Online Supplemental Appendix

This appendix accompanies the article entitled, An Expectancy-Value Theory Analysis of Preschool Parent Involvement in Informal STEM Learning.

Table A1

EVT Survey Item Descriptives by Gender

STEM Items	n (all)	Mean (SD)	Min[a]	Max[a]	Boys M (SD)	Girls M (SD)
Parent Expectations of Child		5.57 (1.20)	-	-	5.55 (1.24)	5.65 (1.10)
I expect my child to do very well in math.	196	5.92 (1.29)	1	7	5.97 (1.29)	5.99 (1.15)
I expect my child to do very well in science.	196	5.99 (1.12)	1	7	6.04 (1.04)	6.03 (1.05)
I think my child will receive good math grades when in kindergarten.	196	6.17 (1.15)	1	7	6.17 (1.14)	6.27 (1.03)
I think my child will receive good science grades when in kindergarten.	196	6.09 (1.13)	1	7	6.00 (1.21)	6.21 (1.03)
I think my child will go into a math-related career.	196	4.63 (1.28)	1	7	4.60 (1.40)	4.63 (1.22)
I think my child will go into a science-related career.	196	4.64 (1.22)	1	7	4.54 (1.33)	4.75 (1.10)
Parental Self-Efficacy/Expectations of Self		5.82 (1.37)	-	-	5.91 (1.38)	5.73 (1.38)
When I help my child learn math, I feel comfortable.	196	6.12 (1.22)	1	7	6.09 (1.35)	6.13 (1.10)
When I help my child learn science, I feel comfortable.	196	5.80 (1.41)	1	7	5.97 (1.29)	5.60 (1.54)
I have the materials I need to support my child's math learning at home.	196	5.62 (1.51)	1	7	5.74 (1.52)	5.53 (1.54)
I have the materials I need to support my child's science learning at home.	196	5.20 (1.59)	1	7	5.33 (1.45)	5.06 (1.78)
I know how to support my child's science learning.	189	5.66 (1.35)	1	7	5.69 (1.46)	5.63 (1.25)
I am interested in math.	187	5.66 (1.66)	1	7	5.75 (1.56)	5.56 (1.79)
I am interested in science.	187	5.96 (1.43)	1	7	6.09 (1.40)	5.82 (1.47)
I am confident that I can support my child's math learning.	189	6.17 (1.14)	1	7	6.29 (1.16)	6.04 (1.14)
I am confident that I can support my child's science learning.	189	6.06 (1.17)	1	7	6.09 (1.35)	6.03 (0.98)
I know how to support my child's math learning.	189	5.97 (1.24)	1	7	6.08 (1.25)	5.85 (1.24)
Parent Values		6.36 (0.84)	-	-	6.44 (0.81)	6.27 (0.85)
It is important to have good math knowledge and skills to get any good job in today's world.	189	6.34 (0.85)	3	7	6.42 (0.83)	6.27 (0.84)
It is important to have good scientific knowledge and skills to get any good job in today's world.	189	5.86 (1.18)	3	7	6.03 (1.12)	5.67 (1.21)
In the job market it helps to have good math knowledge and skills.	189	6.38 (0.81)	3	7	6.42 (0.84)	6.34 (0.77)
In the job market it helps to have good scientific knowledge and skills.	189	5.98 (1.13)	3	7	6.09 (1.11)	5.85 (1.14)
It is important for my child to learn math.	187	6.84 (0.46)	4	7	6.88 (0.42)	6.82 (0.47)
It is important for my child to learn about science.	187	6.73 (0.62)	4	7	6.79 (0.56)	6.69 (0.67)
Parent Costs		2.32 (1.62)	-	-	2.21 (1.61)	2.42 (1.66)
Helping my child with math activities makes me feel stress.	196	2.27 (1.70)	1	7	2.18 (1.63)	2.43 (1.82)
Helping my child with science activities makes me feel stress.	196	2.17 (1.56)	1	7	2.02 (1.51)	2.42 (1.66)
It requires too much effort for me to get materials I need to do math activities with my child.	196	2.12 (1.59)	1	7	1.94 (1.49)	2.24 (1.65)
It requires too much effort for me to get materials I need to do science activities with my child.	196	2.40 (1.68)	1	7	2.38 (1.67)	2.43 (1.74)
Because of the other things I have to do, I don't have enough time for doing math with my child.	196	2.80 (1.77)	1	7	2.60 (1.80)	2.93 (1.73)
Because of the other things I have to do, I don't have enough time for doing science with my child.	196	2.89 (1.77)	1	7	2.83 (1.85)	2.87 (1.69)
It takes too much effort for me to help my child do well in math.	196	1.88 (1.41)	1	7	1.76 (1.39)	1.97 (1.45)
It takes too much effort for me to help my child do well in science.	196	2.02 (1.49)	1	7	1.98 (1.51)	2.04 (1.52)
Literacy EVT Comparison Items *(not used in factor analysis)*						
I expect my child to do well in early reading skills. (expectations of child)	196	6.06 (1.18)	1	7	6.08 (1.09)	6.17 (1.08)
I am confident that I can support my child in learning how to read. (parent self-efficacy)	189	6.42 (0.99)	1	7	6.55 (0.98)	6.30 (0.98)
I know how to support my child's learning about reading and writing. (parent self-efficacy)	189	6.06 (1.20)	1	7	6.17 (1.22)	5.97 (1.19)

