briefly review a sample of explanatory directions that were considered.

“The Form vs. the Content of the Interaction”

One of the approaches considered was to introduce an essentially new idea into people’s conceptual repertoire concerning ECD—an explicit (though abstract) notion of “The Form of the Interaction” (by this or another name). Experts have identified a number of the particular characteristics that healthy interactions should have, and this explanatory direction would be an attempt to help people focus explicitly on the form as opposed to the content of interaction with children.

This direction was not subjected to TalkBack testing, since the researchers ultimately decided (based on the elicitations and other research) that it was not likely to prove specific or concrete enough to get past people’s stubborn default patterns of reasoning on this topic.

“Coaction”/ “Interplay”

The essence of this direction was to define important qualities (in terms of Form rather than Content) that interactions between adult and child must have in order to promote healthy development.

In the end, this direction emerged as the most promising for a variety of reasons. We devote the next section to discussing it.

Redefining the Folk Model of “Attention”

The central idea of this direction was to build on lay people’s sense that *attention* is important to children (and even babies). (Note that we are referring, per ordinary language, to the attention that the child receives, not to the attention paid by the child.) While people do not have consistent ideas about attention—what exactly it means, how much is enough (or too much!), why it’s helpful, and so forth—it is an idea that is clearly related to important expert concepts. For instance, it is a kind of interaction that the child actively solicits, and in everyday language it overlaps with the language of nutrition (e.g. children can be “starved for” attention or “crave” attention). In principle, it might be possible to build from public understandings of attention towards a more informed perspective. One of the more specific concepts considered was the idea of an “Attention Quotient” in a child’s environment.

The Attention direction was ultimately incorporated into the tested concepts (see next section).

How Interaction Promotes Development

Causal explanations are often a useful tool for engaging people with new information. One of the directions considered in this phase of research was an explanation that focused on exactly how interaction promotes development. Americans already believe that positive interactions are good for kids, and there is no shortage of “folk models” about why: Interactions are how we *teach* kids about the world; they raise kids’ *self-esteem* by showing that someone is interested in them; they are about *modeling* the attitudes and behaviors we want kids to adopt; and so forth. The goal of this direction, then, would be to build on lay people’s thinking about this topic by adding dimensions that are currently missing or weak.

Among the mechanism explanations considered were the following:

- Healthy interactions *release chemicals in the brain* that promote development—or, the absence of healthy interactions causes the release of brain chemicals that hinder development. (A possible metaphor: Interactions create an environment that is either healthy or unhealthy, parallel to pH in an aquarium, for instance.)
- Interactions “*answer questions*” posed by the child’s developing mind/brain—i.e. as the child consciously or unconsciously seeks out particular kinds of experience and input. (A variant metaphor: Interactions “push buttons” that need pushing in order to set parameters in the developing mind/brain.)
- Interactions are *like exercise* for the developing mind/ brain/person—must be at an appropriate level of “difficulty,” hit certain “muscle groups,” etc.
- Interactions provide the metaphorical *nourishment* needed by the developing mind/ brain/person. They feed the mind/brain.
- Interactions provide *practice* in critical skills.
- Interactions *activate, build, and reinforce circuits* in the brain.

Aspects of the Mechanism direction were ultimately incorporated into the tested concepts (see next section).

The Active Child

Another explanatory direction considered involved a focus on children’s active role in their own development. Metaphors considered included describing the child as an explorer/navigator, negotiating the “terrain” of its environment, seeking out new stimuli, and responding to the conditions (e.g. metaphorical weather) created by interactions.

This direction was ultimately incorporated as an element, though not necessarily the focus, of the tested concepts (see next section).

Stable Relationships

One of the key expert ideas regarding interactions and development is that interactions that take place in the context of secure relationships have a special power to promote healthy development. One of the explanatory directions considered therefore focused on the topic of stability.

Ultimately this direction was not tested because it was too far removed from the central notion of interaction per se.

Interaction with the Environment

From the expert perspective, it is not just interactions with parents and other caregivers that play a role in development, though these are of central importance. The model of Interaction can also be extended to interaction with others in the community, and even with objects. Each of these has impacts on development, and can be described in terms of parameters that are more or less conducive to the child's healthy growth. One of the metaphors considered along these lines framed the environment as the child's Partner, either for better (if it allows for stimulating, comfortable, age-appropriate interactions) or for worse.

