

**Interaction Ratings Scale**  
Grade 2/Year 3  
Fast Track Project Technical Report  
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SAS Scoring Program

**Citation**

*Instrument*

Crnic, K. and Greenberg, M. (1990). *Minor parenting stresses with young children*. Child Development, 61, 1628-1637.

*Report*

Rains, C. (2002). *Interaction Ratings Scale* (Fast Track Project Technical Report). Available from the Fast Track Project website: <http://www.fasttrackproject.org>

McMahon, R., Lengua, L., Hyoshin, K., and Jones, K. (1997). *Interaction Ratings Scale* (Fast Track Project Technical Report). Seattle, Washington: University of Washington.

**Data Sources**

*Raw:* O3C

*Scored:* IRS3

**I. Scale Description**

In this adapted version of the Interaction ratings Scale (Crnic and Greenberg, 1990), the child observer completes a total of 16 global ratings of the mother and child with respect to gratification, sensitivity, and involvement. The Fast Track Project uses this measure as part of the Parent-Child Interaction Task during the summer interview. The IRS is completed after each of 4 tasks that the parent and child complete together: Child's Game, Parent's Game, Lego Task, and Clean-Up.

**II. Report Sample**

These exploratory analyses were conducted with the first cohort on the control sample (n=155) and on the normative sample (n=387, 463 with overlap) from the third year of administration of this study, excluding the treatment subjects. 50 students were missing the entire measure. Of these, 16 (5 from Durham, 2 from Nashville, 3 from Pennsylvania, and 6 from Washington) were from the control sample and 42 were from the normative sample (8 from Durham, 14 from Nashville, 7 from Pennsylvania, and 13 from Washington). Several of the students missing the entire measure were from the overlap group.

### III. Scaling

Each item is rated on a global 5-point system, with 1 representing a low or negative value and 5 representing a high or positive value; a score of 3 was considered average. For each of the 4 tasks, parents and children are rated on several qualities. For the Child's Game, there are 5 items: mother's gratification, child's gratification, mother's sensitivity, mother's involvement, and child's involvement. For the Parent's Game, there are 4 items: mother's and child's gratification and mother's and child's involvement. For the Lego Task, there are 5 items: mother's gratification, child's gratification, mother's sensitivity, mother's involvement, and child's involvement. Finally, for the Clean-Up task, the mother's and child's involvement is rated.

Next, two subscales are then created: mother's warmth to the child and the child's warmth to the mother. The first subscale is created by calculating the mean of six items, all relating to the mother: gratification, sensitivity, and involvement during the Child's Game and gratification for the Parent's Game and gratification and sensitivity during the Lego Task (items O3C1, O3C3, O3C4, O3C6, O3C10, and O3C12). The second subscale is created by calculating the mean of four items, all relating to the child: gratification and involvement during the Child's Game and gratification for both the Parent's Game and the Lego Task (O3C2, O3C5, O3C7, and O3C11).

Cronbach's alphas were calculated for each of the subscales.

	Normative Sample	Control Sample
Parental Warmth (IRS3WAR)	.90	.92
Child Warmth (IRS3CWA)	.81	.85

Both of these subscales indicated a very acceptable level of reliability for both the normative and the control samples.

### IV. Differences between Groups

A series of t-tests indicated significant differences for both subscales, with the normative sample scoring higher than the control sample for both scales. This would indicate that parents and children in families in the normative sample were more likely than those in the control sample to display warmth toward each other. In addition, three items not included in either subscale indicated significant differences between the samples, *Parent Game Involvement-Mother*, *Parent Game Involvement-Child*, and *Clean-Up Involvement-Mother*, with the normative sample scoring higher than the control sample for all three items. Finally, two items not included in a subscale approached significance, *Lego Task-Child* ( $p = 0.08$ ) and *Clean-Up Involvement-Child* ( $p = 0.06$ ), with the normative sample scoring higher than the control sample. As with the subscale results for the t-tests, t-tests on the items not included on a scale indicate that parents and children in families from the normative sample were more likely than those in the control sample to display warmth toward each other.

