NDBI STRATEGY RATING SCALE (NDBI-Fi)

Instructions: Rate the adult-child interaction using the following scales. For each scale, write the rating in space to the left of the construct name, and total the previous scales at the bottom of each section.

Rating criteria highlighted in yellow should be used to guide ratings during interactions in which the caregiver is also actively involved in the interaction. If the caregiver is present in the room but not actively interacting (i.e., observing the SLP-child interaction), use the regular rating criteria.

Promoting Engagement

___ **PE.1 Face-to-face and on the child's level**

*The adult is **face to face with the child**. The child's and adult's bodies are oriented toward each other, and they are at a similar level (or the adult can be slightly below the child's eye level), such that the adult is **within the child's line of sight**. If playing, toys are between the adult and the child when possible (this may be difficult in some activities, such as playing with a large dollhouse or in a jungle gym). If the adult is required to move away from the child, or if the child walks away, the adult returns to being face-to-face as soon as possible. The adult may be positioned differently only when the positioning is the most ideal for the activity or if the positioning is restricted by the environment.*

1	2	3	4	5	N/A
The adult is *rarely or never* face-to-face or on the child's level, i.e. the adult is primarily standing or seated behind the child. If parent is actively interacting: SLP, parent, and child are *rarely or never* situated in a triangular orientation.	The adult is *occasionally* face-to-face and on the child's level (e.g. the adult is *mostly* standing or seated behind the child.) **OR** the adult is next to or kitty-corner to the child for *more than half* of the session (allow next to or kitty-corner when this positioning is due environmental restrictions and appears appropriate) If parent is actively interacting: SLP, parent, and child are occasionally situated in a triangular orientation. The SLP may be seated away from the child-parent dyad or all in a row (e.g., behind the parent/child). Allow for such positioning when appropriate due to environmental restrictions or the current activity (e.g., if playing a "monkey in the middle" type of game)	The adult is face-to-face and on the child's level for about *half* of the session. Half of the time the adult may be standing, or seated above, behind, or next to the child. If parent is actively interacting: SLP, parent, and child are situated in a triangular orientation for *half* of the interaction. Half the time, the SLP may be seated away from the child-parent dyad or in a row (e.g., behind the parent/child)	The adult is *usually* face-to-face and on the child's level. When the child moves, the adult adjusts somewhat slowly, but eventually returns to a face-to-face position. If parent is actively interacting: SLP, parent, and child are situated in a triangular orientation for most of the interaction. When child/parent moves, the SLP adjusts somewhat slowly, but eventually returns to triangular orientation.	The adult is face-to-face and on the child's level *throughout* the interaction. When the child moves, the adult quickly adjusts to return to a face-to-face position. If parent is actively interacting: SLP, parent, and child are situated in a triangular orientation throughout the interaction. When child/parent moves, the SLP quickly adjusts to return to triangular orientation.	

___ **PE.2 Follow the child's lead**

The adult provides several developmentally appropriate activity options, and allows the child to choose which toy or activity to play with, how to play, and how long to stay with an activity. The adults then joins the child's chosen activity by playing with the child, helping the child with an activity, handing the child more pieces, or playing another "role" in the activity. The adult and child are both active participants in the activity. If the child does not choose an activity, or expresses disinterest in or dislike of an activity, the adult notices and responds accordingly. This may include using the situation to practice expressing refusal, offering a choice between two new materials, or moving new toys into the child's line of sight to encourage changing activities or to entice the child's interest. The adult is permitted to set limits (e.g. limit their child's access to more snacks) and to intervene if the child is engaging in harmful, disruptive, repetitive, or inappropriate activities. If using intervention strategies during an adult directed activity (e.g. dressing, washing hands), the adult incorporates child choices when possible.

1	2	3	4	5	N/A
The adult rarely or never joins the child in a child-led activity; OR signs of child interest or disinterest are largely ignored. Within home routines, the adult does not build in opportunities for the child to make choices. An adult who merely watches the child should be rated a 1. If parent is actively interacting, SLP rarely or never facilitates play so activities are following the child's lead.	The adult sometimes joins the child in a child-led activity, but most opportunities are missed; OR most signs of child's interest or disinterest are ignored. Within home routines, the adult usually does not build in opportunities for the child to make choices If parent is actively interacting, SLP occasionally facilitates play so activities are following the child's lead.	The adult joins in a child-led activity about half the time, but frequently directs the child to a certain activity, toy, or play action. Within home routines, opportunities for the child to choose are present but infrequent. If parent is actively interacting, SLP facilitates play so activities are following the child's lead about half the time.	The adult joins in a child-led or child-chosen activity for the majority of the session, outside of direct teaching episodes. Most signs of child interest or disinterest are acknowledged. The adult may occasionally choose for the child or direct the child to play in new ways. If parent is actively interacting, SLP usually facilitates play so activities are following the child's lead	The adult almost always joins the child in a child-led activity, outside of direct teaching episodes. Signs of child interest or disinterest are acknowledged. In home routines, the adult creates several opportunities for child choice. If parent is actively interacting, SLP is facilitating play so activities are following the child's lead.	

