

Behavioral Coding System
Grade 1/Year 2
Fast Track Project Technical Report
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SAS Scoring program

Citations

Instruments

Forehand, R. & McMahon, R. (1981). *Helping the noncompliant child: A clinician's guide to parent training*. New York: Guilford Press.

Conduct Problems Prevention Research Group (CPPRG). (1993). *Parent-child interaction task: observational data collection manuals*. Unpublished manuscript, University of Washington, Seattle, Fast Track Project.

Reports

Rains, C. (2002). *Behavioral Coding System* (Fast Track Project Technical Report) [On-line]. Available: <http://www.fasttrackproject.org/>

McMahon, R., Lengua, L., Kim, H., & Jones, K. (1997). *Behavioral Coding System* (Fast Track Project Technical Report). Seattle, Washington: University of Washington.

Data Sources

Raw: O2E

Scored: BCS2

I. Scale Description

This measure is an adapted version of the Behavioral Coding System (BCS; Forehand & McMahon, 1981) and consists of 45 items. The BCS is employed during the Parent-Child Interaction Task (PCIT), which occurs in the home during the summer interview. The child interviewer serves as the observer and the parent interviewer organizes the session. The PCIT is comprised of four separate segments, which occur in the following sequence: Child's Game (free play, 5 minutes), Parent's Game (parent-directed play, 5 minutes), Lego Task (5 minutes), and Clean-Up (3 minutes). Both parent behaviors and child behaviors are recorded during each task by the child interviewer; the amount of time for each task and the total time are also recorded and used in the scoring of the subscales.

II. Report Sample

These analyses were conducted with the first cohort on the high-risk control sample (n=155) and on the normative sample (n=387, N=463 with overlap) from the second year of administration of this study.

Thirty-two students were missing the entire measure. Of these, 8 were control students (4 from Durham and 4 from Washington) and 25 were normative students (3 from Durham, 7 from Nashville, 3 from Pennsylvania, and 12 from Washington). Several of the students missing the entire measure were from the overlap sample.

III. Scaling

The Behavioral Coding System is used to analyze the Parent-Child Interaction Task. Three parent behaviors (total commands, positive attention, and negative attention) and two child behaviors (compliance and noncompliance) are recorded sequentially in 30-second intervals for each task. In addition, there is an interval-sampling measure of child inappropriate or disruptive behavior (whining, biting, profanity, etc.). Subscale scores are the proportion of the totals of each rated behavior across the four tasks divided by the total length of the session. Also, one other score, called alpha commands, is based on the total number of commands a parent gives, such as an order, suggestion, question or rule to a child and it is appropriate and feasible for the child to make a motoric or verbal response; for example, a parent may say, “Play with these blocks” (Conduct Problems Prevention Research Group, 1993); this number is then summed across the four tasks and divided by the total length of the session, as are the other subscale scores. Finally, beta commands, commands for which there was no opportunity for compliance or were if/then statements or were vague, were also counted for each task.

As a result there are seven subscales, four for the parent and three for the child: *Total Commands*, *Total Alpha Commands*, *Total Positive Attention*, *Total Negative Attention*, *Total Compliance*, *Total Noncompliance*, and *Total Disruptive Behavior*.

IV. Differences Between Groups

A series of t-tests indicated significant differences between the normative and high-risk control samples for four of the subscales: *Total Commands*, *Total Negative Attention*, *Total Noncompliance*, and *Total Disruptive Behavior*. For all of these scales, the high-risk control sample scored higher than the normative sample.

| Comparison of Means for Normative and High-Risk Control for BCS Y2 | | | | | | | | |
|--|---------------------------|-----------|---------|-------------------|---------|-----|---------|---------|
| Variable | Label | Normative | | High-Risk Control | | DF | t Value | Pr > t |
| | | Mean | Std Dev | Mean | Std Dev | | | |
| BCS2TOT | Total Commands | 2.29 | 1.21 | 2.79 | 1.36 | 429 | 3.90 | 0.0001 |
| BCS2ALP | Total Alpha Commands | 1.24 | 0.66 | 1.33 | 0.61 | 429 | 1.37 | 0.1721 |
| BCS2POS | Total Positive Attention | 0.65 | 0.60 | 0.61 | 0.62 | 429 | -0.53 | 0.5948 |
| BCS2NEG | Total Negative Attention | 0.04 | 0.07 | 0.09 | 0.16 | 428 | 4.99 | <.0001 |
| BCS2COM | Total Compliance | 1.17 | 0.66 | 1.22 | 0.59 | 429 | 0.76 | 0.4488 |
| BCS2NON | Total Noncompliance | 0.06 | 0.10 | 0.11 | 0.17 | 429 | 3.48 | 0.0005 |
| BCS2DIS | Total Disruptive Behavior | 0.04 | 0.11 | 0.09 | 0.18 | 429 | 3.62 | 0.0003 |