Interaction Ratings Scale--Scales

Variable	Normative Sample		Control Sample		DF	t Value	Pr >  t
	Mean	Std Dev	Mean	Std Dev			
Child Warmth (IRS3CWA)	3.86	0.80	3.54	0.90	411	-3.65	.0003
Parental Warmth (IRS3WAR)	3.93	0.79	3.66	0.89	411	-3.19	.0015

Interaction Ratings Scale--Items

Variable	Normative Sample		Control Sample		DF	t Value	Pr >  t
	Mean	Std Dev	Mean	Std Dev			
Parent Game Involvement-Mother (O3C8)	4.15	1.07	3.83	1.20	411	-2.74	0.0064
Parent Game Involvement-Child (O3C9)	4.07	1.09	3.74	1.22	411	-2.75	0.0063
Lego Task-Mother (O3C13)	4.29	1.02	4.17	1.10	411	-1.13	0.2599
Lego Task-Child (O3C14)	4.20	1.10	4.00	1.08	411	-1.77	0.0776
Clean-Up Involvement-Mother (O3C15)	3.94	1.08	3.68	1.14	406	-2.31	0.0215
Clean-Up Involvement-Child (O3C16)	3.93	1.14	3.71	1.09	406	-1.88	0.0607

**V. Recommendations for Use**

Analysts should note that the distributions for both of the subscales and for most of the items in both the normative and control samples were fairly normal. Users of this measure should feel confident in its reliability and its usability.

**VI. Item and Scale Means and SD's**

IRS Items Normative Sample Year 3

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
O3C1	Childs Game: 1. Gratification (M)	345	3.690	0.988	1.000	5.000
O3C2	Childs Game: 2. Gratification (C)	345	3.942	0.919	1.000	5.000
O3C3	Childs Game: 3. Sensitivity (M)	345	3.907	1.016	1.000	5.000
O3C4	Childs Game: 4. Involvement (M)	345	3.835	1.168	1.000	5.000
O3C5	Childs Game: 5. Involvement (C)	345	3.829	1.209	1.000	5.000
O3C6	Parents Game: 6. Gratification (M)	345	3.823	0.986	1.000	5.000
O3C7	Parents Game: 7. Gratification (C)	345	3.910	0.989	1.000	5.000
O3C8	Parents Game: 8. Involvement (M)	345	4.064	1.121	1.000	5.000
O3C9	Parents Game: 9. Involvement (C)	345	3.977	1.141	1.000	5.000
O3C10	Lego Task: 10. Gratification (M)	345	3.545	1.031	1.000	5.000
O3C11	Lego Task: 11. Gratification (C)	345	3.765	0.985	1.000	5.000
O3C12	Lego Task: 12. Sensitivity (C)	345	3.841	1.006	1.000	5.000
O3C13	Lego Task: 13. Involvement (M)	345	4.249	1.046	1.000	5.000
O3C14	Lego Task: 14. Involvement (C)	345	4.165	1.089	1.000	5.000
O3C15	Lego Task: 15. Involvement (M)	340	3.871	1.097	1.000	5.000
O3C16	Lego Task: 16. Involvement (C)	340	3.876	1.125	1.000	5.000

