

Supplemental Materials
Evaluation of an Intervention to Promote Positive Parenting

Child Affect Coding Rubric

Positive Affect*

*Bolded = necessary and sufficient. If there is more than one bolded descriptor within a mode, only one needs to be present to meet criteria for a particular level of affect.

+4 High Intensity Positive Affect	
Face	Outward laughter or giggling (Inward contained chuckles should not be scored as + 4)
Voice	Very enthusiastic and excited. Highly animated, pitched, positive/sing-songy tone. May talk at a markedly rapid rate or loud volume in a pleasant/excited manner.
Body	Behavioral indicators of excitement/joy (e.g., jumping, clapping, and cheering). Or display of physical affection stronger than a +3 (e.g. hug, kiss, etc.) Animated gestures.
+3 Moderate Intensity Positive Affect	
Face	Smiles with any eye involvement (sparkle or crinkles), or smiles with raised eyebrows. May include bright eyes and/or affectionate gaze. Includes chuckles – inward, briefer, and more contained than laughter.
Voice	May include somewhat high pitched, warm/pleasant/soft, or enthusiastic/moderately excited tone of voice. May talk at moderately rapid rate or louder volume in a pleasant/excited manner.
Body	Moderate physical affection (touch, pat on back). Somewhat animated gestures. Nodding. May include open body posture and leaning in.
+2 Low Intensity Positive Affect	
Face	Slight smile without eye involvement. Includes brief, ambiguous mouth or facial movements (i.e. smirks, twitches, broadening of the mouth, or other clear expressions that are not clearly smiles). Expressions of surprise (i.e., open mouth with raised eyebrows).
Voice	May include: Expressing interest through a slightly high pitched, warm/pleasant/soft tone of voice even in the absence of a clear smile. Includes humming.
Body*	Body should be somewhat engaged and not withdrawn or tense. May include leaning in or nodding.
* Body alone would not be sufficient	

<u>Neutral Affect</u>	
1 None/Neutral Affect	
No indicators of positive or negative affect. Neutral face, voice, and body. Includes coughs, sneezes, and yawns. Rate "1" if you cannot tell if an expression is positive or negative. Rule: May be making good eye contact but if no smile or warm/pleasant/upbeat tone of voice then rate as "1".	

Negative Affect*

*For all levels of NA, must show evidence of either anger or sadness or anxiety

-2 Low Intensity Negative Affect		
	Anger	Slight or vague look of anger. Brows slightly slanted or furrowed. Eyelids appear slightly tense, and/or eyes appear slightly hard or blank. Mouth may be straight, pursed, or slightly open as if gritting teeth.
	Sadness	Slight or vague look of sadness. Inside of the eyebrows are raised slightly. Lower eyelid may be slightly raised, and eyes may appear slightly downcast and/or droopy. Lip corners may be turned down slightly.
	Anxiety	Slight or vague look of being uncomfortable, anxious, worried, or concerned. Eyebrows are approximately straight and somewhat raised, and the inner corners of the brow are drawn together. Eyes may appear somewhat more open than normal, and tense (the upper eyelid is raised, and the lower lid is tense) Mild look of worry or concern. Mouth may be slightly open, and the lips may be tense and drawn back, or may include ambiguous mouth movements May include lip biting and pressed lips.
Voice	Anger	Slightly hostile, sarcastic, tense, or otherwise moderately negative tone of voice.
	Sadness	Slightly sad tone of voice. Soft tone of voice. Mild whining or sighing.
	Anxiety	Slightly concerned/worried tone of voice.
Body	Anger	Slight body tensing or crossed arms.
	Sadness	Slight body sadness (e.g., slight angling down of head or slump of shoulders).
	Anxiety	Slight body anxiety (e.g., minor fidgeting).

*Regarding "sarcasm," if tone of voice and face are suggesting -2 – then go with that.

-3 Moderate Intensity Negative Affect		
Face	Anger	Moderate look of anger. Same as for -2, but higher in intensity. May include raised cheeks or rolling eyes. Grimaces (gritted smiles with furrowed brow) and sneers also included.

