

Arts Enrichment and Cortisol for Children Growing Up in Poverty

Jessa Malatesta, MA, Tarrell Davis, MEd, Eleanor Brown, PhD,
Jean-Phillipe Laurenceau, PhD

Acknowledgments

- ▶ Settlement Music School
- ▶ Philadelphia Head Start preschools
- ▶ National Endowment for the Arts (NEA) Research: Art Works Grant Award
- ▶ WCU College of Arts and Sciences Support and Development Award (CASSDA)
- ▶ Early Childhood Cognition and Emotions Laboratory (ECCEL) at West Chester University
- ▶ West Chester University research assistants



Poverty and Child Development

- ▶ Income poverty and correlated stressors
- ▶ Timing and duration of poverty



Head Start

- ▶ Model program
- ▶ Collaboration with Settlement Music School's Kaleidoscope Preschool Arts Enrichment Program



Settlement Music School



Kaleidoscope Arts Enrichment Program



Accreditations



pennsylvania

KEYSTONE STARS

OFFICE OF CHILD DEVELOPMENT AND EARLY LEARNING



naeyc[®]

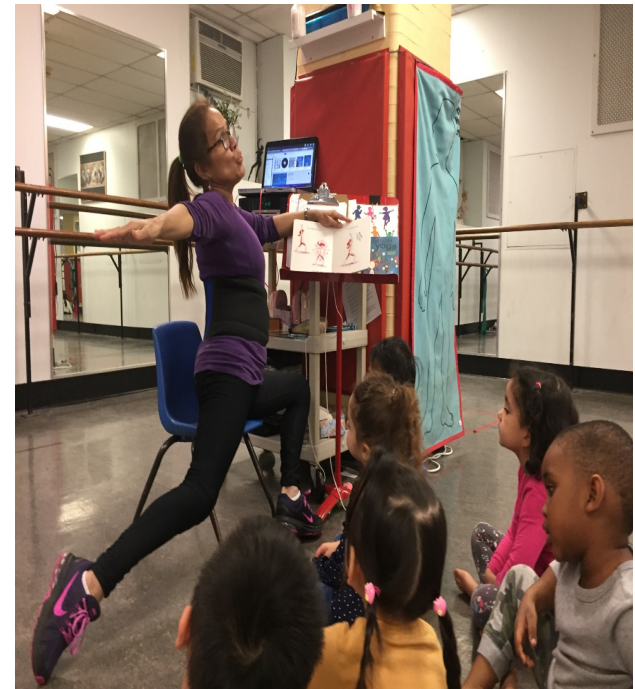
Accreditation



Visual Art



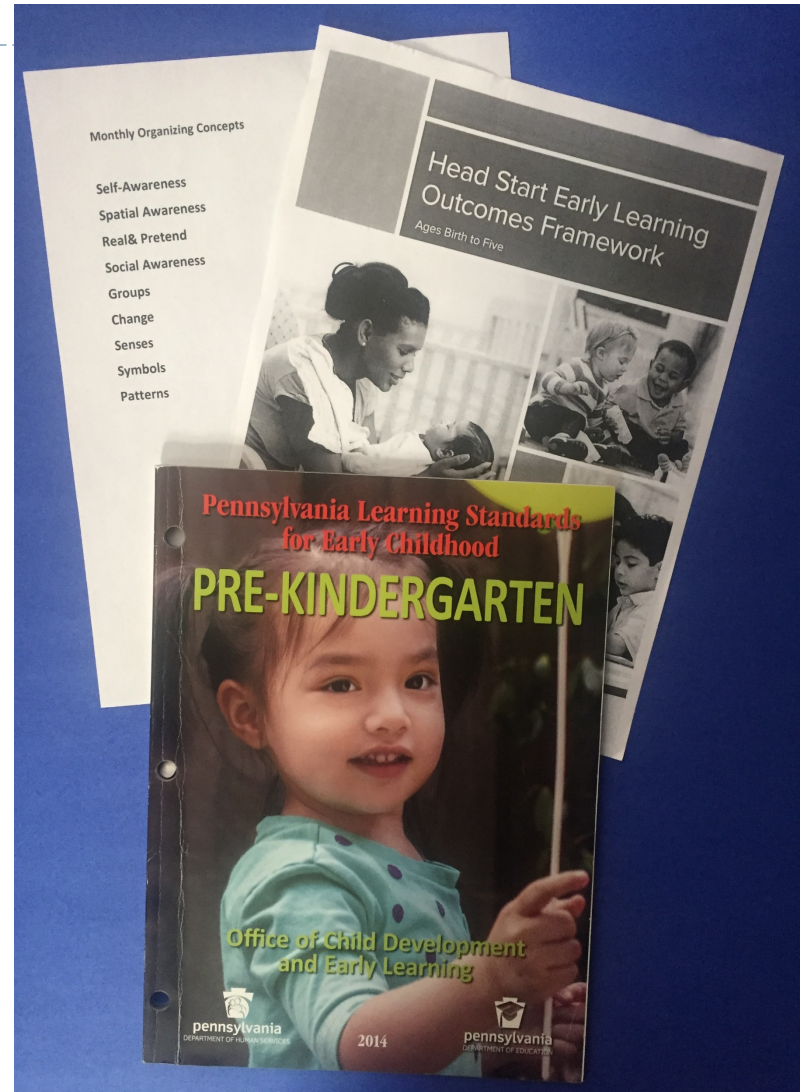
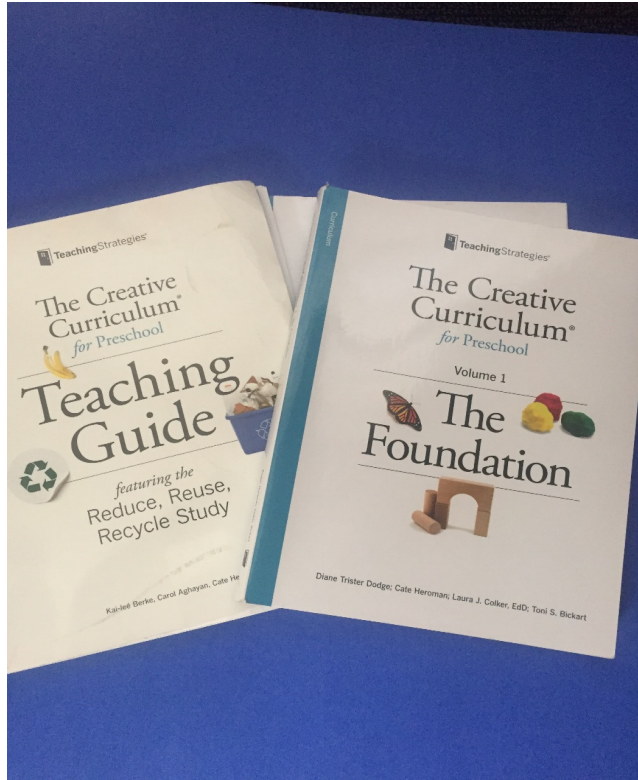
Creative Movement



Music



Curriculum



Screenings and Assessments

Work Sampling Online - Login Page 2 of 3

**Settlement Music School
Child Observation**

Child's Name _____ DOB _____ OR _____

Social/Emotional **Cognitive**
Signs of Self-Responsibility for Self and Others, the Social Behavior Learning and Problem Solving, Logical Thinking, Reasoning and Creative Thinking

Date _____