This direction was ultimately not tested because it was too far removed from the central notion of Interaction per se.

Community and Child

Because of the importance of bringing the broader community into the story of early childhood development, one of the directions considered involved an explicit focus on the ways in which community and child interact—either literally or in the causal sense.

This direction was ultimately not tested because of the more pressing need to convey ideas about Interaction per se. However, *this direction still represents a crucial area for future research*. See the “Family Bubble” section for further discussion.

AN EFFECTIVE EXPLANATORY APPROACH

A specific constellation of elements emerged from analysis and TalkBack testing as a particularly effective way of helping lay people shift to a new and more constructive perspective on interaction. Aside from one paragraph based closely on the current explanatory approach adopted by Council members, and included for comparative purposes, all of the tested paragraphs used a mix of these elements. (See the Appendix for the text of all eight paragraphs.)

Effective “idea units”⁵

The following are six conceptual elements that helped people arrive at a new understanding of the relationship between interaction and ECD. They focus on what we have referred to as the Form of interaction, while at the same time providing a degree of concreteness that increases the model’s viability. Together they add up to a coherent picture that is at once graspable, and different enough from the “common wisdom” to strike people as being new and relevant information.

1. Kids *reach out* to initiate interactions.
 - A more concrete specification of the idea of the Active Child
2. The ensuing interactions involve a back and forth or *repeated* exchange of roughly *symmetrical* actions—i.e. gestures in response to gestures, faces in response to faces, etc.
 - Again, a relatively concrete image of what one particularly important kind of interaction looks like
3. These interactions are *attentive*.
 - Ties the new image to a closely related idea that people already care about

⁵ We have borrowed this term from cognitive psychological work on memory and text comprehension.

4. They occur *very frequently*—many, many times a day
 - Further specifies the image, and reinforces the idea of interactions as an input that is needed on a (relatively) constant basis
5. They take place between adults and *young children* (including babies)
 - Important for defeating default assumptions that “interaction” is about conversations, etc. with older children
6. They promote and are *critical for brain development* (like nutrition).
 - Important for conveying the sense that this is new, objective, and undeniably important information

A description that effectively combines these six elements does more than reinforce standard views of development and interaction. It provides people with a new and more concrete image of the kinds of interactions young children need.

Language and Imagery

While this phase of research was not conceived as a full simplifying models effort (e.g. designed to arrive at a specific, validated metaphor or term), it was nevertheless important for methodological reasons to express key concepts in terms that strike people as new and concrete. Otherwise, it is far too likely that people default to familiar understandings.

The terms “Coaction” and “Interplay,” for example, were introduced as (allegedly standard) expert labels for the type of interaction described. Here is one of the paragraphs that mentioned Coaction:

Experts in early childhood development have recently figured out one of the most important keys to healthy development—it is a kind of interaction between children and adults that the experts call Coaction. Coaction is the way that a young child and an attentive adult can lock in on each other and get in sync, trading gestures, facial expressions, words, and noises. Even babies instinctively reach out to adults a hundred times a day trying to get Coaction started, because Coaction is actually just as important as food and water. We now know that Coaction releases chemicals in the baby’s brain that help brain cells grow and connect with each other. This knowledge has implications for everything from judging whether a daycare center is well run to setting up treatment for children who have been neglected.

Both terms, “Interplay” and “Coaction,” were repeated by most or all subjects who heard them, as they subsequently discussed the topic. *This is positive evidence in itself about the possibility of popularizing a new technical term in this topic area*, since in many cases new terms drop out of the conversation during TalkBack testing.

Basically, research is being done that there is this thing called Interplay and that it's that babies reach out seeking some type of interaction for the parent or for some type of adult and that it's helpful in their cognitive—their brain development and the chemistry of their brain.

Liberal (high school-educated) woman from Maryland, age 23

Q: Please repeat the information that you heard at the beginning as best you can.

A: Talking about Coaction and how scientists or researchers have discovered that it's just as important as everyday feeding and taking care of. It's just as important in how that child develops.