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	Sadness	Moderate look of sadness. Same as for -2, but higher in intensity. Inner corners of eyebrows raised and may be drawn together. Eyes may crinkle with lower lid raised. May include bottom lip protruding as if pouting.
	Anxiety	Moderate look of anxiety. Same as for -2, but higher in intensity. May include: Tightening of lips, grimacing, or tense/non-angry mouth.
Voice	Anger	Same as for -2 but higher in intensity. May include: Frustrated sighs or raised voice (as indicated by increased volume paired with forcefulness).
	Sadness	Same as for -2 but higher in intensity.
	Anxiety	Same as for -2 but higher in intensity.
Body	Anger	Same as for -2 but higher in intensity. May include: Moderate body tensing (balled fists, tight gripping, little raise of the shoulders, neck tensing), head shaking, or frustrated gestures.
	Sadness	Same as for -2 but higher in intensity (e.g., noticeable drop of head or slump in shoulders)
	Anxiety	Same as for -2 but higher in intensity. May include: Tense or rigid posture. Rapid and repetitive movements (e.g., jiggling foot). Trembling hands, lips, or mouth.
-4 High Intensity Negative Affect		
Face	Anger	Marked look of anger. Same as for -3, but higher in intensity. Brows are slanted or furrowed, and cheeks may be raised, likely includes some bulging or wrinkling around the brows.
	Sadness	Marked look of sadness. Same as for -3, but higher in intensity. Lip corners are distinctly turned down and cheek area droops down. May include bottom lip shaking or crying.
	Anxiety	Marked look of anxiety or fear. Same as for -3, but higher in intensity. Marked look of worry, fear, or concern.
Voice	Anger	Same as for -3, but higher in intensity. May include: Yelling, loud “guff”, screaming, or otherwise high negativity.
	Sadness	Same as for -3, but higher in intensity. May include: Voice quavering or crying, very soft, slow, monotone, depressed voice, or intense whining or sighing.
	Anxiety	Same as for -3, but higher in intensity. Markedly anxious or fearful tone of voice. May include: Elevated voice tone, very frantic and rapid speech, or extreme stuttering or difficulty in speaking.

Body	Anger	Same as for -3, but higher in intensity. May include: Banging of fists, kicking, stomping, throwing/forceful tossing of objects/ materials, hitting self/mom, or forceful, threatening gestures.
	Sadness	Same as for -3, but higher in intensity. May include putting head down, in hands, or on table in a manner that conveys sadness. Obvious slump of body/shoulders.
	Anxiety	Same as for -3, but higher in intensity. May include tightening of lips, intense biting of the lip(s), putting hand to mouth, excessive fidgeting/restlessness, hard swallowing. Extreme cowering or flight behaviors.

Segments that could not be coded or rated

Not able to Code (U)	Face is partially or completely out of view due to face angle in the camera or hair in the face. Use this only when the child is out of view or looks away so the coder cannot see her face or any affect or clear, obvious bodily indicators (e.g., noticeably tense shoulder may be enough to support a negative code) AND you have no vocal cues to the emotion for at least 3 seconds. Includes being under the table. Uncodeable would end as soon as a codeable emotion (e.g., expression or tone) is observed. One should not try to guess state if face is partially or completely out of view due to face angle (i.e., less than profile – at least 1 eye and ½ of mouth) in the camera or hair in the face – UNLESS there is a clear expression (e.g., pronounced cheek raise)
Not Able to Rate (XX)	Use this when there are circumstances that violate the standards for the particular situation you are observing, such as when there are other people in the room or the child/mother pair is not following the essential instructions or any other ways in which the protocol is not being followed. Includes intentional facial obstruction (e.g., child uses prop to cover face) from camera. Also, use this category in case of any consumption - food or drink – when the item contacts the child's face or if the child is still engaged in the act of consumption (e.g., chewing).