IRS Items Control Sample Year 3

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
O3C1	Childs Game: 1. Gratification (M)	139	3.496	0.995	1.000	5.000
O3C2	Childs Game: 2. Gratification (C)	139	3.770	0.935	1.000	5.000
O3C3	Childs Game: 3. Sensitivity (M)	139	3.619	1.038	1.000	5.000
O3C4	Childs Game: 4. Involvement (M)	139	3.626	1.211	1.000	5.000
O3C5	Childs Game: 5. Involvement (C)	139	3.626	1.247	1.000	5.000
O3C6	Parents Game: 6. Gratification (M)	139	3.633	1.078	1.000	5.000
O3C7	Parents Game: 7. Gratification (C)	139	3.712	1.009	1.000	5.000
O3C8	Parents Game: 8. Involvement (M)	139	3.827	1.197	1.000	5.000
O3C9	Parents Game: 9. Involvement (C)	139	3.741	1.218	1.000	5.000
O3C10	Lego Task: 10. Gratification (M)	139	3.331	1.086	1.000	5.000
O3C11	Lego Task: 11. Gratification (C)	139	3.518	1.086	1.000	5.000
O3C12	Lego Task: 12. Sensitivity (C)	139	3.540	1.051	1.000	5.000
O3C13	Lego Task: 13. Involvement (M)	139	4.165	1.101	1.000	5.000
O3C14	Lego Task: 14. Involvement (C)	139	4.000	1.077	1.000	5.000
O3C15	Lego Task: 15. Involvement (M)	137	3.679	1.137	1.000	5.000
O3C16	Lego Task: 16. Involvement (C)	137	3.708	1.092	1.000	5.000

IRS Subscale Normative Sample Year 3

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
IRS3WAR	Y3 Parental Warmth	345	3.773	0.847	1.000	5.000
IRS3CWA	Y3 Child Warmth to Mother	345	3.862	0.823	1.500	5.000

IRS Subscale Control Sample Year 3

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
IRS3WAR	Y3 Parental Warmth	139	3.541	0.905	1.000	5.000
IRS3CWA	Y3 Child Warmth to Mother	139	3.656	0.890	1.500	5.000