V. Recommendations for Use

Analysts should note that three subscales had a fairly normal distribution: *Total Commands*, *Total Alpha Commands*, and *Total Compliance*. All of the other subscales were positively skewed for both the normative and high-risk control samples.

VI. Item and Scale Means and SD's

BCS Items Normative Sample Year 2

| Variable | Label | N | Mean | Std Dev | Minimum | Maximum |
|----------|-------------------------------------|-----|--------|---------|---------|---------|
| O2E1 | TOTAL COMMANDS FOR CHILDS GAME | 362 | 4.608 | 5.271 | 0.000 | 46.000 |
| O2E2 | TOTAL COMMANDS FOR PARENTS GAME | 362 | 9.751 | 8.049 | 0.000 | 47.000 |
| O2E3 | TOTAL COMMANDS FOR LEGO TASK | 362 | 21.050 | 14.529 | 0.000 | 71.000 |
| O2E4 | TOTAL COMMANDS FOR CLEAN-UP | 362 | 7.210 | 5.143 | 0.000 | 35.000 |
| O2E5 | TOTAL COMMANDS TOTAL | 362 | 42.610 | 22.580 | 0.000 | 142.000 |
| O2E6 | ALPHA COMMANDS FOR CHILDS GAME | 362 | 2.320 | 2.309 | 0.000 | 11.000 |
| O2E7 | ALPHA COMMANDS FOR PARENTS GAME | 362 | 4.881 | 4.183 | 0.000 | 23.000 |
| O2E8 | ALPHA COMMANDS FOR LEGO TASK | 362 | 11.157 | 7.903 | 0.000 | 41.000 |
| O2E9 | ALPHA COMMANDS FOR CLEAN-UP | 362 | 4.072 | 2.555 | 0.000 | 17.000 |
| O2E10 | ALPHA COMMANDS TOTAL | 362 | 22.431 | 11.569 | 1.000 | 67.000 |
| O2E16 | POSITIVE ATTENTION FOR CHILDS GAME | 362 | 2.489 | 2.768 | 0.000 | 13.000 |
| O2E17 | POSITIVE ATTENTION FOR PARENTS GAME | 362 | 2.619 | 3.282 | 0.000 | 25.000 |
| O2E18 | POSITIVE ATTENTION FOR LEGO TASK | 362 | 4.580 | 4.843 | 0.000 | 27.000 |
| O2E19 | POSITIVE ATTENTION FOR CLEAN-UP | 362 | 1.688 | 2.529 | 0.000 | 12.000 |
| O2E20 | POSITIVE ATTENTION TOTAL | 362 | 11.425 | 10.960 | 0.000 | 63.000 |
| O2E21 | NEGATIVE ATTENTION FOR CHILDS GAME | 362 | 0.157 | 0.494 | 0.000 | 4.000 |
