

Figure S1. Timing of the computer-based neuropsychology tasks

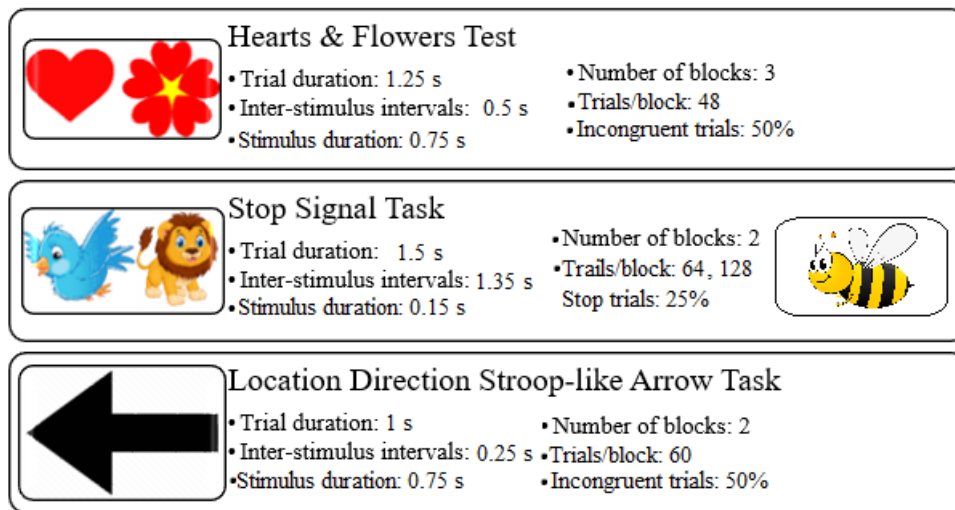


Table S1. The content and protocol of the mindfulness program with the Muse brain-sensing device for school-aged children

Session	Objective	Activities
1	Introduction of the Muse Interaxon headband, and the neurofeedback system	<ul style="list-style-type: none"> • Conversation about attention with/without awareness, and the nature of attention with the puppy metaphor • Breathing awareness meditation • Conversation about the child's current state of attention based on the Muse application results
2	Children will be able to understand the neurofeedback system, and practice how to guide their attention to the breathing	<ul style="list-style-type: none"> • Reminder: repetition of the instruction • Breathing awareness meditation • Conversation about the child's current state of attention based on the Muse application results
3	Children will be able to notice the body sensations connected to breathing, and use them as an anchor of attentional awareness	<ul style="list-style-type: none"> • Tips & Tricks: body sensation during inhalation and exhalation, and how to use them as an anchor for awareness • Breathing awareness meditation • Conversation about the child's current state of attention based on the Muse application results
4	Children will be able to use body sensation as anchors to breathing awareness, and to intentionally pay attention to breathing	<ul style="list-style-type: none"> • Reminder: repetition of bodily sensations as anchors of attention • Breathing awareness meditation • Conversation about the child's current state of attention based on the Muse application results

5	Children will be able to notice their current state of attention, and accept it without judgement or evaluation	<ul style="list-style-type: none"> • Conversation about the changing nature of attention (e.g., concentration, mind-wandering) and accepting as it is • Breathing awareness meditation • Conversation about the child's current state of attention based on the Muse application results
6	Children will be able to accept their current state of attention, and develop a kind non-judgemental attitude towards themselves	<ul style="list-style-type: none"> • Reminder: repetition of acceptance and non-judgemental attitude towards our own current state • Breathing awareness meditation • Conversation about the child's current state of attention based on the Muse application results
7	Children will be able to focus their attention for a longer period of time	<ul style="list-style-type: none"> • Breathing awareness meditation • Conversation about the child's current state of attention based on the Muse application results
8	Children will be able to master the skills required for intentionally paying attention to their own breathing for a longer period of time	<ul style="list-style-type: none"> • Breathing awareness meditation • Conversation about the child's current state of attention based on the Muse application results

Table S2. Significant statistical outliers and missing data in the statistical models

Statistical model no. 1			Missing data (n)
Location	Direction	Stroop-like Arrow test	absence from school (1)
Hearts & Flowers test			logging error (1)
SST			failure to estimate the SSRT, or Mean RT, or omissions due to incorrect switching of finger-stimulus assignment (10-13)
TMT			logging error (1)
Resting-state brain activity	eyes-closed		<5 retained segments of EEG data due to high noise ratio (7)
Resting-state brain activity	eyes-open		<5 retained segments of EEG data due to high noise ratio (6)
Statistical model no. 2			Excluded significant statistical outliers (n)
Location	Direction	Stroop-like Arrow test	direction block mean RT (5), location block correct responses (8)
Hearts & Flowers test			flowers block mean RT (4), flowers block errors (4), mixed block mean RT (4), mixed block errors (3)
TMT			errors (3), completion time (2)
Resting-state brain activity	eyes-closed		theta & alpha (6), beta (6)
Resting-state brain activity	eyes-open		theta & alpha (2), beta (1)

TMT B Trail Making Test B version

Table S3. Results of the ANOVAs on EFs and brain activity in statistical model no. 1