	n	Mean (SD)	Min	Max		
It is important to have good reading and writing skills to get any good job in today's world. (value)	189	6.68 (0.63)	3	7	6.80 (0.54)	6.54 (0.71)
Helping my child with reading activities makes me feel stress. (cost)	196	2.06 (1.57)	1	7	1.84 (1.42)	2.22 (1.67)
I have the materials I need to support my child's reading at home. (cost)	196	6.36 (1.05)	1	7	6.45 (1.01)	6.29 (1.07)
Because of the other things I have to do, I don't have enough time for reading with my child. (cost)	196	2.17 (1.61)	1	7	2.03 (1.63)	2.26 (1.57)

Note. The scale for EVT motivation items was 1-Strongly Disagree, 4-Neither agree nor disagree, 7-Strongly agree.

Table A2

Parent Involvement Survey Item Descriptives by Gender

Items	n (all)	Mean (SD)	Min	Max	Boys M (SD)	Girls M (SD)
Parent STEM Involvement		2.59 (0.94)	-	-	2.66 (0.95)	2.58 (0.92)
How many times in the past week have you compared sizes of objects or toys with your child (e.g., big, little, shorter, longer, etc.)?	208	2.58 (0.93)	1	4	2.69 (0.91)	2.52 (0.93)
How many times in the past week have you talked to your child about shapes (e.g., triangle, square)?	208	2.62 (0.95)	1	4	2.70 (1.04)	2.58 (0.87)
How many times in the past week have you played counting games with your child (e.g., singing songs with numbers or reading books with numbers)?	208	2.83 (0.96)	1	4	2.95 (0.98)	2.75 (0.98)
How many times in the past week have you counted different things with your child (e.g., spoons, grapes, cans, pieces of fruit)?	208	2.91 (0.99)	1	4	3.02 (1.04)	2.85 (0.94)
How many times in the past week have you played board games or card games with your child?	208	1.95 (0.90)	1	4	2.05 (0.92)	1.93 (0.89)
How many times in the past week have you talked with your child about plants, animals, or other living things?	208	2.93 (0.98)	1	4	2.95 (1.01)	3.01 (0.92)
How many times in the past week have you talked with your child about weather, seasons, or the environment?	208	2.85 (0.89)	1	4	2.83 (0.83)	2.96 (0.94)
How many times in the past week have you talked with your child about technology or tools that help us do things?	208	2.36 (0.96)	1	4	2.43 (0.98)	2.35 (0.91)
How many times in the past week have you talked with your child about how to make objects or toys move faster/slower or in different directions (e.g., cars roll faster on smooth surfaces)?	208	1.99 (0.95)	1	4	2.04 (0.99)	1.93 (0.89)
How many times in the past week have you talked with your child about what people need to be healthy?	208	2.89 (0.88)	1	4	2.93 (0.84)	2.93 (0.91)
Literacy Involvement Comparison Items *(not used in factor analysis)*						
How many times in the past week have you read books to your child?	208	3.37 (0.84)	1	4	3.47 (0.81)	3.34 (0.87)
How many times in the past week have you taught your child letters?	208	2.88 (0.91)	1	4	2.89 (0.84)	2.88 (0.94)
How many times in the past week have you taught your child about writing?	208	2.51 (0.85)	1	4	2.47 (0.82)	2.51 (0.85)

Note. The scale for the parent involvement items was *1*-Not at all; *2*-Once or twice; *3*-Three or more times, but not every day; *4*- Every day.

