

# Assessing the Impact of an Emotion Regulation Booster Program for Elementary School-aged Children

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**Abstract** The purpose of this study was to determine whether children who participated in a booster program 3 years after completing an emotion regulation program show a greater increase between pretest and post-test in the development of emotion regulation skills than children in a comparison group. A booster program was implemented as a pilot project with seven children ages 12–14. The contrast group consisted of eight children ages 10–14. Results of the study showed that the booster group had significant increases on 4 of 10 outcome measures: emotional awareness, emotional expressiveness, number of identified body cues, and number of identified calming activities. The contrast group showed no significant pretest post-test changes on the outcomes measured. *Editors' strategic implications:* Replication will be required with a larger sample size, but the emotion regulation results presented are encouraging. Program developers and evaluators will benefit from the authors' discussion of the importance and role of booster programs.

**Keywords** Mental health · Social functioning · Life skills education · Children · Program evaluation

## Introduction

The literature on emotion regulation suggests that children can learn to control their emotions (Cole et al. 1994; Harris 1989) and that well developed emotion regulation skills are a protective factor that enhances social functioning (Izard et al. 2001;

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Shields et al. 2001; Smith 2001); academic achievement (Eisenberg et al. 1997; Greenberg et al. 1995; Gumora and Arsenio 2002; Trentacosta and Izard 2007; Wentzel and Wigfield 1998); the ability to manage the negative impacts of child maltreatment, marital conflict and economic disadvantage (Casey 1996; Cicchetti et al. 1995; Eisenberg et al. 1996; Shields and Cicchetti 2001; Zeman et al. 2002); and even physical health (Salovey et al. 2000). Evidence is beginning to amass of the short term effectiveness of programs intended to enhance emotional functioning and reduce problem behaviors (Greenberg et al. 2001; Hoagwood and Erwin 1997; Hunter 2004; Wilson and Lipsey 2006a, b) and the maintenance of these gains at 1, 2, or even 3 years after participation in such a program (Chandler et al. 1984; Kam et al. 2004; Westhues et al. 2009).

These gains are not maintained for all children, however, and several authors have suggested that a booster program might promote maintenance of gains that are otherwise likely to fade (Baer 1989; Donaldson et al. 2000; Furey and Basili 1988; Gilham and Reivich 1999; Langinvainio 1986). Few studies were found in our review of the literature that assessed the impacts of booster programs for children (Botvin et al. 1983; Pierre et al. 1992) and none that either reported the effects of such a booster program or assessed whether parents of children who had participated in a preventive emotion regulation program believe that a booster program would be helpful for their child. This article addresses that gap by first reporting the results of parent perception of the need for a booster program for children who had participated in an indicated emotion regulation program 3 years prior. These results are followed by a report of the effects of a pilot booster program on the emotional awareness, emotional coping skills, emotional expressiveness, self-esteem and confidence in managing emotions of child participants.

## Emotion Regulation

The term “emotion regulation” is sometimes used interchangeably with related constructs such as coping, defences, mood regulation, or affect regulation, and is identified as one of the abilities that comprise emotional intelligence (Grewal et al. 2008). Researchers define emotion regulation in various ways (Brenner and Salovey 1997; Gross 1998, 1999; Izard et al. 2001; Thompson and Calkins 1996); however, all make reference to the fact that emotion regulation affects the ways in which an individual influences their own emotions, when they are aware of them, and how they experience and express emotions (Gross 1998, 1999). Three processes are central to emotion regulation: (a) emotional awareness or the ability to identify one’s internal emotional experiences and those of others; (b) emotional coping, the strategies used to manage emotional experiences in a constructive manner; and (c) expression management, the inhibition of exaggerated displays of either negative or positive emotion (Zeman et al. 2002). The purpose of emotion regulation programs is to make these processes conscious so the individual child is able to better manage his or her emotions in positive ways and avoid the negative outcomes associated with dysregulation.

Thompson (1994) and Vygotsky (1978) have observed that emotion regulation is relational as well as intrapsychic. This means that although children can learn to manage their own emotions, they are influenced by external factors such as the behavior of other people. Vygotsky argues that throughout the course of children's lives, they make choices based on both their personality (internal factor) and their environment (external factor) (Rieber and Robinson 2004). This is to say that children can learn coping mechanisms and tools to manage their emotions when situations arise over which they have no control.