Four-Year-Old Child Data Sheet for the BRIGANCE® Preschool Screen-II

Done of _____ Year _____ Month _____ Day _____
 Screening _____ School/Program _____ Settlement Music Sch. S _____
 Birth date _____ Teacher/ _____
 Age _____ Example _____

Items	C. Scoring	Number of Correct Responses	Point Value
1. Color Recognition —Match colored pictures with the same color as the one on the left. 2. Letter Recognition —Only gives 2 points. 1. Letter name —A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z. 2. Sound —A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z.	Discontinue after 3 in a row incorrect.	x	2 points each
3. Figure Recognition —Match the figure with the same shape as the one on the left. 4. Shape Recognition —Match the shape with the same shape as the one on the left.	Discontinue after 3 in a row incorrect.	x	1 point each
5. Classification —Sort items by color, shape, or size. 6. Classification—Form and Opposite Letters —Match the letter with the opposite letter. 7. Classification—Form and Opposite Letters —Match the letter with the opposite letter.	Discontinue after 3 in a row incorrect.	x	1 point each
8. Motor Skills —Copy the letter.	Discontinue after 3 in a row incorrect.	x	2 points each

ASQ:SE
 Ages & Stages Questionnaire® Social-Emotional
 A Parent-Completed, Child-Monitoring System for Social-Emotional Behaviors
 By Jane Squires, Dana Bricker, & Elizabeth Thorpy
 with assistance from Suzanne Rockswold, Maure Robinson, Derek, & Younghee Kim
 Copyright © 2002 by Paul H. Brookes Publishing Co.