Conservative (high school-educated) woman from Maryland, age 47

A metaphorical image that proved very effective at conveying a number of important points was summed up in the term “Serve and Return”:

Experts are learning more and more about how interactions with other people affect the development of babies' brains. It turns out that healthy development of brain architecture depends a lot on a kind of interaction experts call Serve and Return, based on an analogy from games like tennis and volleyball. Serve and Return happens when young children instinctively reach out for interaction, through babbling, facial expressions, words, gestures, cries, etc. and adults respond by getting in sync and doing the same kind of babbling, gesturing, and so forth. Another important aspect of Serve and Return is that it works best with adults who are familiar to the child, like familiar partners. Young children need many of these interactions per day, since they are so critical development, and have effects on everything from the chemicals in the brain to physical structures and connections there.

Subjects were often able to repeat this idea back very clearly (a task that is always intentionally made difficult for subjects in the TalkBack context).

Q: Can you try as best you can to repeat back what you heard in the paragraph?
[following several minutes of intervening discussion]

A: Experts were speaking of interactions and how they affect the development of babies. It's something with their brain. You mentioned tennis, the Serve and Return. And the example you gave was tennis. And that babies reach out through babbling, crying, facial expressions, and then the parents would mimic that, respond to that in kind, and the child needed that many times a day to develop. This could affect the brain chemistry.

Liberal (college-educated) woman from Colorado, age 30

This analogy clearly conveys the idea of kids as initiators of interaction:

Right now my baby is sitting here in the high chair babbling actually. And if I wasn't to say anything back to him he would like he is now, squawk at me. But if I was to just engage in conversation with him, even just babbling, you can see a completely different side of his personality.

Liberal (high school-educated) woman from Illinois, age 32

The Serve and Response paragraph also conveys the idea that the interaction is important for the overall development of basic capacities, as opposed to “teaching” particular lessons, for instance.

When you think of a child not getting that sort of interaction, I can easily see them becoming more of a loner. And based on the paragraph that you read, it would possibly indicate that their brains would not develop to their entirety or to the best that they could, and so there could probably be all sorts of implications on the future, on their social development, social interaction, and possibly even their physical development.

Conservative (college-educated) woman from Ohio, age 33

[Note, though, that while some subjects grasped this point clearly from this paragraph—and from other tested paragraphs—the idea that ECD is about *building basic capacities* is much weaker than the Filling the Vessel model in people's understanding, and the point certainly needs reinforcement through other elements of any given communication. These paragraphs were not intended to stand alone as messages, and there should be no problem reinforcing this critical point through other aspects of a paper, talk, etc.]

Additional Conclusions

The preliminary TalkBack testing in this phase of work suggested or reinforced a number of other points about communicating on the topic of Interaction:

- A focus on attention reduces the effectiveness of the message.

The stimulus that treated attention as a focus and conceptual starting point (see Attention/Interplay in the Appendix) led to relatively weak results even though it included all the important elements of the other paragraphs. Subjects tended to default to commonsense understandings of “giving kids attention,” rather than taking in the new information being presented.

- A focus on brain development⁶ helps other messages come through more clearly.

While the intention of this phase of work was not to focus on messages about the brain, the conversations with subjects confirmed findings from earlier rounds of research that if brain development is treated as an explicit topic, subjects are more likely to attend to and remember the other information they are given.

Comparison with “Control” Paragraph

For purposes of comparison, some subjects were presented with a “control” paragraph about interaction, which closely approximates messages currently promoted by the Council. This paragraph was adapted from a summary of an interview with Ross Thompson, presented on the Council’s Web site:

Scientific studies now show that young children learn about the psychological world—about emotions, cooperation, and themselves—from the quality of their relationships with parents, from the emotional climate of the home, from their everyday conversations about the day’s events, and from other relational experiences. Healthy development of brain architecture relies on the quality of early relationships, which should be stable and nurturing. And the quality of parent-child conversation is important even before young children are good conversational partners. These conversations should be attentive, supportive, and attuned to what the child needs and can understand. When children are treated as active partners, then conversations and other interactions promote healthy development.

⁶ Note that the message about chemicals released in the brain as a result of healthy interactions proved memorable and graspable to TalkBack subjects.

While this paragraph refers to children as “active partners,” it does not succeed in conveying an image of an active child in the TalkBack context. The notion of partnership or the child’s initiative disappeared completely from the conversations, and TalkBack subjects defaulted to typical understandings of children as passive learners, listeners, and sponges.