Recognition of the link between good emotion regulation skills and the broader concept of emotional intelligence (Goleman 1995) in promoting positive mental health and reducing behavioral problems has resulted in the development of a number of school-based prevention programs that are showing positive results in strengthening emotion regulation skills (Grewal et al. 2008). Among these are the Child Development Program (Schaps et al. 2004); Emotional Literacy in the Middle School (Maurer et al. 2004); Emotions Course (Izard et al. 2004); PATHS (Greenberg et al. 2004); the Resolving Conflict Creatively Program (Brown et al. 2004); the Seattle Social Development Program (Hawkins, Smith and Catalano 2004); the Social Decision Making and Social Problem Solving Program (Elias 2004); Skills and Tools for Emotions Awareness and Management (STEAM), and Temper Taming (Westhues et al. 2009).

## **Booster Programs**

Impacts of booster programs for children or youth reported in the literature have most often focused on maintaining changes in knowledge, attitudes and behaviors related to substance use. Several studies (Botvin et al. 1983; Schinke et al. 2002; Pierre et al. 1992) have reported that a booster program following an earlier intervention significantly reduced smoking, alcohol and drug-related behavior by youth. Lochman (1992) found that participation in a cognitive behavioral therapy anger management booster program by 11- and 12-year-old boys reduced substance use, though not rates of delinquency. In a meta-analysis of early intervention programs for preschool children, Nelson et al. (2003) found that gains made in cognitive skills were most likely to be maintained if children participated in a booster, or “follow-through” program, but that the booster program had no impact on maintaining gains in social-emotional functioning or parent-family wellness. Although the evidence is mixed, this review suggests that a booster program with children who have participated in an emotion regulation program might help maintain gains achieved.

## **Program Description**

First offered in a Southern Ontario community in 1999, the community (Temper Taming) and school-based (STEAM) variations of the emotion regulation program

we developed and evaluated are designed to assist children who have been identified as experiencing difficulty managing their emotions. The program is a proactive response to the behavioral problems identified in schools and attempts to help children become more successful in managing their behavior in school and at home. The curriculum focuses on enriching the vocabulary and awareness of emotions through identifying body cues and thoughts as well as teaching assertive decision-making and problem solving skills. The program is offered in weekly 90-min group sessions that are co-facilitated by a social worker and a social work intern, who receive 18 h of training, ongoing supervision, and the support of well-developed manuals outlining curriculum content and process (K-W Counselling Services 2001, 2002). Both Temper Taming and STEAM groups offer sessions to inform parents about what is being taught in the group, to train parents how to help their child with the homework assigned, and to coach children when at home to use the skills they have learned in the program. The program for primary children (grades 1–3) and junior participants (grades 4–6) is adjusted to address children’s developmental levels in regard to learning. The school-based program runs for 12 weeks and the community-based program for 8 weeks. The STEAM and Temper Taming programs incorporate teaching about all three aspects of emotion regulation identified above.

A longitudinal quasi-experimental process and outcome evaluation found that participants in both the school-based and community-based versions of the program demonstrated significant increases on about half of the measures used to assess emotion regulation skills, whereas children in a contrast group in the first year of the study showed a significant positive change on only one outcome measure. No significant differences were found between community and school delivery of the program (Westhues et al. 2009). Most of the effects observed at post-test were sustained 1 and 2 years after the completion of the intervention. Outcome measures included emotional awareness, emotion coping, expression management, self-efficacy with regard to managing emotions, self-esteem, academic performance, and behavioral infractions within the school system (Westhues et al. 2009).

## Methods

The longitudinal study discussed above inspired this research project. Many parents at the second year follow-up expressed the need for a “booster session” to help their children maintain the gains made in the emotion regulation program. Their request for further programming prompted this study to assess more systematically if parents felt there was a need for a booster session, and if so, how they believed it should be designed and delivered. If a need was expressed for a booster program by a majority of parents, a second phase of the study would pilot the preferred program and explore whether it further reinforced and strengthened the emotion regulation outcomes assessed in the longitudinal study. The study was reviewed and approved by the Research Ethics Board at Wilfrid Laurier University.