___ **PE.3 Positive affect and animation**

The adult displays rich positive affect to promote child engagement. This may include vocal quality or tone, gestures, and facial expressions. Affect is matched to the child's individual sensory needs, such that the adult promotes engagement without over-arousing the child. On the other hand, some children may need higher levels of affect and animation due to their lack of responsiveness and low arousal levels,

1	2	3	4	5	N/A
The adult's affect appears flat and uninterested throughout the session. The adult does not laugh, smile, or use and exaggerated tone.	The adult occasionally displays exaggerated positive affect, but does not exaggerate vocal tone, gesture, and/or facial expression for the majority of the session; OR animation is poorly adjusted to the situation or the child's sensory needs.	The adult uses a combination of vocal tone, gesture, and/or facial expression to display exaggerated positive affect for about half the session; OR uses only one method for the majority of the session; OR animation is occasionally adjusted to the situation or the child's sensory needs.	The adult uses a combination of vocal tone, gesture, and/or facial expression to display positive affect, but misses several opportunities; OR the adult uses only one method of displaying positive affect throughout the session. The adult usually adjusts animation as needed.	The adult uses a combination of vocal tone, gesture, and/or facial expression to display exaggerated positive affect consistently throughout the session. The adult usually adjusts animation as needed.	

___ **PE.4 Modeling appropriate language**

The adult adjusts their language to the child's developmental level; most utterances match the child's current abilities, while others are slightly above the child's current ability level. The adult avoids asking rhetorical questions or giving commands (outside of direct teaching episodes), and primarily comments around the child's attentional focus and action. Utterances are somewhat repetitive, but not overly so, and the adult models language for different objects and actions. If parent is actively interacting in play, occasional responses or feedback/coaching directed to the parent are acceptable and should not be considered when rating this question. Responses to parent-initiated conversation should not be marked down as inappropriate language.

1	2	3	4	5	N/A
The adult rarely or never models developmentally appropriate comments. All of the adults comments may be too far above or below the child's level, or the adult	The adult occasionally models developmentally appropriate comments, but the majority of adult utterances are too far above or below the child's level, or most of the adult's	The adult models developmentally appropriate comments about half the time, but about half of utterances are too far above or below the	The adult models developmentally appropriate comments for most of the interaction, but some utterances are too far above or below the child's level, or the adult	The adult models developmentally appropriate comments throughout the interaction. No more than a few adult utterances are too far above or below the child's	

may exclusively ask rhetorical questions or give commands.	utterances are questions or commands.	child's level, or questions or commands.	sometimes asks questions or gives commands.	level, and there are no more than a few questions or commands	

PE Subtotal

Encouraging Communication

___ **EC.1 Responding to attempts to communicate**

The adult verbally responds to the child's attempts to communicate, including vocalizations, eye contact, word approximations, gestures, joint attention, etc. This includes repeating, clarifying and/or expanding on the child's communication, and also responding to the child's communication as meaningful. If the child uses a joint attention skill (e.g. pointing, showing, or giving), the adult responds by incorporating a joint attention skill natural response. If the child is not yet using verbal or prelinguistic intentional communicate, the adult treats the child's actions as meaningful by imitating the child's action and commenting contingently. If the parent is actively interacting, do not dock down the SLP for not responding to communication the child directed toward the parent (unless the parent never responds after a reasonable time). If the parent responded to the child's communication *first*, SLP does not have to respond. No child communication should go unresponded to.

