

# Effectiveness of the Roots of Empathy (ROE) Program in Preventing Aggression and Promoting Prosocial Behaviour: Results from a Cluster Randomized Controlled Trial in Manitoba

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## Background

In Canada and internationally, bullying and violence are common in elementary and secondary schools. A recent Canadian study found high-levels of victimization (7.6 per cent) and bullying (6.1 per cent) among adolescents. Aggressive behaviour in elementary school children is associated with delinquency, substance abuse, peer rejection and school failure in adolescence. Previous intervention studies, addressing aggressive behaviour, were based on smaller-scale models or demonstration programs.

## Research Objective

Our objective was to determine the real-world effectiveness of the Roots of Empathy (ROE) program, as delivered under routine conditions of practice in rural, northern and urban Manitoba schools.



## About the Roots of Empathy Program

- Roots of Empathy (ROE) is a universal school-based intervention designed to foster social and emotional competence in children from kindergarten to Grade 8.
- Certified instructors lead students through a structured curriculum centred on classroom visits by a baby and parent.
- 27 sessions are held throughout the school year (nine pre-family visits, nine family visits, nine post-family visits).
- Students observe parent-child interaction and learn about brain development, temperament, attachment, reading emotional cues, conveying thoughts and feelings, and the value of social inclusion.

## Opportunity for Real-World Evaluation in Manitoba

Manitoba's Healthy Child Committee of Cabinet (HCCC) is comprised of eight ministers dedicated to the well-being of children and youth, from conception to age 18 years. To improve the social and emotional health of children, HCCC directed the Healthy Child Manitoba Office to implement and conduct a rigorous evaluation of the Roots of Empathy program in partnership with school divisions. Limited evidence of program effectiveness, limited program funding, and significant program demand from school divisions combined to provide the opportunity for using an evaluation design with random assignment, to determine whether larger-scale implementation was scientifically warranted. Based on convincing evidence of effectiveness from the evaluation, Manitoba has continued to expand Roots of Empathy, currently being implemented in 160 schools with ongoing monitoring of program fidelity and outcome.

### Methods

- We randomly assigned ROE to five of eight Manitoba school divisions, in kindergarten, Grade 4 and Grade 8 classrooms (n = 445 students).
- Schools in the remaining three school divisions served as a wait-list control group (n = 315 students) and, in the following year, as an ROE replication group (n = 265 students).
- Three child behaviour measures (physical aggression, indirect aggression, prosocial behaviour) from the National Longitudinal Survey of Children and Youth (NLSCY) were rated by teachers before the program, immediately after program completion, and followed up annually for three more years. Table 1 shows sample items for each child behaviour measure.
- Multi-level modelling was used to determine program effectiveness and to account for the study design's nested structure. Level 1 included the individual growth trajectories to measure intra-individual change in behaviour scores over time. Level 2 included the child level variable—gender. Level 3 included class level variables—program allocation and grade level.
- Interaction terms, between program allocation and time, were assessed for each behaviour. These analyses essentially controlled for many potential confounders because the interaction between Program and Time was within students. Any confounder would have to not only be different between groups, but also have a differential effect on change over time.

### Results

- For boys and girls in all grade levels, ROE had statistically significant and replicated beneficial effects.
- Compared to the control group, the ROE group had reduced physical aggression, reduced indirect aggression, and increased prosocial behaviour immediately after program completion (Table 2).
- These beneficial outcomes were maintained or continued to improve across the three years following program completion (Table 3). Some of the gains in prosocial behaviour were lost in the follow-up period for kindergarten and Grade 8 children in the initial sample, but were maintained in the replication sample.

### Discussion

- This study is one of the first to demonstrate that a school-based program to prevent aggression and promote prosocial behaviour in children and adolescents is effective when implemented on a larger scale under real-world conditions of community-based service delivery.
- ROE appears to achieve beneficial effects as previously demonstrated in smaller-scale models or demonstration programs (standardized effect size: 0.25).
- These results are compelling, given that beneficial effects were clearly found in both samples and that many of these effects were maintained or had continued to improve over time.

### References

- Gordon, M. (2005). *Roots of Empathy: Changing the World Child by Child*. Toronto, ON: Thomas Allen.
- Hinshaw, S.P., & Lee, S.S. (2003) Conduct and oppositional defiant disorders. In E.J. Mash & R.A. Barkley (Eds.), *Child Psychopathology* (2<sup>nd</sup> ed., pp. 113-149). New York: Guilford Press.
- Volk, A., Craig, W. Boyce, W. & King, M. (2006) Adolescent risk correlates of bullying and different types of victimization. *International Journal of Adolescent Medicine and Health*, 18(4), 575-586.
- Wilson, S. J., & Lipsey, M. W. (2007). School-based interventions for aggressive and disruptive behavior: Update of a meta-analysis. *American Journal of Preventive Medicine*, 33(2S), S130-S143.

**TABLE 1.**  
CHILD BEHAVIOUR ITEMS FROM NATIONAL LONGITUDINAL SURVEY OF CHILDREN AND YOUTH (NLSCY)

Child Behaviours	Sample Items
Physical Aggression	Threatens people Bullies; mean to others Kicks or hits others children
Indirect Aggression	When mad at someone, tries to get others to dislike that person When mad at someone, says to others, 'Let's not be with him/her.' When mad at someone, tells that person's secrets to a third person
Prosocial Behaviour	Comforts a child who is crying or upset Offers to help other children who are having difficulty with a task Will invite others to join a game

**TABLE 2.**  
IMMEDIATE EFFECT SIZES (ESs); ROOTS OF EMPATHY (ROE) PROGRAM PRETEST-POSTTEST RESULTS OF HIERARCHICAL LINEAR MODELING (HLM) ANALYSES IN TWO EVALUATION COHORTS

Teacher Rated Behaviours	ROE Program (2002/03)		ROE Replication (2003/04)	
	Effect Size <sup>†</sup>	p-value	Effect Size <sup>†</sup>	p-value
Physical Aggression	-0.25 (-0.43 - -0.08)	0.005*	-0.15 (-0.28 - -0.02)	0.026*
Indirect Aggression	-0.51 (-0.70 - -0.31)	0.000*	-0.26 (-0.42 - -0.10)	0.002*
Pro-social Behaviour	0.21 (0.01 - 0.40)	0.042*	0.18 (0.14 - 0.35)	0.042*

\* Statistically significant. † Calculation for Effect Size is: the unstandardized regression estimate divided by the pooled standard deviation of the outcome of the sample.

**TABLE 3.**  
FOLLOW-UP EFFECT SIZES (ESs); ROOTS OF EMPATHY (ROE) PROGRAM UP TO THREE YEARS AFTER PROGRAM COMPLETION OF HIERARCHICAL LINEAR MODELING (HLM) ANALYSES IN TWO EVALUATION COHORTS

Teacher Rated Behaviours	ROE Program (2002/03)		ROE Replication (2003/04)	
	Effect Size <sup>†</sup>	p-value	Effect Size <sup>†</sup>	p-value
Physical Aggression	-0.06 (-0.09 - -0.03)	0.000*	0.14 (-0.14 - 0.43)	0.329
Indirect Aggression	-0.03 (-0.06 - 0.01)	0.178	-0.02 (-0.14 - 0.10)	0.758
Pro-social Behaviour	-0.12 (-0.167 - -0.08)	0.000*	-0.08 (-0.20 - 0.03)	0.165

\* Statistically significant. † Calculation for Effect Size is: the unstandardized regression estimate divided by the pooled standard deviation of the outcome of the sample.