<u>Guidelines</u>	
<ul style="list-style-type: none"> • Watch the entire interaction clip once before coding to get a feel for the interaction. 	
<ul style="list-style-type: none"> • Start and stop times for each video segment will be provided to you. Be sure to strictly adhere to these times in your coding. 	
<ul style="list-style-type: none"> • As you code, make notes of any questions or concerns you have about the coding. Bring these notes to the weekly coding meetings and let us know about them so we can discuss them. 	
<ul style="list-style-type: none"> • Always code with headphones. The sound is much clearer. 	
<ul style="list-style-type: none"> • Please don't consult with or discuss your coding file with another RA. Coding needs to be done independently to maintain the integrity of the process. 	
<ul style="list-style-type: none"> • Do not do all your coding (i.e., more than one video) in one sitting. 	
<ul style="list-style-type: none"> • If face, tone of voice, and behavior would suggest different codes, code with priority given to facial expression and tone of voice, then <i>secondarily</i> behavior or verbal content. 	
	<ul style="list-style-type: none"> ○ Behavior and content can be used to <i>clarify/support</i> a code but defer to facial expression and tone when inconsistent with behavior and content. For example, if a child is smiling and criticizing mom in a playful tone, this would be coded as a +2/3.
	<ul style="list-style-type: none"> ○ Behavior can be used to choose between codes of the same valence but different intensity (e.g., -2 or -3) OR when the face and tone are neutral [e.g., face/tone would indicate 1, but paired with intense behavior that would suggest a different code (+/-)]. For example, if a child throws down a toy in a markedly aggressive fashion (i.e., not casually) with a neutral face, this would be coded as a -3/4 (depending on the intensity of the action).
<ul style="list-style-type: none"> • For NA, code based on appropriateness of intensity for any of the emotions listed (i.e., lip biting with no eye movement or vocal indicators would be -2) – emotion categories are listed only for ease in identification and organization. 	
<ul style="list-style-type: none"> • "When a person is imitating another, such as when relating a story, still code the appropriate affect." (from FPPC, Stubbs, Crosby, Forgatch, & Capaldi, 1998; RS5). Similarly, if the child is addressing the camera/experimenters directly, still code the child's affect. 	
<ul style="list-style-type: none"> • When the child temporarily goes out of view for longer than 3 second – code as U <u>unless</u> you can accurately rate an emotion by other indicators (e.g., you can see strong emotion in part of 	

the body, or you can hear strong emotion in the voice) – then code affect accordingly. (adapted from RS5)

- When you are finished coding, review all your coding to make sure there are no gaps or other errors. To detect gaps, look to see that the start time on each line immediately follows the stop time on the previous line. This is an essential last step in your coding of each segment.

*In the rare case of a child whose natural resting mouth appears upturned (do not confuse this with someone who smiles most of the time), look for instances when the corners of the mouth are turned up in an even more pronounced manner to determine when s/he is smiling. On the other hand, if a child is smiling much of the time, all those times count as smiling.

*In the rare case of a child whose natural eyebrow shape appears furrowed (do not confuse this with someone who furrows their brows most of the time), look for instances when the brows are turned in an even more pronounced manner to determine when they are furrowing their brow. But as with smiles, if a child truly has furrowed brows much of the time, all those times count as having a furrowed brow.

Table S1*Correlations Among Parenting Composite Variables*

	Talk about the positive	Physical contact	Smiling/ Laughing	Active listening	Praise	Positive requests for change	Criticism
Talk about the positive	--						
Physical contact	0.014	--					
Smiling/Laughing	0.117	0.069	--				
Active listening	0.273**	0.118	0.245**	--			
Praise	0.258**	-0.006	0.009	0.264**	--		
Positive requests for change	0.076	0.091	0.01	0.042	0.107	--	
Criticism	-0.007	0.279**	0.103	0.026	0.038	0.031	--

Table S2*Hierarchical Multiple Regression Analyses Predicting Child Positive Affect at Time 2*