**36 Month/3 Year
Questionnaire**
 (For children ages 33 through 41 months)

Important Points to Remember:

- Please return this questionnaire by _____.
- If you have any questions or concerns about your child or about this questionnaire, please call: _____.
- Thank you and please look forward to filling out another ASQ:SE questionnaire in _____ months.

ASQ:SE

Settlement Music School Visual Art Checklist for 3-6 year old:
 Curriculum Content: Color Mixing, Line, Point, Stroke, Shape, Color, Form, Space, Texture, Impressionism
 Standards: Creative Arts, EFL Language Literacy, Science, Math, Approaches to Learning, Personal/Social Skills, Small Motor, Visual/Motor, Cognitive, Social/Emotional

Settlement Music School Dance/Creative Movement Checklist for 3-6 year old:
 Curriculum Content: Body Awareness, Movement Shape, Location/Non-Location, Movement, Timing, Movement with Others, Use of Props, Impressionism
 Standards: Creative Arts, EFL Language Literacy, Science, Math, Approaches to Learning, Personal/Social Skills, Large and Small Motor, Visual/Motor, Cognitive, Social/Emotional

Settlement Music School Music Checklist for 3-6 year olds:
 Curriculum Content: Auditory Awareness, Beat, Rhythm, Pitch, Volume, Form, Meter, Tempo, Impressionism
 Standards: Creative Arts, EFL Language Literacy, Science, Math, Approaches to Learning, Personal/Social Skills, Small Motor, Auditory, Visual/Motor, Cognitive, Social/Emotional

Settlement Music School Early Learning Curriculum Checklist for 3-6 year old:
 Curriculum Content: Creative Arts, EFL Language Literacy, Science, Math, Approaches to Learning, Personal/Social Skills, Large and Small Motor, Visual/Motor, Cognitive, Social/Emotional

Name: _____ Class: _____ Year: _____ (P or Sp) _____

Assign Number for frequency/ability/behavior as observed:
 0—Not introduced, 1—Rarely, 2—Sometimes, 3—Frequently, 4—Consistently, 5—Mastered/Skill too basic for level

Beat/Rhythm: Math	Literacy EFL Language: Phonemic awareness	Literacy: Language (verbal)	Math/Science
Able to maintain steady beat on or with body Alternate claps, pats with the feet Plays percussion instruments with steady beat Initiates movement charts, rhythmic patterns Responds to differences in musical form Recognizes differences in meter (duplet, triplet)	Speaks with clear articulation, voice placement Identifies/creates rhyming words Asks and answers questions: individually, in group Recognizes alphabet and counts by rote Uses language for joining, sequencing, etc. Reads/follows simple story events in sequence Follows three-part directions Uses words to express physical/social/emotional needs	Speaks in sentences of three or more words with basic grammatical structure Responds to directions for location/topped Associates number/quantity accurately to 5 Names items, geometric shapes Groups by attribute (quantity, shape) Sorts/arranges in order by attribute (smaller to larger to last) Forms groups/alternates 3-part pattern Describes/compares relationships of quantity, separates/combines part to whole	Experiments/changes variables/combinations shapes Associates number/quantity accurately to 5 Names items, geometric shapes Groups by attribute (quantity, shape) Sorts/arranges in order by attribute (smaller to larger to last) Forms groups/alternates 3-part pattern Describes/compares relationships of quantity, separates/combines part to whole
Auditory Awareness: Language/ Literacy/Science Starts and stops on cue Distinguishes sound from silence Experiments with vocal sound Compares instruments according to sound they make (louder) Recognizes differences in pitch (high, low) Initiates combinations of sounds, notes, values, notes vocally or instrumentally Approximates melodic singing Sings on pitch Recognizes differences in tonality (major, minor)	Approaches to Learning: Personal/Social Learns routine quickly Prefers specific musical activities Likes to observe others perform Participates readily/takes leadership Does not distract others Makes transitions independently Expresses feelings in words Can be redirected	Literacy - Writing and Reading Copies patterns/patterns, Rhythmic speech Articulates beginning/ending consonants of words Knows front and back of book, prefers to look at book "right side up" from front to back Names/voices more than 10 letters of the alphabet Reads own name, first names of friends Sight vocabulary Writes letter shapes/strings/ floating letters/ linear printing Copies/writes first name/ other words Names/writes number symbols Matches number symbols to number words Reads/echoes Compositions: Illustrates familiar story/ creates story with 2 parts or more Uses familiar diction in dramatic play Follows narrative/ Creates personal narrative ("I" stories)	Cultural/ Social Learning Separates from parent easily/ consistently Accepts counterdirection from others Chooses activities independently Shows distress infrequently Shows concern for others, joint in laughter Resolves conflicts with limited intervention Learns daily routine quickly Makes transitions independently Eats most food offered Eats with fork/spoon, shows hand performance, self serves food/drink