**VII. Item and Scale Correlations**

IRS Items Report Sample Year 3

Pearson Correlation Coefficients Prob >  r  under H0: Rho=0 Number of Observations									
	O3C1	O3C2	O3C3	O3C4	O3C5	O3C6	O3C7	O3C8	O3C9
<b>O3C1</b> Childs Game: 1. Gratification (M)	1.000 0.000 413	0.772 0.000 413	0.756 0.000 413	0.722 0.000 413	0.660 0.000 413	0.673 0.000 413	0.524 0.000 413	0.440 0.000 413	0.424 0.000 413
<b>O3C2</b> Childs Game: 2. Gratification (C)	0.772 0.000 413	1.000 0.000 413	0.642 0.000 413	0.591 0.000 413	0.658 0.000 413	0.542 0.000 413	0.594 0.000 413	0.396 0.000 413	0.458 0.000 413
<b>O3C3</b> Childs Game: 3. Sensitivity (M)	0.756 0.000 413	0.642 0.000 413	1.000 0.000 413	0.720 0.000 413	0.635 0.000 413	0.582 0.000 413	0.479 0.000 413	0.483 0.000 413	0.451 0.000 413
<b>O3C4</b> Childs Game: 4. Involvement (M)	0.722 0.000 413	0.591 0.000 413	0.720 0.000 413	1.000 0.000 413	0.829 0.000 413	0.568 0.000 413	0.437 0.000 413	0.448 0.000 413	0.404 0.000 413
<b>O3C5</b> Childs Game: 5. Involvement (C)	0.660 0.000 413	0.658 0.000 413	0.635 0.000 413	0.829 0.000 413	1.000 0.000 413	0.537 0.000 413	0.488 0.000 413	0.408 0.000 413	0.474 0.000 413
<b>O3C6</b> Parents Game: 6. Gratification (M)	0.673 0.000 413	0.542 0.000 413	0.582 0.000 413	0.568 0.000 413	0.537 0.000 413	1.000 0.000 413	0.806 0.000 413	0.690 0.000 413	0.674 0.000 413
<b>O3C7</b> Parents Game: 7. Gratification (C)	0.524 0.000 413	0.594 0.000 413	0.479 0.000 413	0.437 0.000 413	0.488 0.000 413	0.806 0.000 413	1.000 0.000 413	0.625 0.000 413	0.729 0.000 413
<b>O3C8</b> Parents Game: 8. Involvement (M)	0.440 0.000 413	0.396 0.000 413	0.483 0.000 413	0.448 0.000 413	0.408 0.000 413	0.690 0.000 413	0.625 0.000 413	1.000 0.000 413	0.871 0.000 413
<b>O3C9</b> Parents Game: 9. Involvement (C)	0.424 0.000 413	0.458 0.000 413	0.451 0.000 413	0.404 0.000 413	0.474 0.000 413	0.674 0.000 413	0.729 0.000 413	0.871 0.000 413	1.000 0.000 413
<b>O3C10</b> Lego Task: 10. Gratification (M)	0.628 0.000 413	0.495 0.000 413	0.545 0.000 413	0.501 0.000 413	0.471 0.000 413	0.646 0.000 413	0.534 0.000 413	0.525 0.000 413	0.502 0.000 413
<b>O3C11</b> Lego Task: 11. Gratification (C)	0.540 0.000 413	0.577 0.000 413	0.440 0.000 413	0.380 0.000 413	0.421 0.000 413	0.559 0.000 413	0.565 0.000 413	0.430 0.000 413	0.490 0.000 413
<b>O3C12</b> Lego Task: 12. Sensitivity (C)	0.514 0.000 413	0.379 0.000 413	0.621 0.000 413	0.446 0.000 413	0.434 0.000 413	0.512 0.000 413	0.404 0.000 413	0.440 0.000 413	0.399 0.000 413
<b>O3C13</b> Lego Task: 13. Involvement (M)	0.471 0.000 413	0.284 0.000 413	0.464 0.000 413	0.439 0.000 413	0.390 0.000 413	0.462 0.000 413	0.302 0.000 413	0.442 0.000 413	0.390 0.000 413
<b>O3C14</b> Lego Task: 14. Involvement (C)	0.450 0.000 413	0.355 0.000 413	0.443 0.000 413	0.402 0.000 413	0.494 0.000 413	0.475 0.000 413	0.406 0.000 413	0.466 0.000 413	0.525 0.000 413
<b>O3C15</b> Lego Task: 15. Involvement (M)	0.497 0.000 408	0.385 0.000 408	0.470 0.000 408	0.438 0.000 408	0.421 0.000 408	0.497 0.000 408	0.420 0.000 408	0.467 0.000 408	0.422 0.000 408
<b>O3C16</b> Lego Task: 16. Involvement (C)	0.462 0.000 408	0.400 0.000 408	0.466 0.000 408	0.406 0.000 408	0.483 0.000 408	0.482 0.000 408	0.431 0.000 408	0.422 0.000 408	0.470 0.000 408