Statistical model No.1			
Dependent variable	Time	Group	Time × group
<i>Hearts & Flowers test</i>			
Flowers block RT	$F_{(1, 27)} = 14.533$, $\eta_p^2 = .350^{**}$	$F_{(1, 27)} = 0.106$, $\eta_p^2 = .004$	$F_{(1, 27)} = 0.167$, $\eta_p^2 = .006$
Mixed block RT	$F_{(1, 27)} = 62.936$, $\eta_p^2 = .700^{**}$	$F_{(1, 27)} = 0.044$, $\eta_p^2 = .002$	$F_{(1, 27)} = 3.852$, $\eta_p^2 = .125^+$
Flowers block errors	$F_{(1, 27)} = 0.180$, $\eta_p^2 = .007$	$F_{(1, 27)} = 0.306$, $\eta_p^2 = .011$	$F_{(1, 27)} = 0.979$, $\eta_p^2 = .035$
Mixed block errors	$F_{(1, 27)} = 6.331$, $\eta_p^2 = .190^*$	$F_{(1, 27)} = 0.180$, $\eta_p^2 = .007$	$F_{(1, 27)} = 0.614$, $\eta_p^2 = .022$
<i>Location Direction Stroop-like Arrows test</i>			
Location block RT	$F_{(1, 28)} = 1.379$, $\eta_p^2 = .047$	$F_{(1, 28)} = 2.844$, $\eta_p^2 = .090$	$F_{(1, 28)} = 0.003$, $\eta_p^2 = .001$
Direction block RT	$F_{(1, 28)} = 0.513$, $\eta_p^2 = .018$	$F_{(1, 28)} = 6.777$, $\eta_p^2 = .195^*$	$F_{(1, 28)} = 0.101$, $\eta_p^2 = .0004$
Location block correct responses	$F_{(1, 28)} = 14.511$, $\eta_p^2 = .341^{**}$	$F_{(1, 28)} = 1.469$, $\eta_p^2 = .050$	$F_{(1, 28)} = 0.001$, $\eta_p^2 = .001$
Direction block correct responses	$F_{(1, 28)} = 35.856$, $\eta_p^2 = .562^{**}$	$F_{(1, 28)} = 1.026$, $\eta_p^2 = .035$	$F_{(1, 28)} = 0.221$, $\eta_p^2 = .008$
<i>Stop Signal Task</i>			
SSRT	$F_{(1, 19)} = 6.944$, $\eta_p^2 = .268^*$	$F_{(1, 19)} = 0.543$, $\eta_p^2 = 0.028$	$F_{(1, 19)} = 1.454$, $\eta_p^2 = .071$
Response Time	$F_{(1, 19)} = 0.156$, $\eta_p^2 = .008$	$F_{(1, 19)} = 3.996$, $\eta_p^2 = 0.174^+$	$F_{(1, 19)} = 1.599$, $\eta_p^2 = .078$
% of omissions	$F_{(1, 19)} = 0.267$, $\eta_p^2 = .014$	$F_{(1, 19)} = 3.308$, $\eta_p^2 = 0.148$	$F_{(1, 19)} = 1.412$, $\eta_p^2 = .069$
<i>Trail Making Test</i>			
Errors	$F_{(1, 26)} = 1.145$, $\eta_p^2 = .041$	$F_{(1, 26)} = 1.482$, $\eta_p^2 = .052$	$F_{(1, 26)} = 0.105$, $\eta_p^2 = .040$
Completion time	$F_{(1, 26)} = 8.867$, $\eta_p^2 = .254^*$	$F_{(1, 26)} = 0.192$, $\eta_p^2 = .007$	$F_{(1, 26)} = 1.069$, $\eta_p^2 = .040$
<i>Resting-state EEG measurement</i>			
Theta (eyes-closed)	$F_{(1, 19)} = 4.575$, $\eta_p^2 = .194^*$	$F_{(1, 19)} = 0.097$, $\eta_p^2 = 0.005$	$F_{(1, 19)} = 0.582$, $\eta_p^2 = .030$
Alpha (eyes-closed)	$F_{(1, 19)} = 3.442$, $\eta_p^2 = .153$	$F_{(1, 19)} = 0.070$, $\eta_p^2 = 0.004$	$F_{(1, 19)} = 0.553$, $\eta_p^2 = .028$
Beta (eyes-closed)	$F_{(1, 19)} = 3.565$, $\eta_p^2 = .158$	$F_{(1, 19)} = 1.137$, $\eta_p^2 = 0.156$	$F_{(1, 19)} = 0.902$, $\eta_p^2 = .045$
Theta (eyes-open)	$F_{(1, 20)} = 3.943$, $\eta_p^2 = .165^+$	$F_{(1, 20)} = 0.408$, $\eta_p^2 = 0.020$	$F_{(1, 20)} = 0.277$, $\eta_p^2 = .014$
Alpha (eyes-open)	$F_{(1, 20)} = 5.164$, $\eta_p^2 = .205^*$	$F_{(1, 20)} = 0.452$, $\eta_p^2 = 0.022$	$F_{(1, 20)} = 0.052$, $\eta_p^2 = .003$
Beta (eyes-open)	$F_{(1, 20)} = 6.718$, $\eta_p^2 = .251^*$	$F_{(1, 20)} = 0.889$, $\eta_p^2 = 0.043$	$F_{(1, 20)} = 2.530$, $\eta_p^2 = .112$

RT reaction time in milliseconds (ms); SST Stop Signal Task; SSRT Stop Signal Reaction Time in milliseconds (ms); TMT Trail Making Test; Completion time in seconds (s); η_p^2 partial eta squared effect size; effect size (η_p^2) interpreted as :small – 0.01, medium – 0.06, large – 0.14; + $p < 0.06$; * $p < 0.05$; ** $p < 0.001$.