Q: Please describe an interaction that fits the qualities mentioned in the paragraph and explain why or how it fits.

A: Making sure that your kids, even when they’re really small, saw that you worked out your problems with other people, that you were kind, that you were supportive of other people, that you rarely had anything bad to say about other people, you sought to express yourself, even if the other person didn’t understand.

Liberal (high school-educated) man from California, age 45

While the paragraph refers to brain development, TalkBack subjects didn’t clearly grasp the relationship between the messages about the brain and about relationships. For lack of a clear (e.g. causal) connection, subjects tended to hear either one or the other of two (seemingly unrelated) stories: (A) It is important to be nice to your child and set a good emotional example:

Parents and other adults that are significant in a young child’s life should talk to them in a meaningful, positive way to help develop their character to be meaningful and positive and caring. And, you know, be sincere, don’t be mean, don’t be gruff, don’t be rough, and do this on an everyday basis about everyday things that are occurring or special things that are occurring. Talk to kids in a positive way, because it’s very important for their development.

Conservative (post-graduate) woman from Illinois, age 63

Q: Please repeat the information as best you can.

A: Scientific studies have shown that children develop their emotional and social awareness skills, early in life, in the home. And I think that’s it.

Conservative (college-educated) man from Utah, age 32

Q: Please repeat the information you heard at the beginning as best you can.

A: Children develop their skills to relate to others by the way they see people around them relating to people. And also they develop their character, from what I understand, from the character of the people around them. They tend to mirror the people and environment that they're in. And if you are loving and supportive and communicative, they tend to be the same way to you.

Liberal (high school-educated) man from California, age 45

(B) It is important to provide the kind of (intellectual) stimulation that promotes brain development. Some people did focus on brain development in their summaries of the information they had heard, and here are examples of the kinds of interactions they thought were relevant:

Q: Imagine an interaction that fits the qualities mentioned in the paragraph. Please describe it and explain why or how it fits.

A: Well, reading is a good example. If you read to your kids every night, after a while, they memorize the story and begin to recognize the words and characters. Just by reading from a book, the kid sees you do it and in time learns that letters makes up words used to express ideas. If we think about it, that's pretty amazing.

Moderate (high school-educated) man from Georgia, age 46

Q: Imagine an interaction that fits the qualities mentioned in the paragraph. Please describe it and explain why or how it fits.

A: An ideal situation would be parents/family members/friends constantly interact with the young child, such as reading books to them, explaining ideas to them—regardless if the child understands or not, and providing constant stimulation. For example, my older sister buys educational toys for her daughters. She teaches them the alphabet, but the toys help reinforce too. Also, a calm and friendly environment is imperative for a healthy development.

Moderate (college-educated) woman from New York, age 22

In short, the paragraph is taken as confirmation of either of several familiar ideas about what children need. These ideas are not wrong—intellectual stimulation and a positive environment are very healthy for children—but subjects generally are not taking new information from the material.

It is important to note that the original paragraph seems on first reading to provide a plausible simplification of the expert story. It contains a number of important pieces of new information, and is well expressed. TalkBack testing demonstrates quite clearly, however, that the paragraph fails to advance a cognitive frame that can stand up to deeply entrenched folk models about ECD.

WORKING AGAINST THE “FAMILY BUBBLE”

Previous rounds of research have established a particular cognitive and cultural pattern as one of the chief obstacles to engaging support for policies friendly to ECD: people’s discomfort with “interference” in the life of the family, combined with their default understanding that the family is the locus of nearly everything important that happens to kids. Given what we call the *Family Bubble* perspective, it is often very difficult to engage people, as citizens, on issues that potentially have profound impacts on kids’ lives and outcomes.

For this reason, the current project on Interaction was partly taken as an opportunity to explore ways of drawing closer connections in people’s minds between children and the broader community. The relationship between a child and the surrounding social environment involves both literal, dyadic interactions and causal connections that fit a broader definition of interaction.

Certain kinds of policies and interventions are very compatible with Family Bubble thinking, including:

- “Educating” or otherwise “helping” parents (on a voluntary basis)
- Crisis intervention in extreme cases

Q: Coming back to this idea of early childhood development where the brain architecture is really being built, the foundations are being laid—what role can the community play in that? How can we make that a better process?