Parent Signature: _____ Date: _____

© ASQ Assessment System/Screening Checklist for 3-6

Teachers



Initial Study of School Readiness

Brown, Benedett, & Armistead (2010)

▶ **Within Settlement's arts preschool**

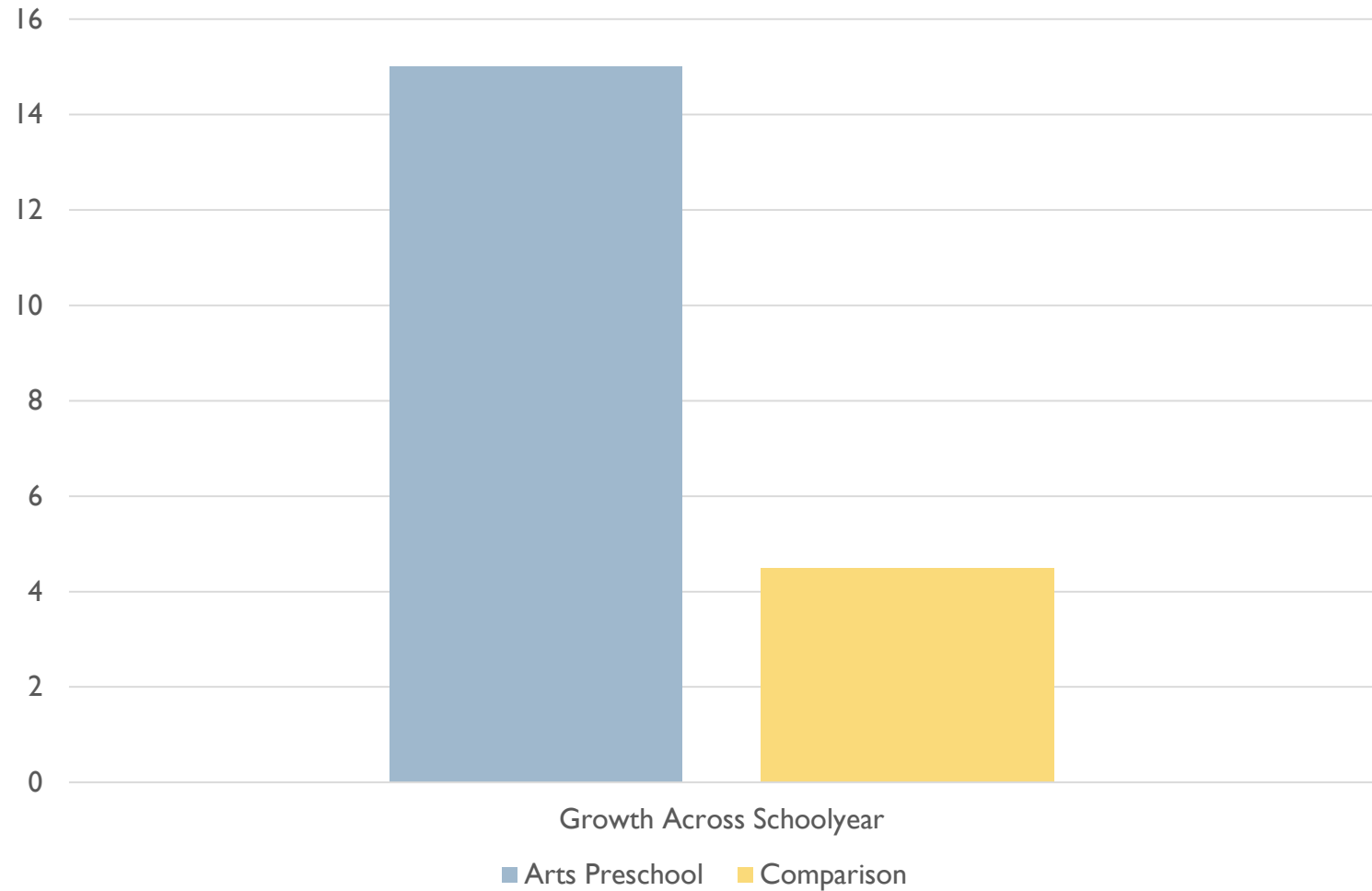
- ▶ Curriculum-based checklists
 - ▶ No evidence of achievement gap
 - ▶ No significant effect of developmental level

▶ **Between arts preschool and comparison**

- ▶ Peabody Picture Vocabulary Test (PPVT)
 - ▶ 3X growth for children at arts preschool