Model	Step	Block	Variables	ΔR^2	β	<i>B</i>	95% <i>CI</i>	
							<i>LL</i>	<i>UL</i>
1. Active Listening			(Control Variables)					
			Child PA T1	.17	.33	.33*	.06	.61
			Active Listening T1	.17	.14	.00	-.00	.00
		2	Active Listening T2	.07	.29	.00*	.00	.00
			Intervention Condition	.01	.09	.04	-.08	.15
		1	Child PA T1	.17	.33	.33*	.06	.61
			Active Listening T1	.17	.14	.00	-.00	.00
		2	Active Listening T2	.07	.29	.00*	.00	.00
			Intervention Condition	.01	.09	.04	-.08	.15
		4	Condition X AL T2	.02	-.59	-.00	-.00	.00
2. Talk about the Positive	1	1	Child PA T1	.15	.39	.40**	.13	.66
			Talk about the Positive T1	.15	.02	.00	-.04	.05
			Talk about the Positive T2	.00	-.06	-.01	-.05	.03
			Intervention Condition	.06	.26	.10*	.01	.19
		2	Child PA T1	.15	.39	.40**	.13	.66
			Talk about the Positive T1	.15	.02	.00	-.04	.05
			Talk about the Positive T2	.00	-.06	-.01	-.05	.03
			Intervention Condition	.06	.26	.01*	.01	.19
			Condition X TAP T2	.00	.07	.01	-.06	.08
3. Physical Contact	1	1	Child PA T1	.15	.39	.40*	.15	.65
			Physical Contact T1	.15	.02	.00	-.04	.05
			Physical Contact T2	.05	.22	.03	-.00	.07
			Intervention Condition	.03	.19	.07	-.02	.17
		2	Child PA T1	.15	.39	.40*	.15	.65
			Physical Contact T1	.15	.03	.01	-.04	.05
			Physical Contact T2	.05	.22	.03	-.00	.07
			Intervention Condition	.03	.19	.07	-.02	.17
			Condition X PC T2	.00	-.12	-.02	-.16	.12
4. Smiling/Laughing	1	1	Child PA T1	.16	.37	.38**	.11	.65
			Smiling/Laughing T1	.16	.05	.00	-.01	.02
		2	Smiling/Laughing T2	.17	.48	.02**	.01	.03
			Intervention Condition	.01	.12	.05	-.04	.13
		3						

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	2	1	Child PA T1	.16	.37	.38**	.11	.65
			Smiling/Laughing T1	.16	.05	.00	-.01	.02
		2	Smiling/Laughing T2	.17	.48	.02**	.01	.03
		3	Intervention Condition	.01	.12	.05	-.04	.13
		4	Condition X S/L T2	.00	.03	.00	-.02	.02
5. Praise	1	1	Child PA T1	.15	.38	.39**	.13	.66
			Praise T1	.15	.03	.01	-.04	.05
		2	Praise T2	.01	.11	.01	-.02	.05
		3	Intervention Condition	.05	.25	.10	-.00	.19
	2	1	Child PA T1	.15	.38	.39**	.13	.66
			Praise T1	.15	.03	.01	-.04	.05
		2	Praise T2	.01	.11	.01	-.02	.05
		3	Intervention Condition	.05	.25	.10	-.00	.19
		4	Condition X Praise T2	.00	.15	.02	-.05	.08
6. Positive Requests for Change (PRC)	1	1	Child PA T1	.19	.38	.39**	.15	.63
			PRC T1	.19	.19	.12	-.04	.22
		2	PRC T2	.03	-.19	-.13	-.29	.03
		3	Intervention Condition	.05	.24	.09*	.00	.18
		1	Child PA T1	.19	.38	.39**	.15	.63
			PRC T1	.19	.19	.12	-.03	.27
		2	PRC T2	.03	-.19	-.13	-.29	.03
		3	Intervention Condition	.05	.24	.09*	.00	.18
		4	Condition X PRC T2	.02	.40	.31	-.08	.69
7. Criticism	1	1	Child PA T1	.20	.43	.44**	.20	.69
			Criticism T1	.20	-.22	-.04	-.08	.00
		2	Criticism T2	.02	-.13	-.02	-.06	.02
		3	Intervention Condition	.05	.22	.08	-.01	.17
	2	1	Child PA T1	.20	.43	.44**	.20	.69
			Criticism T1	.20	-.22	-.04	-.08	.00
		2	Criticism T2	.02	-.13	-.02	-.06	.02
		3	Intervention Condition	.05	.22	.08	-.01	.17
		4	Condition X Criticism T2	.00	-.04	-.01	-.08	.07

