Yale Center for Emotional Intelligence

THINK EQUAL

Interim Report: Botswana Child Outcomes

Prepared by Craig S. Bailey[1] and Mikayla Rudolph[2]

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[1] **Craig S. Bailey, Ph.D.,** is an associate research scientist at the Yale Child Study Canter and Director of Early Childhood at the Yale Canter for Emotional Intelligence. Dr. Bailey is a co-creator of RULER—an approach to social and emotional learning—for use in early childhood settings. Dr. Bailey and his team facilitate professional development workshops with early childhood educators, develop content for practicing and teaching emotional intelligence, and conduct psychological, educational, and intervention research.

[2] **Mikayla Rudolph** is student at the Yale Canter for Emotional Intelligence and is completing her undergraduate degree at Yale studying psychology and Japanese culture.

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Think Equal is a low cost, international, early childhood social and emotional learning programme targeting social, gender, racial and religious equality, empathy, emotional intelligence, and global citizenship. Lessons are delivered by classroom teachers or child care professionals and are organized into 36 topic areas containing rich resources that emphasize using narratives in literature and in the wider context of the child's life. In addition, Think Equal curricular resources focus on using positive, accurate language as well as social cognition. This interim report summarizes initial impact findings of offering access to Think Equal in Botswana on young children's patterns of social and emotional (SE) behaviour during the 2017 school year.

After recruitment by Think Equal in partnership with country leaders, including the Ministry of Basic Education, but before training, Botswana preschools were randomized to either receive Think Equal or to operate as they normally would ($n_{\text{treatment school}} = 12$, $n_{\text{treatment child}} = 35$; $n_{\text{control school}} = 4$, $n_{\text{control child}} = 16$). One classroom per school was selected to simplify the design, and the classroom teachers were subsequently trained, constituting a cluster randomized controlled trial design with children nested within classroom/school. Randomized controlled trial designs are considered the "gold standard" for exploring programme impact. Unlike correlational designs, randomized controlled trials can explore causality by reducing allocation bias and ensuring baseline equivalence between treatment and controlled groups.[3] Unfortunately, randomization does not guard against myriad other biases common in education research, which will be explored in later reports after implementation fidelity is explored and more extensive analyses are conducted.

Teachers in both Think Equal and control conditions were asked to report on children's SE behaviour using widely-used, validated assessments. Further, five children were randomly selected per classroom for inclusion in the study, and by the end of the study, the rate of missing data was 35%. At the beginning of the year (January, 2017: T1) and at the end of the year (December, 2017: T2), teachers reported child demographics (i.e., age, gender, English-language proficiency) and reported child SE behaviour using items organized in subscales from the Emotion Regulation Checklist (*Emotion Regulation* and Emotion Liability or "*Emotion Dysregulation*")[4], Social Competence and Behavior Evaluation-30 (*Anger and*

[3] Sullivan, G. M. (2011). Getting off the "gold standard": randomized controlled trials and education research. *Journal of Graduate Medical Education, 3*, 285–289. https://doi.org/10.4300/JGME-D-11-00147.1

[4] Shields, A., & Cicchetti, D. (1997). Emotion regulation among school-age children: the development and validation of a new criterion Q-sort scale. *Developmental Psychology, 33*, 906–916.

Aggression, Anxious and Withdrawn, and *Socially Competent*)[5], and the Early Childhood Behavior Questionnaire (*Effortful Control*, Surgency or "*Extraversion*", *Negative Affect*)[6]. These constructs were considered distinct but orthogonal; the largest correlation among T1 or T2 was between T2 Anxious and Withdrawn and Emotion Regulation, $r(50) = -.75$. Note that this correlation in particular bolsters the validity of the assessments by demonstrated associations in the expected direction. Deeper exploration of validity is forthcoming in future reports. Table 1 shows the number of items per outcome (i.e., subscale) as well as internal consistency among and associations between T1 and T2 outcome variables consistency. With the exception of *Emotion Dysregulation*, subscales achieved acceptable levels of reliability.