Peabody Picture Vocabulary Test (PPVT)



Study of Preschool Emotions

Brown & Sax (2013)

▶ **Within Settlement's arts preschool**

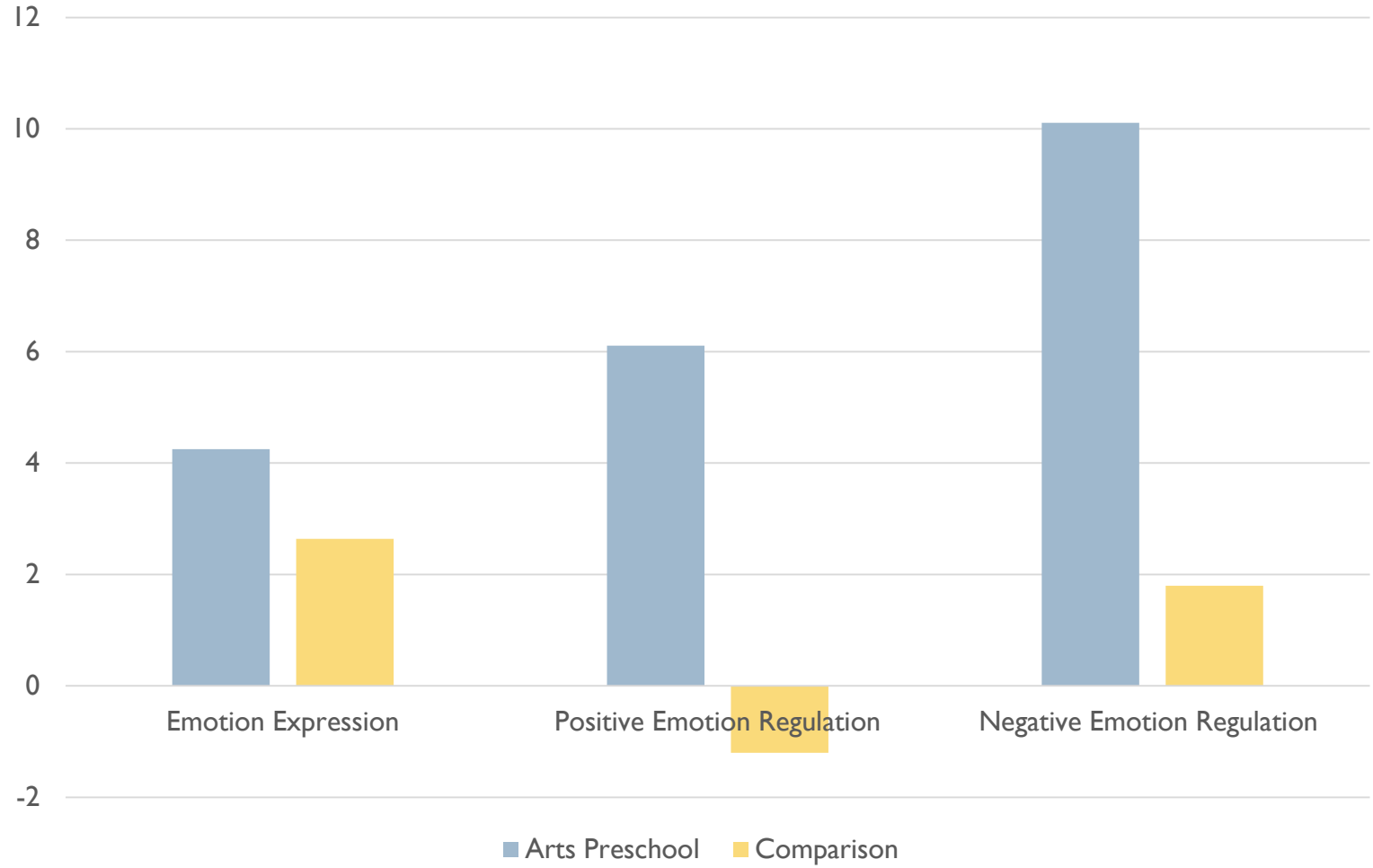
- ▶ Affex system for observational coding of emotion expression
 - ▶ Greater interest, happiness, and pride in arts classes

▶ **Between arts preschool and comparison**

- ▶ Affex system for observational coding of emotion expression (Izard)
 - ▶ Greater interest, happiness, and pride at arts preschool
- ▶ Teacher ratings on Emotion Regulation Checklist (Shields & Cicchetti)
 - ▶ Greater growth in positive and negative emotion regulation