A: Mostly you can just try to educate parents. That's probably all you can do is try to educate parents. Get the information out there on the TV and the magazines, the Internet, the newspapers, health departments, doctors offices, anyone that parents of young children or babies are going to have contact with.

Liberal (high school-educated) woman from Illinois, age 53

But many other types of interventions, such as mental health screenings for children and parents, economic interventions to help communities, and increased training for daycare providers, do not follow from, and may even clash with, the default patterns of reasoning.

In the initial round of analysis and data-gathering for this effort (the 18 elicitations), we focused on efforts to reframe the relationships between kids and community, such that ECD becomes a locus of collective concern and responsibility. Because this direction was ultimately not the one that yielded the best outcomes (for reasons discussed below), we do not offer not a full analysis of the conversations, but examples of explanatory approaches and how they fared.

Sample Approach 1: Highlighting the stakes for the community

Elicitations subjects were asked questions like the following, which “prime” the relationship between kids’ outcomes and the state of the community:

If I don’t have kids, but do want a good, solid community in the future, what should I be doing about how kids grow up?

What are a couple things we can do collectively? How do high-quality communities create high-quality kids, who will be high-quality community-members in the future?

How would you describe the kinds of kids we want?

The good news about this general approach to starting a conversation is that people accept the general principles as persuasive and even commonsensical. They acknowledged that the stakes are very high for the community at large, and that childhood is a crucial period of development for future citizens and community members.

Kids are going to grow up to be adults—and what kind of adults do you want living around you? The ones that are going to be criminals or the ones that are going to be taking a stake in the community? I guess that would be the most basic way of saying it—either the kids are going to grow up to help, or they’re going to grow up to hurt.

Conservative (college educated) man from Arkansas, age 51

On the other hand, this conversational tack did not lead to support for *policies* that might be more proactive. Subjects who agreed with the general principle still were unwilling or unable to think creatively about practical steps beyond those most compatible with the Family Bubble.

Even if you don’t have children of your own, you need to be concerned about your neighbor’s children. You don’t want them growing up to be delinquent or to be problem children because that’s going to flow across to your yard to you too . . . You may not be able to influence it, but you would want to be concerned about it.

Liberal (high school-educated) woman from Florida, age 45

There’s so many people who just let their kids run loose and don’t try to correct them.

Q: And what kind of community do you think that's going to result in down the line?

A: A mess, a big mess . . . [But] there's not much you can do. All you can do is bring your kids up right. You can't correct nobody else's kids.

Q: A lot of people say that raising a child is just the family's responsibility; it's not the community's business. What would you say to that?

A: The community hauls them right to jail. It's the community's business if they do something bad – they go to jail.

Conservative (college-educated) woman from Texas, age 36

In the end, simply talking about *the stakes for the community*, in terms that are easily grasped and agreed with, is not a strong enough communications move to penetrate the Family Bubble. The idea that individual and community outcomes are connected is more like a “cultural theory” (an idea that is familiar and explicitly agreed with) than a “cultural model” (an idea that actually organizes thought and action).

It should also be noted that the idea of “community” itself is not closely associated with the idea of *policy*—instead it leads to ideas like helping a neighbor, volunteering for a good cause, or getting one's church involved in kids' programs.

Finally, this approach suffers from the fact that Americans' faith in the idea of community as an active force is not high. As other FrameWorks research has shown, the idea of community is often more of a nostalgic than an active one—people often feel that “these days” people are too busy, selfish, or short-sighted to get involved with others around them.

Q: A lot of people say that raising a child is just the family's responsibility and not the community's business. What do you say to that?

A: I don't really agree with that. I know that's where things are now but when I was a kid everybody knew what I did, if I did something, somebody either reprimanded me or told my Mom. And we all came out very well.