Descriptive statistics for all eight outcome variables are shown in Table 2. Demographically, children in this study were equally boy (52%) and girl (48%), were between three and six years old, $M_{months} = 64.12$, $SD_{months} = 13.07$, $Min–Max_{months} = 32.00–85.00$, and tended to be somewhat proficient in English, $M = 2.52$, $SD = 0.57$, $Min–Max = 1–3$. At baseline, the sample children in Botswana scored significantly lower than 143 similarly-aged American children on *Emotion Dysregulation*, $M_{Botswana} = 31.20$, $M_{US} = 57.16$, $t(51) = -36.93$, $p < .001$, $d = 5.12$, *Emotion Regulation*, $M_{Botswana} = 24.90$, M_{US} 44.04, $t(51) = -32.61$, $p < .001$, $d = 4.52$[7]; significantly higher than 443 American children on *Social Competence*, $M_{Botswana} = 41.52$, $M_{US} = 38.51$, $t(51) = 2.06$, $p = .05$, $d = 0.29$, significantly lower on *Anxious and Withdrawn*, $M_{Botswana} = 18.91$, $M_{US} = 21.73$, $t(51) = -2.77$, $p = .01$, $d = 0.40$, but not significantly different on *Anger and Aggressive*, $M_{Botswana} = 18.43$, $M_{US} = 19.60$, $t(51) = -1.39$, $p = .17$, $d = 0.20$[5]; significantly lower than 118 American children on *Negative Affect*, $M_{Botswana} = 2.36$, $M_{US} = 3.06$, $t(51) = -5.54$, $p < .001$, $d = 0.78$, significantly lower on *Extraversion*, $M_{Botswana} = 4.10$, $M_{US} = 5.12$, $t(51) = -7.08$, $p < .001$, $d = 1.00$, but not significantly different on *Effortful Control*, $M_{Botswana} = 4.84$, $M_{US} = 4.77$, $t(51) = 0.49$, $p = .63$, $d = 0.07$.

Using Stata 15.1, each T2 outcome was explored using multi-level modeling nesting children within classroom/school and controlling for T1, age, English-language proficiency, gender, and school-level access to Think Equal. Intraclass correlation

[5] LaFreniere, P. J., & Dumas, J. E. (1996). Social competence and behavior evaluation in children ages 3 to 6 years: The short form (SCBE-30). *Psychological Assessment, 8*, 369–377. https://doi.org/10.1037/1040-3590.8.4.369

[6] Putnam, S. P., Gartstein, M. A., & Rothbart, M. K. (2006). Measurement of fine-grained aspects of toddler temperament: the early childhood behavior questionnaire. *Infant Behavior & Development, 29*, 386–401. https://doi.org/10.1016/j.infbeh.2006.01.004

[7] Downer, J. T., Williford, A. P., Bulotsky-Shearer, R. J., Vitiello, V. E., Bouza, J., Reilly, S., & Lhospital, A. (2018). Using data-driven, video-based early childhood consultation with teachers to reduce children's challenging behaviors and improve engagement in preschool classrooms. *School Mental Health, 10*, 226–242. https://doi.org/10.1007/s12310-017-9237-0

coefficients support multi-level modeling due to between 14 and 80% of the variance in child outcomes between school. Because access to Think Equal was at the school level, all continuous covariates were centered on their school means. Gender was coded as girl = 0 and boy = 1; access to Think Equal was coded as control = 0 and access = 1. Access to Think Equal was allowed to vary between school; with nearly all outcomes, the variance between schools was explained almost entirely by access to Think Equal. Maximum likelihood estimation was used, and standard errors were adjusted based on school, allowing independence between but not within school.