Preschool Emotions



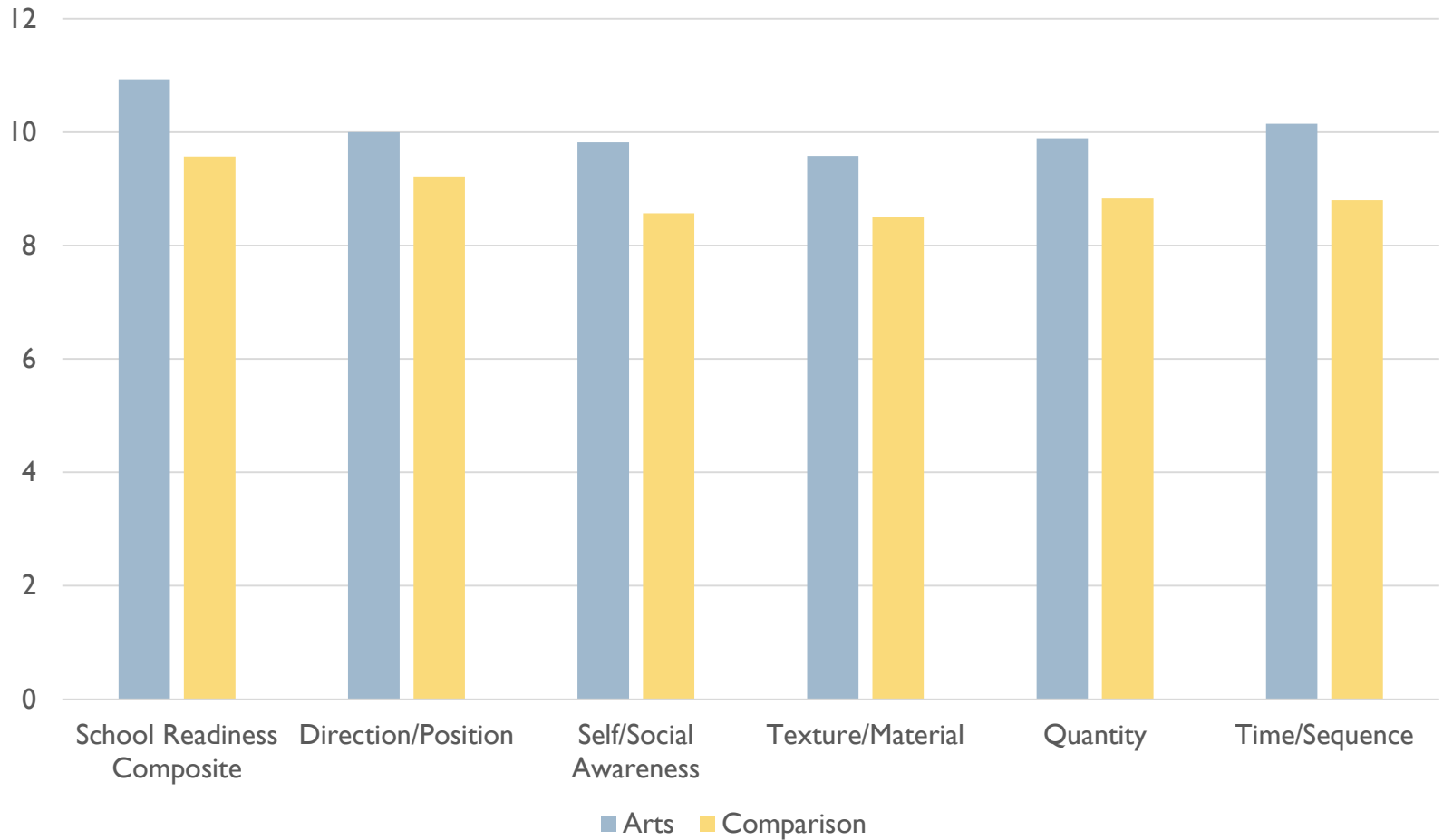
Art of Head Start

Brown, Garnett, Velazquez-Martin, & Mellor (2018)

- ▶ **Between arts preschool and comparison**
 - ▶ Bracken Basic Concepts Scale (3rd Edition, R)
 - ▶ School Readiness Composite
 - ▶ Direction/Position, Self/Social Awareness, Texture/Material, Quantity, Time/Sequence
- ▶ **School readiness advantage for children at arts preschool**
 - ▶ School Readiness Composite
 - ▶ Self/Social Awareness
 - ▶ Texture/Material



School Readiness



Physiological Stress Response

- ▶ Hypothalamic-pituitary-adrenal (HPA) axis
- ▶ Cortisol and its typical pattern



Can the Arts Get Under the Skin?