1	2	3	4	5	N/A
The adult rarely or never responds to the child's vocalizations and nonverbal attempts to communicate. The adult may make unrelated comments or perform unrelated play acts in response. If the adult provides a few verbal responses but does not treat the child's communication as meaningful, rate a 1.	The adult occasionally provides meaningful responses to child's vocalizations and nonverbal attempts to communicate, but usually fails to respond or usually responds in unrelated ways (i.e. low quality responses). If the child is not yet attempting to communicate, rate a 2 if the adult imitates the child's actions but does not pair language with this imitation.	The adult sometimes responds to child's vocalizations and nonverbal attempts to communicate by clarifying or expanding on the child's utterances. About half the time, the adult fails to respond, or responds in unrelated ways. If the adult always repeats the child's utterances but never expands, rate a 3. If the child is not yet intentionally communicating, the adult misses about half the opportunities to imitate the child's action and pair language with that imitation.	The adult usually provides responses to the child's vocalizations and nonverbal attempts to communicate and treats them as meaningful, but occasionally fails to respond or misses some attempts to clarify and expand the child's communication. If the child is not yet communicating, the adult mostly imitate the child's actions and pairs language with that imitation, but misses a few teachable actions,	The adult nearly always responds to child's vocalizations and nonverbal attempts to communicate. This includes expanding or clarifying child utterances, and responding to the child's actions as meaningful. The adult misses no more than a few opportunities to respond. IF the child is not yet attempting to communicate, the adult regularly imitates the child's actions and pairs language with that imitation.	

___ **EC.2 Pace verbal models**

*The adult leaves **adequate time** between verbal utterances to **provide the child opportunities to communicate** and to cue the child that it is his/her turn to say something. After responding to the child's communication, **the adult should aim to wait for the child to say or do something** (at least three seconds) before taking another verbal turn. The adult should **not dominate** the conversation but rather leave plenty of "air space" for the child to initiate communication.* If parent interrupts appropriate pacing of interaction, SLP should facilitate parent's use of appropriate pacing/wait time. Conversation should be child-*adult*-child, so if parent takes a turn, SLP should not take a turn until the child communicates (or if given appropriate wait time).

1	2	3	4	5	N/A
The adult *rarely or never* allows adequate spacing between verbal turns for the child to communicate, and *nearly always* takes back-to-back turns without giving the child an opportunity to respond.	The adult *occasionally* provides adequate spacing between verbal turns for the child to communicate, but about *usually* takes back-to-back turns without giving the child an opportunity to respond.	About *half* of the time, the adult provides adequate spacing between verbal turns for the child to communicate, but about *half of the time* takes back-to-back turns without giving the child an opportunity to respond.	The adult *often* provides adequate spacing between verbal turns for the child to communicate, but *occasionally* takes back-to-back turns without giving the child an opportunity to respond.	The adult *nearly always* provides adequate spacing between verbal turns for the child to communicate.	

___   **EC.3 Using communicative temptations**

The adult deliberately creates situations meant to elicit communication from the child. These "communicative temptations" may involve blocking the child's play, putting toys in sight but out of reach, limiting or withholding access to toys, using toys or containers for which the child needs assistance, or modeling a silly or unusual play act., In most cases, the adult will have shared control over the materials, such that s/he can limit access as needed. These strategies are followed by a brief period of expectant waiting to give the child an opportunity to respond. The adult may use the as an opportunity to introduce a direct teaching episode. ==If the parent is actively interacting, give the SLP credit for communication temptations they coach the parent to provide.==

*Segments are 5 minutes or 10 minutes, use the corresponding numbers for each

1	2	3	4	5	N/A
The adult primarily uses unnatural means to get child communication (e.g. taking toys out of the child's hand, physically restricting the child's movement)	The adult creates clear opportunities for the child to communicate 1 time in 5 minutes.	The adult creates clear opportunities for the child to communicate 2-3 times in 5 minutes. ==If they do 3 CTs in 5 minutes, but of poor quality (e.g., if child is not interested in the temptation, or it's a poorly timed), rate a 3. If they are all high quality, rate a 4.==	The adult creates clear opportunities for the child to communicate 3-5 times in 5 minutes.	The adult creates clear opportunities for the child to communicate more than 5 times in 5 minutes.	The adult never uses clear communicative temptations.

EC Subtotal

 # N/A

Direct Teaching

___ **DT.1 Frequency of direct teaching episodes**

*The adult directs the child to demonstrate new or emerging skills by giving some kind of **instruction** or **cue**. There is at least a brief period of time between direct teaching episodes in which the child receives access to the reinforcer, and the adult leaves space for child initiations (i.e. if the adult continues to prompt without "ending the episode" it only counts as a single instance of direct teaching). The adult can introduce more teaching episodes for children who are highly motivated than for children who are not engaged. If the parent is actively interacting, give the SLP credit for direct teaching episodes they coach the parent to provide.*

Only count full direct teaching episodes (i.e. those with all of the following a) **instruction b) child **response/behavior** c) adult **response/reinforcement**). These do **not** have to be of good quality (quality is rated in the next item).*

*Segments are 5 minutes or 10 minutes, use the corresponding numbers for each

1	2	3	4	5	N/A
The adult completes direct teaching episodes 1 times in 5 minutes.	The adult completes direct teaching episodes 2 times in 5 minutes.	The adult completes direct teaching episodes 3 times in 5 minutes.	The adult completes direct teaching episodes 4 times in 5 minutes.	The adult completes direct teaching episodes more than 5 times in 5 minutes.	The adult does note complete any direct teaching episodes.