Liberal (high school-educated) woman from Illinois, age 53

Sample Approach 2: Infrastructure

The essence of this approach was to provide people with a more concrete image of what a community devoted to healthy ECD should look like. The conversations included questions that drew a parallel between the infrastructure that communities currently rely on—from roads to the postal system—and the structures that *should* be in place to insure healthy outcomes for kids, e.g.,

American communities devote a lot of resources to what experts call infrastructure. We pool our resources for streets and bridges, and a court system, and all kinds of things that make our daily life possible and help our economy along. These kinds of infrastructures are actually an important reason why America is so successful as a country. But for some reason we don't have the same focus on building and maintaining community structures that help the next generation come through all right—parks, programs, and other resources to help parents and day care providers and so on. So some people say that just like the support for maintaining the streets, you shouldn't be able to just opt out—the next generation is a matter that ought to concern everyone. What do you think of that argument?

In these parts of the discussion, researchers sought to establish the idea of collective responsibility of a concrete kind, and to avoid evoking the Family Bubble pattern.

Unfortunately, the approach showed no encouraging signs of leading people to breakthroughs in their thinking about kids. Ultimately, the gap between children and infrastructure proved to be too wide to be bridged so easily, possibly for lack of an effective simplifying model.

Summary

Ultimately the research in this effort was redirected towards promoting a better understanding of Interaction per se—i.e. dyadic interactions between children and other individuals, particularly adults. The scale of the current research phase was simply not sufficient to addressing the very difficult problem of helping people recognize a collective responsibility for children.

Nonetheless, the conversations in this round of work reveal once again that if the right strategy is identified, there is certainly energy to be tapped into by talking about kids and community (by that or another name). While people may not be sure exactly how their efforts can improve the outcomes for other people's kids, or why they should even be thinking about such questions, they often have clear feelings about what outcomes they would like to see:

Q: If you had to choose between two kinds of community programs for kids, say one that helped get better grades in school, like math and reading and so on, and another that was geared toward making them better members of the community, which would you choose?

A: Well every child needs something different, but on the whole for the average individual child I would say make them better community members.

Q: And why would you say that?

A: Because I think it's only like the upper like one percent or so of people that are going to be outstanding academically. And they're just the minority in other words. The majority of people are just going to be and this is not a bad

thing because I'm one of them, we're just average citizens and we just need to get along with everybody and that's what we need most

Conservative (college-educated) woman from Arkansas, age 51

The preceding exchange is fairly typical, and suggests that although current public discourse tightly connects ECD to the Family Bubble, the potential does exist for a broader conception to enter the discourse. We regard it as a very high priority for the Council to invest serious effort in finding ways to effectively circumvent the Family Bubble by providing a viable community-centric way of understanding ECD.

CONCLUSION

The goal of this round of research was to improve on the Council's current accounts of how interaction relates to ECD. Taking the longer view, we are trying to help the Council improve on texts like the "control" paragraph discussed above, or on the following paragraph, based on the current version of the Core Story:

Genes establish the basic architectural blueprint for the developing brain, but a child's ongoing interactions and relationships with the important people in his or her life supply the conditions that guide how that architecture gets built. The architecture of the brain is composed of highly integrated sets of neural circuits (i.e., connections among brain cells) that are "wired" under the continuous and mutual influences of both genetics and experience. Genes determine when specific brain circuits are formed and individual experiences shape how that formation unfolds. Nurturing and responsive interactions build healthy brain architecture that provides a strong foundation for later learning, behavior, and health. When positive interactions and stable relationships are not provided, persistent stress results in elevated blood levels of chemicals that interfere with the formation of healthy circuits.

The preliminary research reported on here suggests that without a simple and robust explanatory frame, much of the core story is "lost in translation." In cognitive terms, when lay people hear the information, even when it is concisely and clearly expressed, they default to familiar and unproductive ideas. The research also suggests that the best way to improve on this account is by providing a very concrete image of the form the interaction should take in order to promote healthy brain development, probably through the release of chemicals.

We further hypothesize, based on the evidence so far, that teaching the public something new about interaction will depend on how well the notion of *attunement* is conveyed. This round of research has identified several promising ways of talking about attunement, including the specific terms Interplay and Coaction, and a number of supporting images and metaphors. It stops short, however, of the goal of providing a definitive simplifying model.