## Research Questions

The research question addressed in Phase 1 was, “do parents believe a booster program, 3 years after participation in an emotion regulation program, would be beneficial for their child? If so, what are their preferences on how the program is designed?” In Phase 2 we asked, “does the booster program show significant effects on the outcomes measured for the original intervention?” Our hypothesis was that children who participate in a booster program will show a greater increase between pretest and posttest in emotional awareness, emotional coping skills, emotional expressiveness, self-esteem and confidence in managing emotions than children in a waitlist contrast group.

## Research Design

This study was designed as a needs assessment followed by an outcome evaluation of a piloted booster program. It incorporates both qualitative and quantitative data collection methods. A quasi-experimental design was used for the evaluation, with an intervention and a contrast group and measures taken at pretest and at posttest. There was no random assignment to the two groups. Both the booster group and the contrast group participants were selected from a group of children who participated in a STEAM or Temper Taming program 3 years prior. The contrast group was drawn from a waitlist for the booster program.

### Phase 1: Needs Assessment

#### *Sample Selection and Description*

To assess the need for a booster program from the perspective of parents, 50 parents of the 139 children participating in the longitudinal study were systematically selected using a random start (Palys 1997). This randomly selected smaller sample was likely to represent the views of the 139 parents but was less resource intensive and so permitted face-to-face interviews to be conducted. The 50 parents received a letter inviting them to participate in the study; 22 (44%) agreed and were interviewed. Two of the parents had two children in the program, so those interviewed were commenting on need in relation to 24 child participants.

#### *Data Collection*

All face-to-face interviews were conducted with mothers or mother figures, though fathers or father figures were invited to participate as well. Ten of the children had participated in Temper Taming and 14 in STEAM. The children ranged from ages 8 to 16 at time of the interview; 16 were male and 8 female. Twenty of the interviews took place in the parent’s home and two took place at a community mental health agency, as requested by the participants.

The interviews consisted of six semi-structured questions that focused on whether there was a need for a booster program, and if there was, what their

preferences were with respect to location, time of day offered, number of sessions, content, and cost. In most instances parents were able to answer the questions without prompting. Interviews lasted between 30 and 60 min.

## Phase 2: Evaluating the Pilot Booster Program

### *Sample Selection and Description*

The sample was recruited by sending a flyer to invite participation in the booster program to all 139 children who participated in the 2 years follow-up of the longitudinal study. This was followed up with a phone call. Parents of ten intermediate (grades 7–8) children and parents of five junior (grades 4–6) children expressed interest in participating in the booster program, and the children confirmed this interest. A decision was made to host only an intermediate group for the pilot project because there were eight children in this age range, and it would make a good group size (DeLucia-Waack 2006). Pre-screening appointments were set up for the eight intermediate children and their parents; parents and children completed the pretest measures at this time. Children who were interested in the booster program but were not able to participate at this time because of other engagements became the contrast group.

The booster group sample consisted of four males and three females between the ages of 12 and 14 years, with a mean age of 12.4. The contrast group consisted of three males and five females between the ages of 10 and 14 years, with a mean age of 11.5. Five booster participants had taken the STEAM program previously, and two had taken the Temper Taming program; five contrast group members had taken the STEAM program, and three had taken the Temper Taming program. No significant differences were found between the two groups on any of the outcome measures used at pretest of the original longitudinal study or at pretest of the booster intervention, nor were there significant differences between the intervention and contrast groups on age, gender or whether they were assessed by the senior author as more inclined to internalize or externalize their feelings. This assessment was based on information provided by parents in the screening interview.

### *Data Collection*

Children and parents participating in the booster program and in the contrast group completed the outcome measures at pretest and at posttest. Three self-report measures were used to collect data from the children, and parents completed two measures. Support was offered to children needing help to read the questions, and the measures were completed in the child's home.