Results revealed significant, large effects for access to Think Equal on five out of eight outcomes (see Figures 1–3). Access to Think Equal was associated with greater *Emotion Regulation* (d = .85) but less *Emotion Dysregulation* (d = .79) and less *Anger and Aggression* (d = 1.49) and *Anxious and Withdrawn* (d = 1.29) but greater *Social Competence* (d = 1.10); there was no significant effect for *Effortful Control* (d = 0.26), *Extraversion* (d = 0.62), or *Negative Affect* (d = 0.47) due to access to Think Equal despite the size of the effect.

In sum, children exposed to Think Equal were more socially and emotionally skilled and less likely to be angry, aggressive, anxious, or withdrawn than their peers who did not have access to Think Equal. These impacts were large, and for some outcomes, constituted a one-and-a-half standard deviation difference between children exposed to Think Equal and children in control classrooms. These strong impacts are supported by anecdotal reports from educators, many of whom felt that because of their implementation of Think Equal, children were supported in regularly checking in with their feelings. One teacher reported a girl being hugged by a boy after the girl checked in, because the girl indicated she wanted to be hugged. Another teacher, "…saw one of my [4-year-old students] trying to stop a fight between two older children in the playground by saying, 'Stop. Breathe. What are you feeling? Name your feeling'…I was amazed." Lessons were also learned from the pilot, including ways to improve Think Equal programming and increase Think Equal fidelity as well as strategies for improving data collection efficiency for future studies. Future reports will be peer reviewed and provide greater detail with respect to demographic and baseline characteristics, validity of assessments, missing data, and implementation fidelity.

Table 1
Internal Consistency Among and Associations Between Eight T1 and T2 Outcome Variables

Variable	Items	α_{T1}	α_{T2}	r
Emotion Regulation	8	.73	.69	.51
Emotion Dysregulation	16	.57	.56	.25
Anger and Aggressive	10	.80	.70	.70
Anxious and Withdrawn	10	.86	.78	.50
Social Competence	10	.89	.80	.50
Effortful Control	12	.77	.79	.61
Extraversion	12	.71	.65	.66
Negative Affect	12	.76	.83	.77

Table 2
Descriptive Statistics for Eight T1 and T2 Outcome Variables

	T1					T2				
Variable	*M*	*SD*	*Min-Max*	*Skewness*	*Kurtosis*	*M*	*SD*	*Min-Max*	*Skewness*	*Kurtosis*
Emotion Regulation	24.90	4.23	14-32	-0.32	2.87	25.86	4.79	8-32	-1.21	5.47
Emotion Dysregulation	31.20	5.07	23-41	0.25	2.05	18.17	5.43	4-30	-0.43	4.69
Anger and Aggressive	18.43	5.59	10-35	0.69	3.37	18.79	5.51	10-35	0.49	3.41
Anxious and Withdrawn	18.91	7.20	10-37	0.73	2.85	18.47	6.69	10-37	0.85	3.16
Social Competence	41.52	10.36	19-59	-0.52	2.44	47.10	8.60	20-58	-0.99	3.69
Effortful Control	4.85	1.13	1-7	-0.72	3.77	5.18	1.06	2-7	-0.45	2.43
Extraversion	4.10	1.02	1-7	0.37	2.33	4.30	0.94	2-7	-0.45	2.21
Negative Affect	2.36	0.89	1-5	0.44	3.01	2.40	0.99	1-5	0.59	2.51