Brown, Garnett, Anderson, & Laurenceau (2017)

▶ **Experimental study**

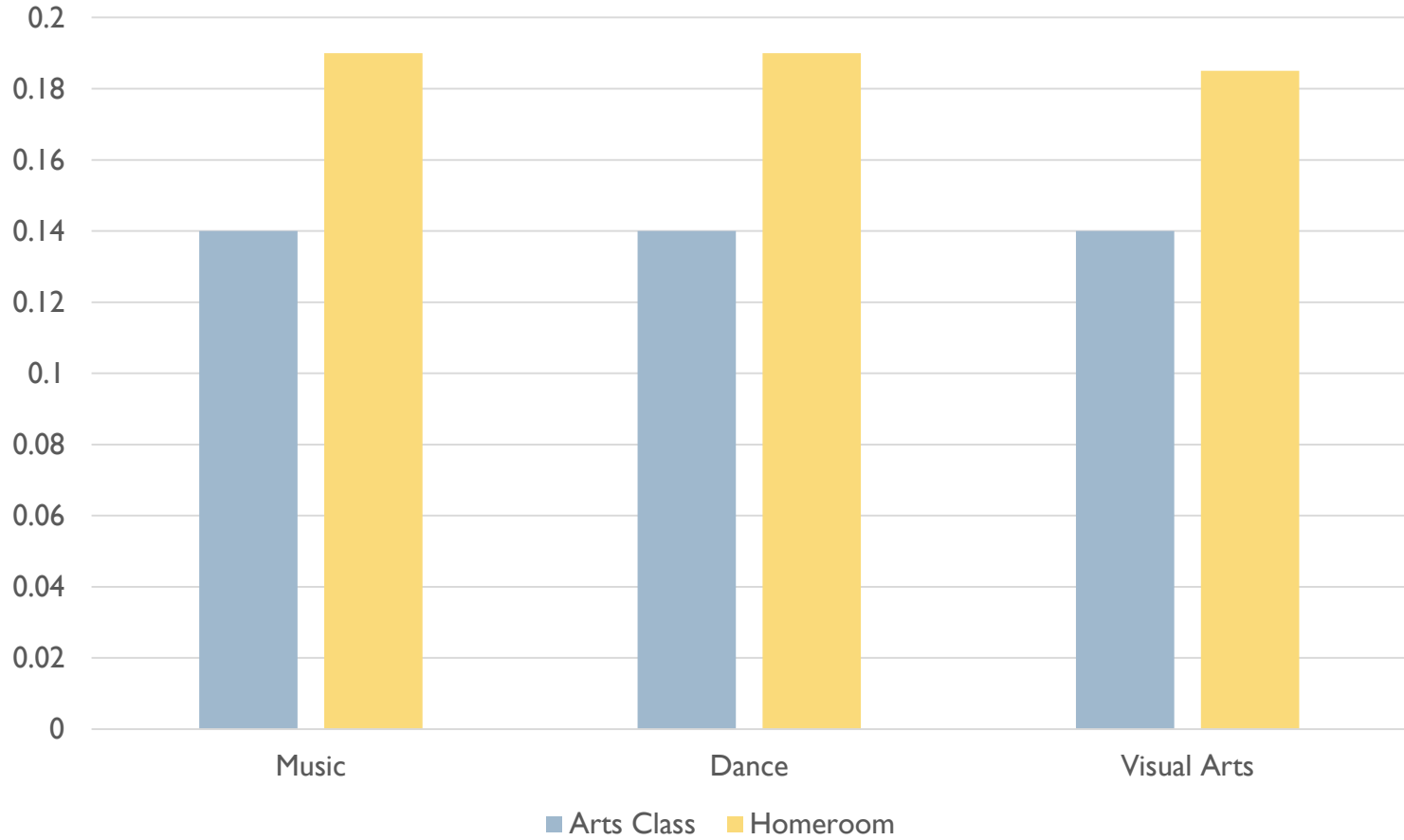
- ▶ Random assignment
- ▶ Salivary cortisol observations
 - ▶ Morning baseline
 - ▶ After arts and homeroom classes

▶ **Lower levels of the stress hormone cortisol after arts classes**

- ▶ Effects apparent midyear and maintained at year's end
- ▶ Results applied to music, dance, and visual arts classes



Child Cortisol



Present Study

- ▶ Extends the work of Brown et al. (2017)
- ▶ Between-subjects experimental study
 - ▶ Settlement Music School's Kaleidoscope Preschool Arts Enrichment Program
 - ▶ Comparison Head Start preschool
- ▶ Changes in cortisol across the preschool year