Note. PA = Positive affect; T1 = Time 1; T2 = Time 2; AL = Active Listening; TAP = Talking about the Positive; S/L = Smiling/Laughing; PRC = Positive Requests for Change

* $p < .05$; ** $p < .01$

For changes from T1 to T3, the intervention condition by *Active Listening* interaction was significant, over and above mothers' *Active Listening* and child PA at T1 (see Table S3 below). The strength of the association between changes in *Active Listening* and changes in child PA was significantly different for mother-child dyads in the positive parenting condition versus the control intervention. The Johnson-Neyman technique showed that the relation between mothers' *Active Listening* and children's PA at T3 was significant for mothers in the control condition; that is, for mothers in the control intervention, greater *Active Listening* significantly predicted higher levels of child PA, $\Delta F(1,54) = 7.08, p = .01, \beta = -1.32, F = 5.23, p = .01$.

There were several significant main effects for positive parenting behaviors on changes in children's PA from T1 to T3, over and above mothers' positive parenting and children's PA at T1, regardless of intervention condition. Mothers' *Physical Contact* at T3 accounted for a significant amount of variance in children's positive affect, over and above mothers' *Physical Contact* and child PA at T1, $\Delta F(1,56) = 8.53, p = .01, f^2 = .40$, such that increases in *Physical Contact* from T1 to T3 significantly predicted increases in children's PA from T1 to T3, $\beta = .33, F = 7.56, p = .01$. Similarly, mothers' *Smiling/Laughing* at T3 accounted for a significant amount of the variance in children's PA at T3, over and above mothers' *Smiling/Laughing* and child PA at T1, $\Delta F(1,56) = 11.4, p = .00, f^2 = .44$; that is, increases in *Smiling/Laughing* from T1 to T3 significantly predicted increases in children's PA from T1 to T3, $\beta = .45, F = 8.27, p = .00$. Finally, mothers' *Praise* at T3 accounted for a significant amount of variance in children's PA at T3, over and above mothers' *Praise* and child PA at T1, $\Delta F(1,56) = 5.08, p = .03, f^2 = .31$; increases in *Praise* significantly predicted increases in children's PA from T1 to T3, $\beta = .26, F = 5.87, p = .03$. Associations between changes in other parenting behaviors and changes in children's PA were not significant.

Table S3*Hierarchical Multiple Regression Analyses Predicting Child Positive Affect at Time 3*

Model	Step	Block	Variables	ΔR^2	β	B	95% CI	
							LL	UL
1. Active Listening	1	1	(Control Variables)					
			Child PA T1					
			Active Listening T1					
			Active Listening T3					
	2	2	Intervention Condition					
		3	Condition X AL T3					
		1	Child PA T1	0.17	0.39	0.36**	0.08	0.71
			Active Listening T1	0.17	0.00	0.08	0.00	0.00
		2	Active Listening T3	0.07	0.00	0.29*	0.00	0.00
		3	Intervention Condition	0.00	0.02	0.05	-0.09	0.13
2. Talk about the Positive (TAP)	1	1	Child PA T1	0.15	0.39	0.40**	0.13	0.66
			Talk about the Positive T1	0.15	0.02	0.00	-0.04	0.05
			Talk about the Positive T2	0.00	-0.06	-0.01	-0.05	0.03
			Intervention Condition	0.06	0.26	0.10*	0.01	0.19
	2	1	Child PA T1	0.16	0.40	0.44**	0.16	0.73
			Talk about the Positive T1	0.16	0.00	0.00	-0.05	0.05
		2	Talk about the Positive T3	0.02	0.13	0.02	-0.02	0.07
		3	Intervention Condition	0.02	0.16	0.07	-0.04	0.17
		4	Condition X TAP T3	0.04	-0.46	-0.07	-0.16	0.02
3. Physical Contact	1	1	Child PA T1	0.15	0.39	0.40*	0.15	0.65
			Physical Contact T1	0.15	0.02	0.00	-0.04	0.05
			Physical Contact T2	0.05	0.22	0.03	-0.00	0.07
			Intervention Condition	0.03	0.19	0.07	-0.02	0.17
	2	1	Child PA T1	0.18	0.41	0.45**	0.18	0.71
			Physical Contact T1	0.18	-0.13	-0.03	-0.08	0.02
		2	Physical Contact T3	0.11	0.33	0.07**	0.02	0.11
		3	Intervention Condition	0.02	0.15	0.06	-0.03	0.15
		4	Condition X PC T3	0.00	0.04	0.01	-0.09	0.11
1. Smiling/ Laughing	1	1	Child PA T1	0.17	0.38	0.42**	0.13	.71
			Smiling/Laughing T1	0.17	0.06	0.00	-0.01	0.02
			Smiling/Laughing T3	0.14	0.45	0.03**	0.01	0.05
			Intervention Condition	0.00	0.06	0.02	-0.08	0.12