### *Child Measures*

*Emotion Expression Scale for Children* This 16-item self-report questionnaire that uses a 5-point Likert scale was administered to assess (lack of) emotional awareness

and emotional expression (reluctance to express emotion) from the child's perspective. High internal consistency has been reported for both the emotional awareness factor ( $\alpha = .83$ ) and for the emotional expression factor ( $\alpha = .81$ ) using a sample of 208 children age 9–12 attending a public school serving a working-class small urban area. Test–retest reliability was a moderate but acceptable .59 (awareness) and .56 (expression). Convergent validity was also demonstrated (Penza-Clyve and Zeman 2002).

*Child Form* The Child Form is a self-administered, 10-item questionnaire that was designed to assess the impact of the program. It measures emotional awareness (two items), knowledge of emotional coping skills (two items), emotional expression (three items) and efficacy in managing emotions (two items). The Child Form has face validity, but no other psychometric work has been done on this instrument.

*Coopersmith Self-esteem Inventory* The 25-item Short Form of the Coopersmith Self-esteem Inventory was used to measure self-esteem. Psychometric information is more limited for the short form than for the longer form, but internal consistency, using the Kuder–Richardson reliability estimates is reported as .74 for males and .71 for females (Coopersmith 1981).

A recent review of studies using the Short Form found the reliability to be .75 using the Kuder–Richardson and .68 using a test–retest reliability measure (Lane et al. 2002). No results are reported on the validity of the short form, though the construct validity of the longer form has been confirmed using factor analysis (Coopersmith 1981).

### *Parent Measures*

*Parent Questionnaire* The Parent Questionnaire is a self-administered 11-item form that was designed to assess the impact of the program. It measures parent assessment of the child's emotional awareness (one item), emotional expression (six items) efficacy in managing emotions (one item), academic performance (one item) and parent involvement at school (one item). It has face validity and good internal consistency on the items measuring emotional awareness and emotional expression ( $\alpha = .70$ ). Construct validity was assessed using a principal components factor analysis, and the predicted single factor was identified, with 48.4% of the variance explained. The Parent Questionnaire was completed the week before the Booster program began and again the week following the last session.

*Parent Feedback Form* The Parent Feedback Form is a 7-item open-ended questionnaire that was completed only at post-test by parents. Parents' opinions were solicited about the changes they saw in their child's behavior, whether they found the parent sessions helpful, what they liked about the booster program and what they would change about it.

## Results

### Phase 1: A Booster Program is Perceived to be Needed

Among the 22 parents who were interviewed, 13 (54%)<sup>1</sup> parents saw a booster program as a definite need. Most themes that emerged from the interviews of those seeing a need related to the child having forgotten skills that they had demonstrated at the close of the initial intervention: child needed a refresher/reminder of the skills, child was not remembering, and specific skills needed to be refreshed. In addition, some parents saw this refresher as a way to increase their child's self-esteem. Parents who saw no need said their child was doing fine or, in two cases, that they did not believe the child would benefit from such a program.

Although there was some variation in how parents thought the booster program should be structured and delivered, a general consensus emerged about program details. They indicated that the location needed to be central in their community and that the program should be offered during late afternoon or early evening. The majority of parents suggested that the booster program should be four to six sessions, 60–90 min in duration, and involve parents either through a meeting at the end of each session or at the beginning, middle, and end of the program. One parent suggested that three facilitators rather than the two used in the initial intervention would provide more one-on-one time for the children.

Parents also expressed a need for a subsidy for anyone who would like to participate in the booster program, though they felt that a nominal minimum fee should be charged in all cases. Half suggested fees of less than \$60 and the other half fees as high as \$150. With regard to content, parents felt that the focus should be on the child becoming aware of his or her feelings and how he or she is using the STEAM and Temper Taming skills, as well as teaching new emotion management skills and helping their child build self-esteem.

### Phase 2: Evaluation of the Pilot Booster Program

Based on the parent interviews, a pilot booster program was developed and offered at a local community mental health agency from February to April 2007. Three leaders facilitated the group: the senior author and two MSW social work interns. The interns were given 1 h of training before the group about group process and the goals and objectives of the group. They were responsible for preparing the room and assisting in group development; the senior author, who had 5 years of experience leading Temper Taming and STEAM groups, facilitated all program activities. The program consisted of five weekly sessions of 90 min duration. Sessions began with an icebreaker activity to develop cohesion within the group, and proceeded with a check-in activity using the “Temper-a-Ture Scale”, an activity from the STEAM and Temper Taming program. A STEAM/Temper Taming skill was reviewed at each session, and discussion followed about how the children had or had not used it.