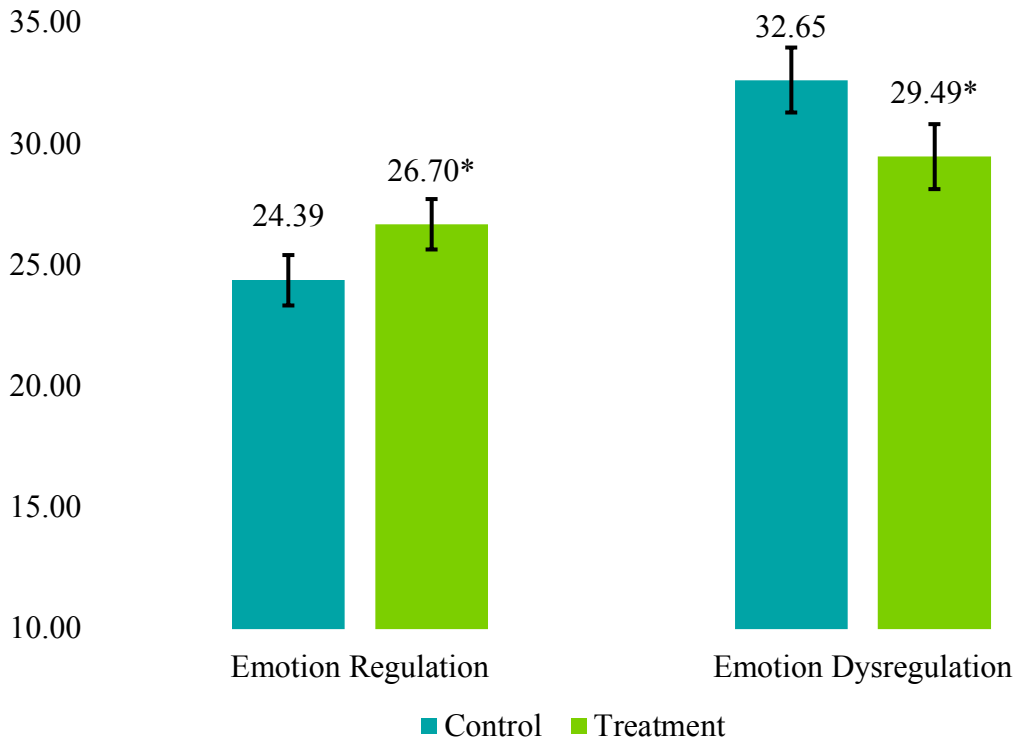

Figure 1. Adjusted means regressing T2 Emotion Regulation and Emotion Dysregulation on T1, age, English proficiency, gender, and access to Think Equal, accounting for nesting within school, variance between school in Think Equal access.