Methods

- ▶ **Participants**
 - ▶ Demographics
- ▶ Head Start preschools
- ▶ **Measures**
 - ▶ Demographic information
 - ▶ Child cortisol
- ▶ Physiological change across the year

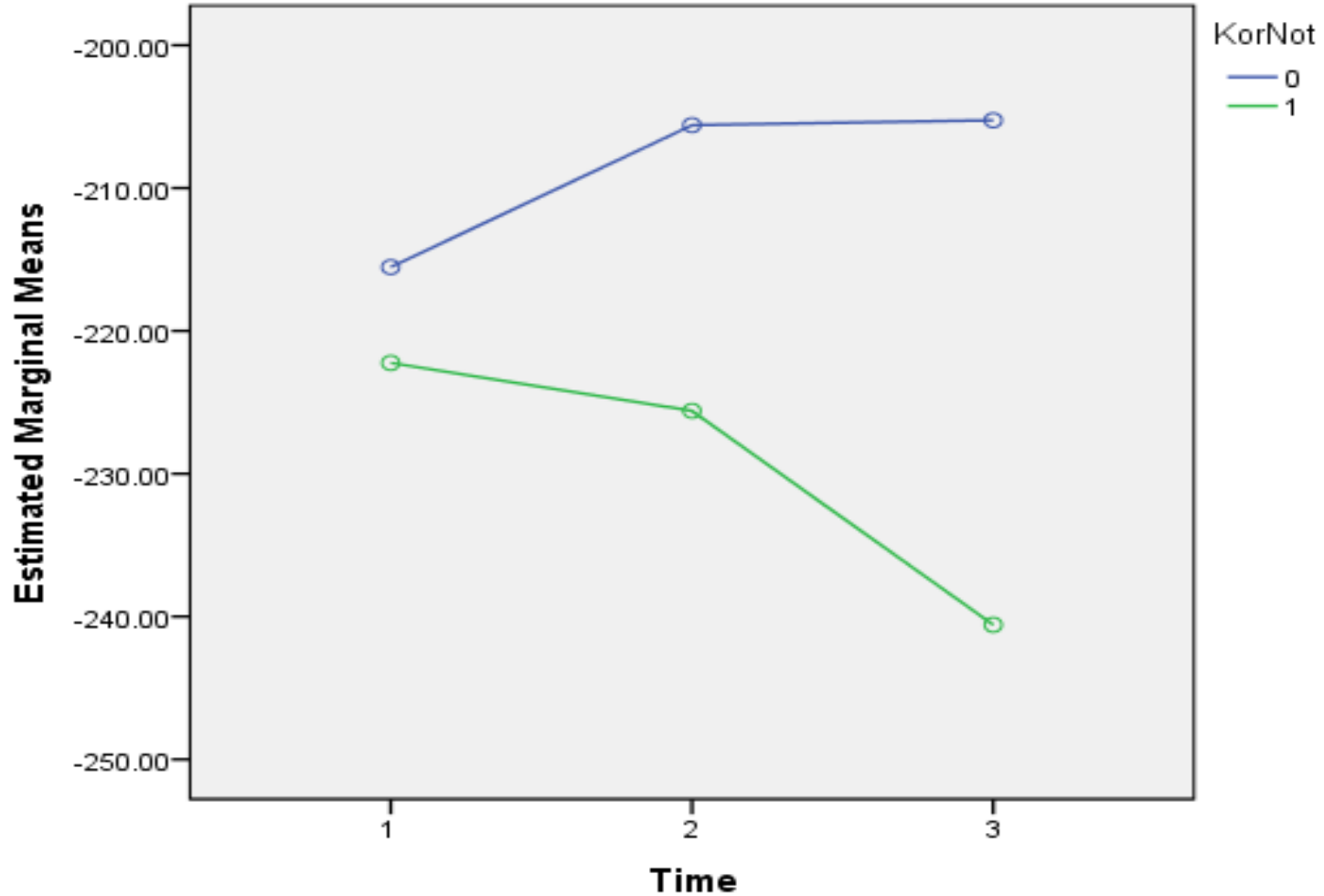


Results

- ▶ Interaction between time and preschool type on cortisol output
- ▶ Arts enriched preschool and cortisol production



Estimated Marginal Means of Cortisol



Covariates appearing in the model are evaluated at the following values: Cage = 49.05, Csex = .49, NONWHITE = .79, CaretoNeed = .6920



Implications

- ▶ Accumulated effect
- ▶ Expansion of present understanding
- ▶ Potential for the arts to influence physiological stress response systems



Thank you!