Pearson Correlation Coefficients Prob >  r  under H0: Rho=0 Number of Observations							
	O3C10	O3C11	O3C12	O3C13	O3C14	O3C15	O3C16
<b>O3C1</b> Childs Game: 1. Gratification (M)	0.628 0.000 413	0.540 0.000 413	0.514 0.000 413	0.471 0.000 413	0.450 0.000 413	0.497 0.000 408	0.462 0.000 408
<b>O3C2</b> Childs Game: 2. Gratification (C)	0.495 0.000 413	0.577 0.000 413	0.379 0.000 413	0.284 0.000 413	0.355 0.000 413	0.385 0.000 408	0.400 0.000 408
<b>O3C3</b> Childs Game: 3. Sensitivity (M)	0.545 0.000 413	0.440 0.000 413	0.621 0.000 413	0.464 0.000 413	0.443 0.000 413	0.470 0.000 408	0.466 0.000 408
<b>O3C4</b> Childs Game: 4. Involvement (M)	0.501 0.000 413	0.380 0.000 413	0.446 0.000 413	0.439 0.000 413	0.402 0.000 413	0.438 0.000 408	0.406 0.000 408
<b>O3C5</b> Childs Game: 5. Involvement (C)	0.471 0.000 413	0.421 0.000 413	0.434 0.000 413	0.390 0.000 413	0.494 0.000 413	0.421 0.000 408	0.483 0.000 408
<b>O3C6</b> Parents Game: 6. Gratification (M)	0.646 0.000 413	0.559 0.000 413	0.512 0.000 413	0.462 0.000 413	0.475 0.000 413	0.497 0.000 408	0.482 0.000 408
<b>O3C7</b> Parents Game: 7. Gratification (C)	0.534 0.000 413	0.565 0.000 413	0.404 0.000 413	0.302 0.000 413	0.406 0.000 413	0.420 0.000 408	0.431 0.000 408
<b>O3C8</b> Parents Game: 8. Involvement (M)	0.525 0.000 413	0.430 0.000 413	0.440 0.000 413	0.442 0.000 413	0.466 0.000 413	0.467 0.000 408	0.422 0.000 408
<b>O3C9</b> Parents Game: 9. Involvement (C)	0.502 0.000 413	0.490 0.000 413	0.399 0.000 413	0.390 0.000 413	0.525 0.000 413	0.422 0.000 408	0.470 0.000 408
<b>O3C10</b> Lego Task: 10. Gratification (M)	1.000 0.000 413	0.734 0.000 413	0.740 0.000 413	0.608 0.000 413	0.579 0.000 413	0.516 0.000 408	0.452 0.000 408
<b>O3C11</b> Lego Task: 11. Gratification (C)	0.734 0.000 413	1.000 0.000 413	0.572 0.000 413	0.414 0.000 413	0.543 0.000 413	0.418 0.000 408	0.420 0.000 408
<b>O3C12</b> Lego Task: 12. Sensitivity (C)	0.740 0.000 413	0.572 0.000 413	1.000 0.000 413	0.601 0.000 413	0.570 0.000 413	0.451 0.000 408	0.424 0.000 408
<b>O3C13</b> Lego Task: 13. Involvement (M)	0.608 0.000 413	0.414 0.000 413	0.601 0.000 413	1.000 0.000 413	0.770 0.000 413	0.481 0.000 408	0.379 0.000 408
<b>O3C14</b> Lego Task: 14. Involvement (C)	0.579 0.000 413	0.543 0.000 413	0.570 0.000 413	0.770 0.000 413	1.000 0.000 413	0.448 0.000 408	0.522 0.000 408
<b>O3C15</b> Lego Task: 15. Involvement (M)	0.516 0.000 408	0.418 0.000 408	0.451 0.000 408	0.481 0.000 408	0.448 0.000 408	1.000 0.000 408	0.791 0.000 408
<b>O3C16</b> Lego Task: 16. Involvement (C)	0.452 0.000 408	0.420 0.000 408	0.424 0.000 408	0.379 0.000 408	0.522 0.000 408	0.791 0.000 408	1.000 0.000 408

IRS Subscales Report Sample Year 3

<b>Pearson Correlation Coefficients, N = 413</b> <b>Prob &gt;  r  under H0: Rho=0</b>		
	<b>IRS3WAR</b>	<b>IRS3CWA</b>
<b>IRS3WAR</b> <b>Y3 Parental Warmth</b>	1.000	0.838 0.000
<b>IRS3CWA</b> <b>Y3 Child Warmth to Mother</b>	0.838 0.000	1.000

```

*****
*
* PROGRAM:          IRS.SAS
*
* PROGRAMMER:      Unknown (original not commented)
*
* PURPOSE:         Create a SAS dataset containing derived
*                  variables of the PCIT Interaction Rating Scale
*
* MODIFIED:        11/27/01 Patrick Malone to run off aggregated
*                  datasets.
*****;

**Fill out information in next section for data processed **
**in this run.                **;

    %let source=Observer;
    %let src=o;
    %let inst=c;
    %let longname=PCITinteractionratingsscale;
    %let scoredname=IRS;

**Enter high-level path (e.g., 1:\datasets) **;

    %let path=1:\datasets\observer\pcitinteractionratingsscale\u;

**Enter year of data collection **;

    %let yr=2;

**Enter variable which must be present to retain record (typically
interviewer id) **;

    %let screen=screen;

**Specify Lib for input datasets **;

    Libname SASIN "1:\datasets\observer\pcitinteractionratingsscale\U";
    libname addendum "1:\datasets\observer\coderimpressionsinventoryadd\U";

**Specify Lib for output datasets **;

    Libname SASOUT "d:\work\interaction rating scales\year 2";

***** DO NOT MODIFY BELOW THIS LINE *****;

data SASOUT.&scoredname.&yr.;
  set SASIN.&src.&yr.&inst;

  if &screen = '' then &screen = rater;
  if &screen = '' then &screen = intid;
  if &screen = '' then &screen = o&yr.cint;

  if &screen ne '';

  IF (o&yr.c1 =0) THEN o&yr.c1 =.;
  IF (o&yr.c2 =0) THEN o&yr.c2 =.;
  IF (o&yr.c3 =0) THEN o&yr.c3 =.;
  IF (o&yr.c4 =0) THEN o&yr.c4 =.;