| O2E22 | NEGATIVE ATTENTION FOR PARENTS GAME | 362 | 0.370 | 1.290 | 0.000 | 16.000 |
| O2E23 | NEGATIVE ATTENTION FOR LEGO TASK | 362 | 0.265 | 0.866 | 0.000 | 9.000 |
| O2E24 | NEGATIVE ATTENTION FOR CLEAN-UP | 362 | 0.122 | 0.436 | 0.000 | 3.000 |
| O2E25 | NEGATIVE ATTENTION TOTAL | 361 | 0.911 | 2.084 | 0.000 | 19.000 |
| O2E26 | COMPLIANCE FOR CHILDS GAME | 362 | 2.157 | 2.193 | 0.000 | 11.000 |
| O2E27 | COMPLIANCE FOR PARENTS GAME | 362 | 4.566 | 4.065 | 0.000 | 23.000 |
| O2E28 | COMPLIANCE FOR LEGO TASK | 362 | 10.649 | 7.841 | 0.000 | 41.000 |
| O2E29 | COMPLIANCE FOR CLEAN-UP | 362 | 3.740 | 2.457 | 0.000 | 17.000 |
| O2E30 | COMPLIANCE COMMANDS TOTAL | 362 | 21.036 | 11.347 | 0.000 | 66.000 |
| O2E31 | NONCOMPLIANCE FOR CHILDS GAME | 362 | 0.174 | 0.542 | 0.000 | 4.000 |
| O2E32 | NONCOMPLIANCE FOR PARENTS GAME | 362 | 0.337 | 0.782 | 0.000 | 6.000 |
| O2E33 | NONCOMPLIANCE FOR LEGO TASK | 362 | 0.489 | 1.132 | 0.000 | 12.000 |
| O2E34 | NONCOMPLIANCE FOR CLEAN-UP | 362 | 0.343 | 0.944 | 0.000 | 9.000 |
| O2E35 | NONCOMPLIANCE COMMANDS TOTAL | 362 | 1.343 | 2.228 | 0.000 | 16.000 |
| O2E36 | INAPPROPR BEHAVIOR FOR CHILDS GAME | 362 | 0.108 | 0.593 | 0.000 | 8.000 |
| O2E37 | INAPPROPR BEHAVIOR FOR PARENTS GAME | 362 | 0.276 | 0.691 | 0.000 | 5.000 |
| O2E38 | INAPPROPR BEHAVIOR FOR LEGO TASK | 362 | 0.213 | 0.846 | 0.000 | 9.000 |
| O2E39 | INAPPROPR BEHAVIOR FOR CLEAN-UP | 362 | 0.279 | 0.824 | 0.000 | 6.000 |
| O2E40 | INAPPROPR BEHAVIOR TOTAL | 362 | 0.876 | 2.049 | 0.000 | 21.000 |
| O2E41 | TIME FOR CHILDS GAME | 362 | 5.000 | 0.000 | 5.000 | 5.000 |
| O2E42 | TIME FOR PARENTS GAME | 362 | 5.000 | 0.000 | 5.000 | 5.000 |
| O2E43 | TIME FOR LEGO TASK | 362 | 5.000 | 0.000 | 5.000 | 5.000 |
| O2E44 | TIME FOR CLEAN-UP | 362 | 2.777 | 0.428 | 1.000 | 3.000 |
| O2E45 | TIME TOTAL | 362 | 17.777 | 0.428 | 16.000 | 18.000 |