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<sup>1</sup> For mathematical purposes parents who had two children in the group answered for each child for a total of 24 responses; therefore, the percentages are based on these 24 responses.



A new emotion management skill was taught each week as well. Snacks were provided at each session and the last 10 min of each session was reserved for a parent meeting to discuss what the children had learned in the session. Parents were also given a manual to help them practice program skills at home. A fee of \$50 was charged to cover the cost of the meeting space and supplies, though a subsidy was available and one parent requested it.

### *Outcomes*

It was hypothesized that children who participated in the booster program would have significantly higher scores on the outcome variables from pre-booster ( $T_5$ ) to post-booster ( $T_6$ ) than children in the contrast group. A higher score on all measures means an increase in the construct being measured. We therefore expected to see an increase on these scores between pre-booster ( $T_5$ ) and post-booster ( $T_6$ ).

Before testing this hypothesis, we explored the change patterns on the outcome measures using data from the longitudinal study to explore whether children were forgetting skills learned in the initial intervention program as their parents observed, and what the gains or losses over time might be with respect to emotional awareness, emotional coping skills, emotional expressiveness, self-esteem and confidence in managing emotions. Data were gathered at four points in the longitudinal study [pre-intervention ( $T_1$ ), post-intervention ( $T_2$ ), 1 year follow-up ( $T_3$ ), and 2 years follow-up ( $T_4$ )] and two points in the evaluation of the booster program [pre-booster ( $T_5$ ) and post-booster ( $T_6$ )].

Tables 1 and 2 show the patterns of change over time for the booster group and the contrast group through a report of the means and standard deviations for all outcome variables. The patterns vary by outcome but seem to support the parents' observation that their children have forgotten emotion coping skills that they gained in identifying body cues, calming activities and positive self-messages. The data show that these skills were rekindled for children who participated in the booster program but not those who were in the contrast group.

Small gains were made in increased emotional awareness by both groups between pre-intervention and 2 years follow-up. Participants in the booster group continued to show an increase in emotional awareness between 2 years follow-up and the pretest for the booster intervention, whereas the contrast group declined at pre-booster intervention to their pre-intervention scores. This pattern suggests that participants in the booster program continued to develop a deeper understanding of emotional awareness, whereas members of the contrast group did not. For number of feelings identified, the booster group first showed an increase ( $T_2$ ), then a slight decline at follow-up ( $T_3$  and  $T_4$ ). At pre-booster ( $T_5$ ) their mean was higher than at 2 years follow-up ( $T_4$ ) and continued to increase post-booster ( $T_6$ ). By comparison, the contrast group showed an increase between  $T_1$  and  $T_2$  that was maintained at  $T_3$  and  $T_4$ . These gains were reduced by  $T_5$  and returned to  $T_1$  level at  $T_6$ .

On emotional expressiveness, the booster group showed an increase between  $T_1$  and  $T_4$ , a slight drop at  $T_5$  and exceeded their  $T_4$  scores at  $T_6$ . The contrast group showed the same pattern of increase between  $T_1$  and  $T_4$  and decline at  $T_5$  but never regained their  $T_4$  scores. The parent report on emotional expressiveness for the