```



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IF (o&yr.c5 =0) THEN o&yr.c5 =.;
IF (o&yr.c6 =0) THEN o&yr.c6 =.;
IF (o&yr.c7 =0) THEN o&yr.c7 =.;
IF (o&yr.c8 =0) THEN o&yr.c8 =.;
IF (o&yr.c9 =0) THEN o&yr.c9 =.;
IF (o&yr.c10 =0) THEN o&yr.c10 =.;
IF (o&yr.c11 =0) THEN o&yr.c11 =.;
IF (o&yr.c12 =0) THEN o&yr.c12 =.;
IF (o&yr.c13 =0) THEN o&yr.c13 =.;
IF (o&yr.c14 =0) THEN o&yr.c14 =.;
IF (o&yr.c15 =0) THEN o&yr.c15 =.;
IF (o&yr.c16 =0) THEN o&yr.c16 =.;
IF (o&yr.c1 =9) THEN o&yr.c1 =.;
IF (o&yr.c2 =9) THEN o&yr.c2 =.;
IF (o&yr.c3 =9) THEN o&yr.c3 =.;
IF (o&yr.c4 =9) THEN o&yr.c4 =.;
IF (o&yr.c5 =9) THEN o&yr.c5 =.;
IF (o&yr.c6 =9) THEN o&yr.c6 =.;
IF (o&yr.c7 =9) THEN o&yr.c7 =.;
IF (o&yr.c8 =9) THEN o&yr.c8 =.;
IF (o&yr.c9 =9) THEN o&yr.c9 =.;
IF (o&yr.c10 =9) THEN o&yr.c10 =.;
IF (o&yr.c11 =9) THEN o&yr.c11 =.;
IF (o&yr.c12 =9) THEN o&yr.c12 =.;
IF (o&yr.c13 =9) THEN o&yr.c13 =.;
IF (o&yr.c14 =9) THEN o&yr.c14 =.;
IF (o&yr.c15 =9) THEN o&yr.c15 =.;
IF (o&yr.c16 =9) THEN o&yr.c16 =.;

IF n(o&yr.c1, o&yr.c3, o&yr.c4, o&yr.c6, o&yr.c10, o&yr.c12) ge 3
then irs&yr.war=mean(o&yr.c1, o&yr.c3, o&yr.c4, o&yr.c6, o&yr.c10, o&yr.c12);

IF n(o&yr.c2, o&yr.c5, o&yr.c7, o&yr.c11) ge 2
then irs&yr.cwa=mean(o&yr.c2, o&yr.c5, o&yr.c7, o&yr.c11);

LABEL irs&yr.war="Y1 Parental Warmth"
      irs&yr.cwa=" Y1 Child Warmth to Mother";
KEEP TCID SITE COHORT irs&yr.war irs&yr.cwa o&yr.c1-o&yr.c16;
RUN;
```