BCS Items Control Sample Year 2

| Variable | Label | N | Mean | Std Dev | Minimum | Maximum |
|----------|-------------------------------------|-----|--------|---------|---------|---------|
| O2E1 | TOTAL COMMANDS FOR CHILDS GAME | 147 | 5.497 | 6.284 | 0.000 | 46.000 |
| O2E2 | TOTAL COMMANDS FOR PARENTS GAME | 147 | 11.245 | 9.033 | 0.000 | 38.000 |
| O2E3 | TOTAL COMMANDS FOR LEGO TASK | 147 | 24.633 | 15.520 | 0.000 | 62.000 |
| O2E4 | TOTAL COMMANDS FOR CLEAN-UP | 147 | 7.939 | 5.501 | 0.000 | 27.000 |
| O2E5 | TOTAL COMMANDS TOTAL | 147 | 49.361 | 23.948 | 5.000 | 142.000 |
| O2E6 | ALPHA COMMANDS FOR CHILDS GAME | 147 | 2.605 | 2.457 | 0.000 | 15.000 |
| O2E7 | ALPHA COMMANDS FOR PARENTS GAME | 147 | 5.163 | 4.568 | 0.000 | 22.000 |
| O2E8 | ALPHA COMMANDS FOR LEGO TASK | 147 | 11.728 | 7.554 | 0.000 | 38.000 |
| O2E9 | ALPHA COMMANDS FOR CLEAN-UP | 147 | 4.075 | 2.450 | 0.000 | 14.000 |
| O2E10 | ALPHA COMMANDS TOTAL | 147 | 23.490 | 10.855 | 0.000 | 67.000 |
| O2E16 | POSITIVE ATTENTION FOR CHILDS GAME | 147 | 2.211 | 2.753 | 0.000 | 14.000 |
| O2E17 | POSITIVE ATTENTION FOR PARENTS GAME | 147 | 1.952 | 2.602 | 0.000 | 12.000 |
| O2E18 | POSITIVE ATTENTION FOR LEGO TASK | 147 | 4.946 | 5.116 | 0.000 | 27.000 |
| O2E19 | POSITIVE ATTENTION FOR CLEAN-UP | 147 | 1.544 | 2.411 | 0.000 | 11.000 |
| O2E20 | POSITIVE ATTENTION TOTAL | 147 | 10.905 | 10.990 | 0.000 | 52.000 |
| O2E21 | NEGATIVE ATTENTION FOR CHILDS GAME | 147 | 0.313 | 0.738 | 0.000 | 4.000 |
| O2E22 | NEGATIVE ATTENTION FOR PARENTS GAME | 147 | 0.619 | 1.792 | 0.000 | 16.000 |
| O2E23 | NEGATIVE ATTENTION FOR LEGO TASK | 147 | 0.483 | 1.184 | 0.000 | 9.000 |
| O2E24 | NEGATIVE ATTENTION FOR CLEAN-UP | 147 | 0.238 | 0.645 | 0.000 | 3.000 |
| O2E25 | NEGATIVE ATTENTION TOTAL | 147 | 1.639 | 2.949 | 0.000 | 19.000 |
| O2E26 | COMPLIANCE FOR CHILDS GAME | 147 | 2.367 | 2.329 | 0.000 | 15.000 |
| O2E27 | COMPLIANCE FOR PARENTS GAME | 147 | 4.735 | 4.459 | 0.000 | 20.000 |
| O2E28 | COMPLIANCE FOR LEGO TASK | 147 | 11.102 | 7.422 | 0.000 | 38.000 |
| O2E29 | COMPLIANCE FOR CLEAN-UP | 147 | 3.578 | 2.233 | 0.000 | 14.000 |
| O2E30 | COMPLIANCE COMMANDS TOTAL | 147 | 21.571 | 10.482 | 1.000 | 66.000 |
| O2E31 | NONCOMPLIANCE FOR CHILDS GAME | 147 | 0.265 | 0.676 | 0.000 | 4.000 |
| O2E32 | NONCOMPLIANCE FOR PARENTS GAME | 147 | 0.422 | 0.883 | 0.000 | 5.000 |
| O2E33 | NONCOMPLIANCE FOR LEGO TASK | 147 | 0.701 | 1.563 | 0.000 | 12.000 |
| O2E34 | NONCOMPLIANCE FOR CLEAN-UP | 147 | 0.517 | 1.143 | 0.000 | 7.000 |
| O2E35 | NONCOMPLIANCE COMMANDS TOTAL | 147 | 1.905 | 2.945 | 0.000 | 16.000 |
| O2E36 | INAPPROPR BEHAVIOR FOR CHILDS GAME | 147 | 0.231 | 0.794 | 0.000 | 5.000 |
| O2E37 | INAPPROPR BEHAVIOR FOR PARENTS GAME | 147 | 0.565 | 1.007 | 0.000 | 5.000 |
| O2E38 | INAPPROPR BEHAVIOR FOR LEGO TASK | 147 | 0.442 | 1.325 | 0.000 | 8.000 |
| O2E39 | INAPPROPR BEHAVIOR FOR CLEAN-UP | 147 | 0.449 | 1.166 | 0.000 | 6.000 |
| O2E40 | INAPPROPR BEHAVIOR TOTAL | 147 | 1.667 | 3.299 | 0.000 | 21.000 |
| O2E41 | TIME FOR CHILDS GAME | 147 | 5.000 | 0.000 | 5.000 | 5.000 |
| O2E42 | TIME FOR PARENTS GAME | 147 | 5.000 | 0.000 | 5.000 | 5.000 |
| O2E43 | TIME FOR LEGO TASK | 147 | 5.000 | 0.000 | 5.000 | 5.000 |
| O2E44 | TIME FOR CLEAN-UP | 147 | 2.716 | 0.491 | 1.000 | 3.000 |
| O2E45 | TIME TOTAL | 147 | 17.716 | 0.491 | 16.000 | 18.000 |