**Table 1** Mean and standard deviation on outcome scores over time for booster group ( $n = 7$ )

Outcomes	$T_1$ Mean (SD)	$T_2$ Mean (SD)	$T_3$ Mean (SD)	$T_4$ Mean (SD)	$T_5$ Mean (SD)	$T_6$ Mean (SD)
Emotional awareness						
EA subscale	24.43 (7.87)	23.57 (10.01)	23.71 (7.87)	25.57 (7.30)	28.86 (5.84)	31.43 (4.86)
No. of feelings identified	6.00 (2.65)	7.43 (.79)	6.71 (1.80)	6.86 (1.86)	7.71 (.76)	7.86 (.38)
No. of body cues identified	1.71 (1.11)	1.86 (1.21)	1.83 (.75)	1.86 (.90)	.86 (1.22)	2.71 (.77)
Emotional coping skills						
No. of calming activities identified	3.86 (1.46)	4.43 (.79)	3.71 (1.80)	4.29 (.95)	2.57 (1.90)	4.71 (.49)
No. of positive self-messages identified	.71 (1.11)	1.29 (1.38)	1.40 (1.52)	.43 (.79)	.43 (.54)	1.43 (1.13)
Expression management						
EE subscale	22.86 (10.24)	21.71 (10.53)	23.28 (9.79)	29.28 (8.34)	27.43 (4.86)	30.57 (3.41)
Parent report	10.80 (1.68)	12.57 (1.90)	13.67 (2.80)	14.57 (2.07)	13.29 (1.98)	13.00 (1.63)
Self esteem	11.0 (5.83)	13.6 (7.40)	11.4 (5.03)	15.0 (4.97)	15.86 (5.31)	17.57 (6.21)
Confidence in managing emotions						
Child report	3.00 (1.29)	4.43 (.79)	2.86 (1.46)	3.00 (.58)	2.86 (.90)	3.43 (.98)
Parent report	1.64 (.75)	2.00 (.58)	2.43 (.54)	2.43 (.58)	2.57 (.54)	2.43 (.54)

$T_1$ , pre-intervention;  $T_2$ , post-intervention;  $T_3$ , 1 year follow-up;  $T_4$ , 2 years follow-up;  $T_5$ , pre-booster;  $T_6$ , post-booster

**Table 2** Mean and standard deviations on outcome scores over time for contrast group ( $n = 8$ )

Outcomes	$T_1$ Mean (SD)	$T_2$ Mean (SD)	$T_3$ Mean (SD)	$T_4$ Mean (SD)	$T_5$ Mean (SD)	$T_6$ Mean (SD)
Emotional awareness						
EA subscale	23.71 (5.68)	24.00 (6.16)	23.86 (6.04)	27.75 (4.98)	22.13 (8.27)	24.50 (8.19)
No. of feelings identified	5.88 (2.53)	7.38 (.92)	7.25 (1.75)	7.38 (1.41)	6.75 (1.39)	5.75 (1.83)
No. of body cues identified	1.29 (1.25)	2.13 (.84)	2.38 (.74)	2.25 (.89)	.88 (1.13)	.38 (1.06)
Emotional coping skills						
No. of calming activities identified	3.25 (1.67)	4.13 (.84)	3.43 (1.51)	3.75 (1.91)	3.38 (1.41)	2.75 (1.75)
No. of positive self-messages identified	.43 (.79)	1.25 (1.04)	2.29 (1.11)	1.63 (1.41)	.75 (1.17)	.5 (1.07)
Expression management						
EE subscale	22.62 (5.58)	23.12 (5.96)	22.87 (5.96)	31.00 (4.81)	23.63 (9.68)	26.75 (7.92)
Parent report	12.36 (1.75)	14.56 (2.38)	14.69 (2.19)	15.25 (2.81)	13.75 (3.06)	12.25 (1.58)
Self esteem	14.00 (3.41)	14.71 (2.36)	15.57 (3.60)	16.50 (4.44)	13.13 (6.01)	13.38 (6.00)
Confidence in managing emotions						
Child report	3.50 (1.12)	3.62 (1.50)	.36 (1.13)	3.63 (1.06)	3.13 (1.13)	3.00 (1.20)
Parent report	1.79 (.57)	2.63 (.52)	2.50 (.53)	2.88 (1.75)	1.88 (.46)	1.75 (.46)

$T_1$ , pre-intervention;  $T_2$ , post-intervention;  $T_3$ , 1 year follow-up;  $T_4$ , 2 years follow-up;  $T_5$ , pre-boost;  $T_6$ , post-boost

booster children shows that they observed a steady increase in expressiveness between  $T_1$  and  $T_4$  but that this dipped slightly by  $T_5$  and did not increase as a result of the booster program. However, the booster participants were evaluated higher by their parents at  $T_6$  than at  $T_1$  on this outcome. The contrast group showed a similar pattern, but lost more ground in the perception of their parents and declined to their pre-intervention ( $T_1$ ) levels by  $T_6$ .