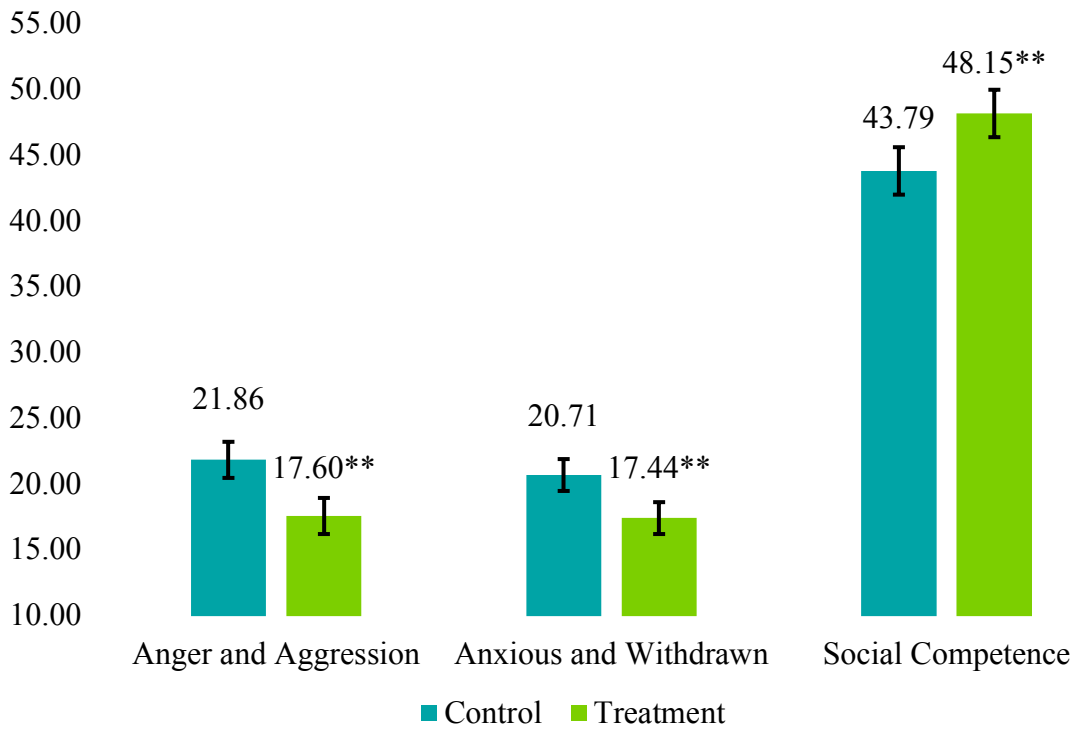

Figure 2. Adjusted means regressing T2 Anger and Aggression, Anxious and Withdrawn, and Social Competence on T1, age, English proficiency, gender, and access to Think Equal, accounting for nesting within school, variance between school in Think Equal access.

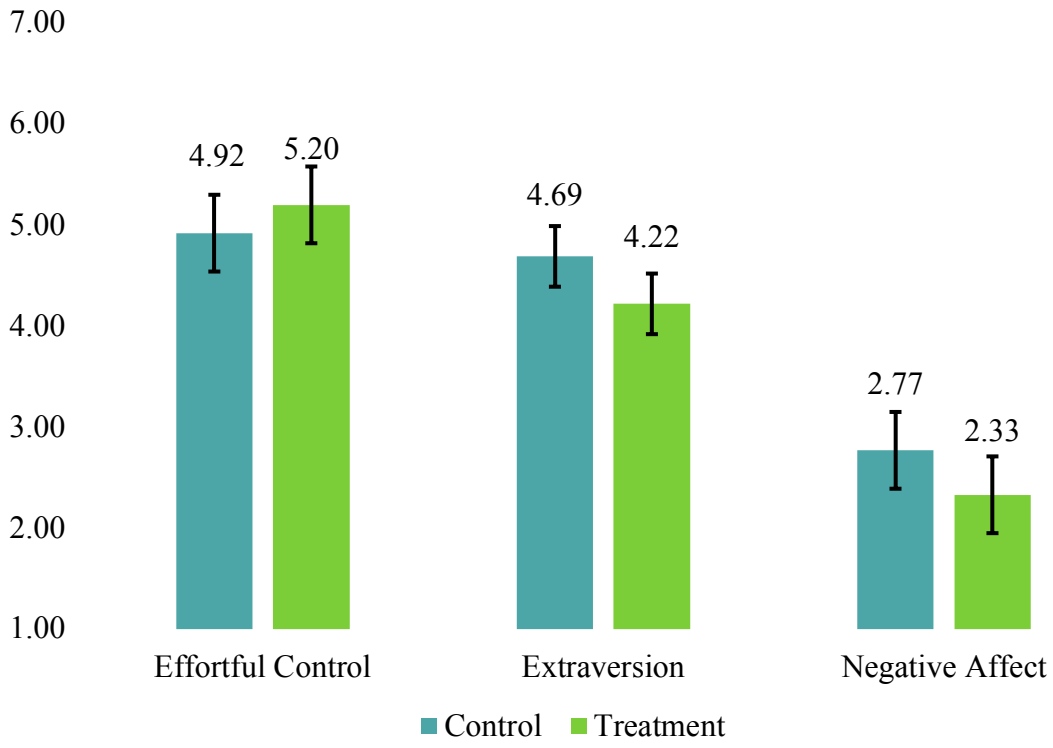

Figure 3. Adjusted means regressing T2 Effortful Control, Negative on T1, age, English proficiency, gender, and access to Think Equal, accounting for nesting within school, variance between school in Think Equal access.