BCS Subscales Normative Sample Year 2

| Variable | Label | N | Mean | Std Dev | Minimum | Maximum |
|----------|---------------------------|-----|-------|---------|---------|---------|
| BCS2TOT | Total Commands | 362 | 2.401 | 1.280 | 0.000 | 8.353 |
| BCS2ALP | Total Alpha Commands | 362 | 1.263 | 0.652 | 0.056 | 3.722 |
| BCS2POS | Total Positive Attention | 362 | 0.643 | 0.616 | 0.000 | 3.500 |
| BCS2NEG | Total Negative Attention | 361 | 0.051 | 0.117 | 0.000 | 1.056 |
| BCS2COM | Total Compliance | 362 | 1.185 | 0.640 | 0.000 | 3.667 |
| BCS2NON | Total Noncompliance | 362 | 0.075 | 0.125 | 0.000 | 0.941 |
| BCS2DIS | Total Disruptive Behavior | 362 | 0.049 | 0.114 | 0.000 | 1.167 |

BCS Subscales Control Sample Year 2

| Variable | Label | N | Mean | Std Dev | Minimum | Maximum |
|----------|---------------------------|-----|-------|---------|---------|---------|
| BCS2TOT | Total Commands | 147 | 2.788 | 1.357 | 0.278 | 8.353 |
| BCS2ALP | Total Alpha Commands | 147 | 1.326 | 0.612 | 0.000 | 3.722 |
| BCS2POS | Total Positive Attention | 147 | 0.613 | 0.616 | 0.000 | 2.889 |
| BCS2NEG | Total Negative Attention | 147 | 0.092 | 0.165 | 0.000 | 1.056 |
| BCS2COM | Total Compliance | 147 | 1.219 | 0.593 | 0.056 | 3.667 |
| BCS2NON | Total Noncompliance | 147 | 0.107 | 0.166 | 0.000 | 0.941 |
| BCS2DIS | Total Disruptive Behavior | 147 | 0.093 | 0.184 | 0.000 | 1.167 |

VII. Subscale Correlations

BCS Subscales Report Sample Year 2

| Pearson Correlation Coefficients Prob > r under H0: Rho=0 Number of Observations | | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------|
| | BCS2TOT | BCS2ALP | BCS2POS | BCS2NEG | BCS2COM | BCS2NON | BCS2DIS |
| BCS2TOT TOTAL COMMANDS | 1.000 0.000 431 | 0.756 0.000 431 | 0.298 0.000 431 | 0.283 0.000 430 | 0.738 0.000 431 | 0.164 0.001 431 | 0.194 0.000 431 |
| BCS2ALP TOTAL ALPHA COMMANDS | 0.756 0.000 431 | 1.000 0.000 431 | 0.323 0.000 431 | 0.180 0.000 430 | 0.974 0.000 431 | 0.182 0.000 431 | 0.017 0.724 431 |
| BCS2POS TOTAL POSITIVE ATTENTION | 0.298 0.000 431 | 0.323 0.000 431 | 1.000 0.000 431 | 0.055 0.251 430 | 0.330 0.000 431 | 0.027 0.578 431 | 0.048 0.321 431 |
| BCS2NEG TOTAL NEGATIVE ATTENTION | 0.283 0.000 430 | 0.180 0.000 430 | 0.055 0.251 430 | 1.000 0.000 430 | 0.113 0.020 430 | 0.371 0.000 430 | 0.309 0.000 430 |
| BCS2COM TOTAL COMPLIANCE | 0.738 0.000 431 | 0.974 0.000 431 | 0.330 0.000 431 | 0.113 0.020 430 | 1.000 0.000 431 | -0.015 0.755 431 | -0.085 0.077 431 |
| BCS2NON TOTAL NONCOMPLIANCE | 0.164 0.001 431 | 0.182 0.000 431 | 0.027 0.578 431 | 0.371 0.000 430 | -0.015 0.755 431 | 1.000 0.000 431 | 0.512 0.000 431 |
| BCS2DIS TOTAL DISRUPTIVE BEHAVIOR | 0.194 0.000 431 | 0.017 0.724 431 | 0.048 0.321 431 | 0.309 0.000 430 | -0.085 0.077 431 | 0.512 0.000 431 | 1.000 0.000 431 |