APPENDIX A: STIMULUS PARAGRAPHS

SERVE & RETURN

Experts are learning more and more about how interactions with other people affect the development of babies' brains. It turns out that healthy development of brain architecture depends a lot on a kind of interaction experts call Serve and Return, based on an analogy from games like tennis and volleyball. Serve and Return happens when young children instinctively reach out for interaction, through babbling, facial expressions, words, gestures, cries, etc. and adults respond by getting in sync and doing the same kind of babbling, gesturing, and so forth. Another important aspect of Serve and Return is that it works best with adults who are familiar to the child, like familiar partners. Young children need many of these interactions per day, since they are so critical to development, and have effects on everything from the chemicals in the brain to physical structures and connections there.

COACTION

Experts in early childhood development have recently figured out one of the most important keys to healthy brain development—it is a kind of interaction between children and adults that the experts call Coaction. Coaction is the way that a young child and an attentive adult can lock in on each other and get in sync, trading gestures, facial expressions, words and noises. Even babies instinctively reach out to adults a hundred times a day trying to get Coaction started, because Coaction is actually just as important as food and water. We now know that Coaction releases chemicals in the baby's brain that help brain cells grow and connect with each other. This knowledge has implications for everything from judging whether a daycare center is well run to setting up treatment for children who have been neglected.

CHEMICAL INTERPLAY

Experts are learning more and more about how healthy brain development happens. They now know that it depends a lot on chemicals that are released in the brain when a baby experiences something called Interplay. Interplay is a kind of interaction between a baby and adult that happens when they lock in on each other and get in sync, trading gestures, facial expressions, words and noises. Young children and even babies instinctively reach out to adults a hundred times a day trying to get Interplay started, because Interplay is actually just as important as food and water. This special kind of interaction releases brain chemicals that help cells grow and connect with each other. This knowledge has implications for everything from judging whether a daycare center is well run to setting up treatment for children who have been neglected.

ATTENTION / INTERPLAY

People have always known that young children want attention, but scientists are now figuring out how attention plays an essential role in a young child's development. Basically, young children instinctively reach out to adults a thousand times a day trying to have a special and critical kind of interaction the experts call Interplay. Interplay is the way that an adult and child can lock in on each other and get in sync, trading gestures, facial expressions, words and noises. A steady diet of Interplay is just as important as nutrition, because Interplay releases chemicals in the baby's brain that help brain cells grow and connect with each other. And young children have such a strong need for Interplay that it's as though they're hungry for food.

INTERPLAY A

Interplay is a special kind of interaction that young children need in order to develop properly. Interplay is easy to spot—it's the back and forth echoing between child and adult that happens when they instinctively babble to each other, or mirror each other's gestures, expressions, and moods. Interplay has been identified by scientists as one of the key requirements for healthy development. Just as a car's wheels have to be aligned properly before it can be driven, a baby's brain needs to be fine-tuned before it can do a good job at things like learning, judgment, and self-control. Interplay provides the thousands of back and forth interactions that essentially tune a child's brain up and make it ready to learn.

INTERPLAY B

Interplay is a special kind of interaction that young children need in order to develop properly. Interplay is easy to spot—it's the back and forth echoing between child and adult that happens when they instinctively babble to each other, or mirror each other's gestures, expressions, and moods. Interplay has been identified by scientists as one of the key requirements for healthy development. Getting in sync in this way is more than just comforting for child and adult. This critical and comforting kind of interaction releases chemicals in the baby's brain that help brain cells grow and connect with each other.

FINISHING WORK

Experts in child development say that genes establish the basic blueprint for how brain architecture ends up, but that interactions with adults provide what the experts call the Finishing Work. They supply the conditions that guide exactly how that architecture gets built. More specifically, the quality of interactions between babies and adults must be high in order for brain architecture to turn out as solid as possible. High quality interactions means ones where the adult is familiar to the child, and is very attentive and responsive, whether through facial expressions, gestures, words, or actions. Even babies

instinctively reach out for many of these interactions per day, since they are so critical for development. The Finishing Work that happens through interactions has effects on everything from the chemicals in the brain to physical structures and connections there.

CONTROL STIMULUS

Scientific studies now show that young children learn about the psychological world—about emotions, cooperation, and themselves—from the quality of their relationships with parents, from the emotional climate of the home, from their everyday conversations about the day's events, and from other relational experiences. Healthy development of brain architecture relies on the quality of early relationships, which should be stable and nurturing. And the quality of parent-child conversation is important even before young children are good conversational partners. These conversations should be attentive, supportive, and attuned to what the child needs and can understand. When children are treated as active partners, then conversations and other interactions promote healthy development.