___ **DT.2 Quality of direct teaching episodes**

*The adult uses **high quality teaching strategies** throughout the direct teaching episodes. Quality indicators include:*
1. ***Clear**: When giving an instruction or prompt, the adult uses communication that is clear and developmentally-appropriate, such that it is clear how the child is expected to respond.*
2. ***Developmentally appropriate target**: teaching episodes target behaviors that are at or just above a child's current skill level.*
3. ***Motivating and relevant**: The adult teaches skills when the child is motivated, interested, and engaged in the activity. The child's interest may be indicated by reaching for materials, approaching the adult, making eye contact with the adult, looking at the materials, etc. The target behavior is logically related to the ongoing activity, and the adult embeds the teaching opportunity in the context of an ongoing activity.*
4. ***Supporting a correct response**: After initiating a direct teaching opportunity, if the child does not respond independently (but remains interested), the adult attempts to help the child respond correctly. This includes repeating the instruction, giving the child additional cues to respond, scaffolding the child's learning, or physically helping the child follow through. Over time (across several teaching episodes), the adult decreases support as a child learns a new skill.*
5. ***Providing contingent natural and social reinforcement**: Once the child provides a correct response (including when supported by the adult), the adult provides an immediate (i.e. within a few seconds) natural reward that is directly related to the child's response, and/or positive social reinforcement such as touching, verbal praise, or positive affect. Reasonable attempts to respond correctly, are rewarded when developmentally appropriate. If the child does not provide a response, the adult models the correct response.*

Only rate quality for DT episodes that only involve the SLP.

1	2	3	4	5	n/a
All direct teaching episodes are low quality (2 or fewer indicators). There are no high quality episodes	2 quality indicators are consistently used across direct teaching episodes (i.e. low quality). At least one higher quality episode is present	3 quality indicators are consistently used across direct teaching episodes OR about half the episodes are poor quality (2 or fewer indicators)	4 quality indicators are present within most direct teaching episodes. There are few (if any) low-quality episodes (2 or fewer indicators)	All of the quality indicators are present within nearly all direct teaching episodes. There are no low-quality episodes (2 or fewer indicators)	Adult received a score of NA on the previous item [DT. 1]. If DT episodes were administered by the parent *only*, do not rate them for quality.

DT Subtotal

 # NA

Segmenting Guidelines:

NDBI-Rated Segments:
- Only rate the NDBI on 5-minute segments when the SLP is actively playing with the child, including when the parent is also playing with the child.
    1. if SLP talks to parent for ≥1.5 minutes throughout a 5 minute segment, don't rate
    2. if SLP talks to parent for 30 consecutive seconds, don't rate
    3. SLP observing parent/child is not coded
    4. SLP talking to parent and not actively interacting with the child is not coded
- To create segments, watch the video and note timestamps for continuous 5 minute segments meeting this criteria. Child-directed intervention that is interrupted by SLP-caregiver conversation and does not add up to 5 minutes will not be included in a segment, as it may not be appropriate to code such short segments. So, for example, a video may look like:
    1. Minutes 0-2: greetings between the SLP and caregiver, not included in a coded segment
    2. Minutes 2-7: Child-directed intervention, coded
    3. Minutes 7-9.5: SLP-caregiver discussion, not included in a coded segment
    4. Minutes 9.5-13: Child-directed intervention for 1 minute followed by 3 minutes of discussion, not included in a coded segment
    5. Minutes 13-18: Child-directed intervention, coded
- Please check in with your training coder with any questions about segmenting.

References

Frost, KM, Brian J, Gengoux GW, et al. Identifying and measuring the common elements of naturalistic developmental behavioral interventions for autism spectrum disorder: Development of the NDBI-Fi. *Autism*. 2020;24(8):2285-2297. doi:10.1177/1362361320944011

Sone BJ, Kaat AJ, Roberts MY. Measuring parent strategy use in early intervention: Reliability and validity of the Naturalistic Developmental Behavioral Intervention Fidelity Rating Scale across strategy types. *Autism*. Published online May 24, 2021:13623613211015004. doi:10.1177/13623613211015003