Table A3

Percent of families that endorsed each involvement category

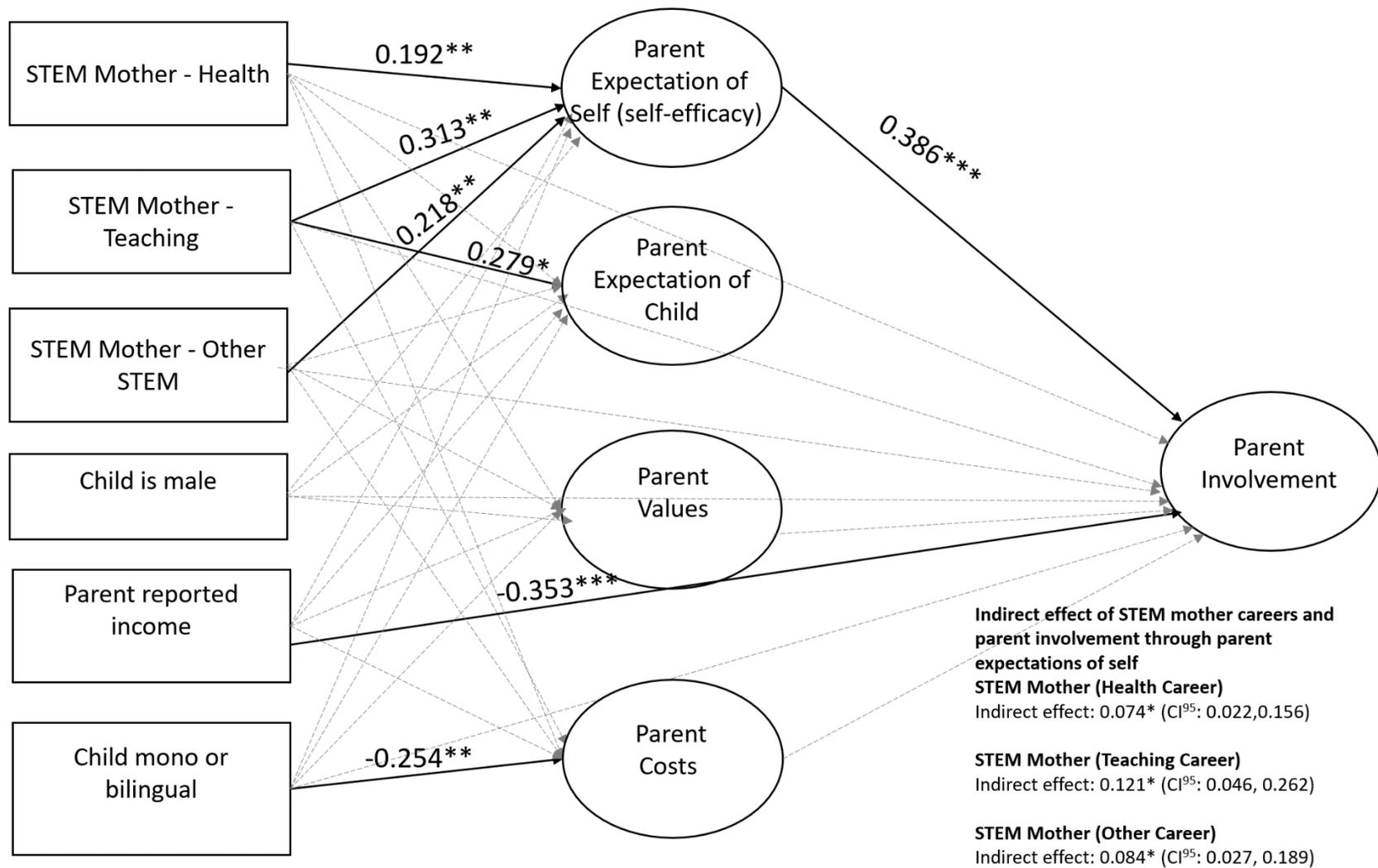| STEM Involvement DV Items	% Not at all	% Once or Twice	% Three or more but not everyday	% Everyday
How many times in the past week have you compared sizes of objects or toys with your child (e.g., big, little, shorter, longer, etc.)?	14.90	27.88	41.35	15.87
How many times in the past week have you talked to your child about shapes (e.g., triangle, square)?	13.94	29.81	37.02	19.23
How many times in the past week have you played counting games with your child (e.g., singing songs with numbers or reading books with numbers)?	12.02	19.23	42.31	26.44
How many times in the past week have you counted different things with your child (e.g., spoons, grapes, cans, pieces of fruit)?	9.62	25.00	30.29	35.10
How many times in the past week have you played board games or card games with your child?	37.02	36.54	20.67	5.77
How many times in the past week have you talked with your child about plants, animals, or other living things?	8.65	25.00	30.77	35.58
How many times in the past week have you talked with your child about weather, seasons, or the environment?	5.29	32.21	34.62	27.88
How many times in the past week have you talked with your child about technology or tools that help us do things?	19.71	38.94	26.92	14.43
How many times in the past week have you talked with your child about how to make objects or toys move faster/slower or in different directions (e.g., cars roll faster on smooth surfaces)?	37.02	35.58	19.23	8.17
How many times in the past week have you talked with your child about what people need to be healthy?	7.21	23.08	42.79	26.92
Literacy Involvement Comparison Items				
How many times in the past week have you taught your child about writing?	12.02	36.06	40.87	11.06
How many times in the past week have you read books to your child?	3.85	12.02	27.88	56.25
How many times in the past week have you taught your child letters?	9.13	20.67	43.75	26.44

Figure A1. Full Structural Equation Mediation Model of associations between alternative coding of maternal careers, STEM Expectancies, Value, Cost, and Parent STEM Involvement. *Note.* Standardized values are included for significant pathways. Non-significant pathways are denoted by a dashed line.