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2. Praise	2	1	Child PA T1	0.17	0.38	0.42**	0.13	0.26
			Smiling/Laughing T1	0.17	0.06	0.00	-0.01	0.03
		2	Smiling/Laughing T3	0.14	0.45	0.03**	0.01	0.05
		3	Intervention Condition	0.00	0.06	0.02	-0.08	0.03
		4	Condition X S/L T3	0.00	-0.08	0.00	-0.04	0.03
	1	1	Child PA T1	0.15	0.38	0.39**	0.13	0.66
			Praise T1	0.15	0.03	0.01	-0.04	0.05
		2	Praise T2	0.01	0.11	0.01	-0.02	0.05
		3	Intervention Condition	0.05	0.25	0.10	-0.00	0.19
	2	1	Child PA T1	0.17	0.38	0.41**	0.13	0.69
			Praise T1	0.17	0.09	0.02	-0.03	0.07
		2	Praise T3	0.07	0.26	0.05*	0.01	0.08
		3	Intervention Condition	0.01	0.11	0.04	-0.07	0.16
		4	Condition X Praise T3	0.03	-0.56	-0.07	-0.17	0.03
6. Positive Requests for Change (PRC)	1	1	Child PA T1	0.19	0.38	0.39**	0.15	0.63
			PRC T1	0.19	0.19	0.12	-0.04	0.22
		2	PRC T2	0.03	-0.19	-0.13	-0.29	0.03
		3	Intervention Condition	0.05	0.24	0.09*	0.00	0.18
	2	1	Child PA T1	0.18	0.39	0.43**	0.17	0.70
			PRC T1	0.08	0.12	0.07	-0.09	0.24
		2	PRC T3	0.00	-0.00	-0.00	-0.13	0.13
		3	Intervention Condition	0.03	0.18	0.07	-0.03	0.18
		4	Condition X PRC T3	0.01	0.34	0.18	-0.23	0.60
7. Criticism	1	1	Child PA T1	0.20	0.43	0.44**	0.20	0.69
			Criticism T1	0.20	-0.22	-0.04	-0.08	0.00
		2	Criticism T2	0.02	-0.13	-0.02	-0.06	0.02
		3	Intervention Condition	0.05	0.22	0.08	-0.01	0.17
	2	1	Child PA T1	0.17	0.42	0.46**	0.19	0.73
			Criticism T1	0.17	-0.07	-0.02	-0.07	0.04
		2	Criticism T2	0.00	0.07	0.01	-0.03	0.06
		3	Intervention Condition	0.03	0.19	0.08	-0.02	0.18
		4	Condition X Criticism T3	0.00	-0.07	-0.01	-0.10	0.08

Note. PA = Positive affect; T1 = Time 1; T3 = Time 3; AL = Active Listening; TAP = Talking about the Positive; S/L = Smiling/Laughing; PRC = Positive Requests for Change

* $p < .05$; ** $p < .01$

Figure 1S

Repeated Measures ANOVA Examining Changes in Transitional Probabilities over Time.