APPENDIX B

Excerpt from **The Neurobiology of Attachment and Early Personality Organization**

Allan N. Schore, Ph.D. 2002. *Journal of Prenatal & Perinatal Psychology & Health*: Vol. 16, No. 3, pp. 249–263.

As described by Feldman and her colleagues, face-to-face interactions, emerging at approximately 2 months of age, are highly arousing, affect-laden, short interpersonal events that expose infants to high levels of cognitive and social information. To regulate the high positive arousal, mothers and infants...synchronize the intensity of their affective behavior within lags of split seconds (Feldman, Greenbaum, & Yirmiya, 1999, p. 223).

These episodes of “affect synchrony” occur in the first expression of social play, and they are patterned by an infant-leads-mother-follows sequence.

In this interactive context both synchronously match states and then simultaneously adjust their social attention, stimulation, and accelerating arousal to each other’s responses. Within episodes of affect synchrony parents engage in intuitive, nonconscious, facial, vocal, and gestural preverbal communications. These experiences, which the parent carries out “unknowingly and can hardly control consciously” provide young infants with a large amount of episodes—often around 20 per minute during parent-infant interactions—in which parents make themselves contingent, easily predictable, and manipulatable by the infant (Papousek et al., 1991, p. 110).

In order to regulate the high positive arousal, mothers and infants synchronize the intensity of their affective behavior within lags of split seconds. This moment-to-moment state sharing represents an organized dialog occurring within milliseconds, and it acts as an interactive matrix in which both partners match states and then simultaneously adjust their social attention, stimulation, and accelerating arousal in response to the partner’s signals. According to Lester, Hoffman, and Brazelton “synchrony develops as a consequence of each partner’s learning the rhythmic structure of the other and modifying his or her behavior to fit that structure” (1985, p. 24).

This microregulation continues, as soon after the “heightened affective moment” of an intensely joyful full gaze smile the baby will gaze avert in order to regulate the potentially disorganizing effect of this intensifying emotion. In order to maintain the positive emotion the attuned mother takes her cue and backs off to reduce her stimulation. She then waits for the baby’s signals for reengagement. In this way, not only the tempo of their engagement but also their disengagement and reengagement is coordinated. In this mutually regulated process the more the mother tunes her activity level to the infant during periods of social engagement, the more she allows him to recover quietly in periods of disengagement, and the more she attends to the child’s reinitiating cues for reengagement, the more synchronized their interaction.

In this early system of nonverbal emotional communication the infant and mother co-create a context which allows for the outward expression of internal affective states in

infants. In order to enter into this communication, the crescendos and decrescendos of the mother's affective state must be in resonance with similar crescendos and decrescendos of the infant's internal states of arousal. She also must monitor her own internal signals and differentiate her own affective state, as well as modulating nonoptimal high levels of stimulation which would induce supra-heightened levels of arousal in the infant. The burgeoning capacity of the infant to experience increasing levels of accelerating, positive affects (joy and excitement) is thus at this stage amplified and externally regulated by the psychobiologically attuned mother, and depends upon her capacity to engage in an interactive emotion communicating mechanism that generates these in herself and her child.

But the primary caregiver is not always attuned—developmental research shows frequent moments of misattunement in the dyad, ruptures of the attachment bond. Although short-term dysregulations are not problematic, prolonged negative states are toxic for infants ...

[...]

In other words, in addition to psychobiological consequences, attachment transactions also have neurobiological effects, they are “built into the nervous system, in the course and as a result of the infant's experience of his transactions with the mother.” But how? Current models describe how these same nonverbal communications that induce instant emotional effects also facilitate brain growth. And so it is now thought that “the intrinsic regulators of human brain growth in a child are specifically adapted to be coupled, by emotional communication, to the regulators of adult brains” (Trevarthen, 1990, p. 357).

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Please follow standard APA rules for citation, with FrameWorks Institute as publisher. Brown, Andrew, Aubrun, Axel, and Grady, Joseph, (2006). A New Understanding of Interaction Findings from Interviews and Talkback Testing. Washington, DC: FrameWorks Institute.