With respect to self-esteem, the booster group showed a steady increase from  $T_1$  to  $T_6$ . The contrast group showed an increase from  $T_1$  to  $T_4$ , and then dipped to pre- $T_1$  levels at  $T_5$  and  $T_6$ . This suggests that the booster intervention had a positive impact on not only maintaining self-esteem gains but also in enhancing them. The child report on confidence in managing their emotions shows that the booster children reported increased confidence at post-intervention ( $T_2$ ) but that this was lost at follow-up ( $T_3$  and  $T_4$ ), and at pre-booster ( $T_5$ ). Confidence levels reported were slightly higher at  $T_6$  than at  $T_1$ . The contrast group showed smaller gains in confidence during the initial intervention, and had fallen below  $T_1$  levels by  $T_6$ . Parents of children in the booster group reported small increases in their child's confidence in managing their emotions, and these gains were maintained at follow-up ( $T_3$  and  $T_4$ ) and post-booster ( $T_5$ ). Parents of contrast group children also reported observing gains in their children's confidence in managing their emotions but these gains were lost by post-booster ( $T_6$ ).

The hypothesis that children who participated in the booster program would have significantly higher scores [pre-booster ( $T_5$ ) to post-booster ( $T_6$ )] on the outcome variables than children in the contrast group was tested using the nonparametric Mann–Whitney  $U$  because of small sample size. The results are summarized in Table 3 and show that the booster participants reported a significantly greater

**Table 3** Booster and contrast group change scores on outcome measures

Outcomes	Booster Median	Contrast Median	Mann–Whitney $U$	
			Z	Sig. (1-tailed)
Emotional awareness				
EA subscale	4.0	−3.5	−2.51	.01**
No. of feelings identified	0	0	−1.57	.19
No. of body cues identified	−2.0	.00	−2.85	.01**
Expression management				
EE subscale	4.0	−2.0	−2.8	.01**
Parent report	−1.0	.50	.50	.54
Emotional coping skills				
No. of calming activities identified	0	0	−.06	.96**
No. of positive self-messages identified	−3.0	.00	−2.49	.01
Self-esteem	−4.0	−10.0	−.06	.955
Confidence in managing emotions				
Child report	0	0	.97	.33
Parent report	0	0	−.15	.96

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , one-tailed

increase than the contrast group on 4 of the 10 outcome measures tested. These included the emotional awareness subscale of Penza-Clyve and Zeman's Emotion Expression Scale for Children (EESC) ( $U = 6.50, n = 15, p < .01$ ), the number of desired body cues ( $U = 4.00, n = 15, p < .01$ ), the emotional expressiveness subscale of the EESC ( $U = 4.00, n = 15, p < .01$ ), and the number of desirable calming activities ( $U = 7.00, n = 15, p < .01$ ).

The parents' assessment on a five-point scale of the child's confidence in managing his or her emotions at home showed no significant changes for either intervention or contrast group. In comments made on the open-ended Parent Feedback Form, only one parent mentioned increased self-confidence, but all seven mentioned increased use of specific calming strategies:

Parent #1: "able to communicate better" "[child is] talking about emotions, better able to identify them"

Parent #4: "more open to discussion about issues he's dealing with, more self-confidence"

Parent #3: "I think she's better at calming herself down"

Parent #6: "letting emotions out by writing her feelings in journal"

Parent #7: "keep her temper in check"

Parents also said they liked the program because it refreshed their children's memory: "it brings back to the forefront information he had put a little further back" and "reminds kids how to deal with emotions in themselves and in others." They also liked that it was held at a community agency and not at the school because it gave their children a different peer group: "It was with different children, not in same school." Parents recommended that the program continue: "Keep doing what you're doing. It works!" and "Keep it up! Kids need this kind of support desperately!"

## Discussion

Results of the Mann–Whitney  $U$  tests showed that participants in the booster program made significant gains between pretest and posttest relative to the contrast group on at least one measure in each of the areas of emotional awareness, expression management and emotional coping skill. It is particularly encouraging that both the emotional awareness and emotional expressiveness subscales of the Penza-Clyve and Zeman Emotion Expression Scale (EESC) showed significant change, because this is a standardized instrument with eight items measuring each construct.

These findings suggest that the hypothesis tested was partially supported. Children who participated in the booster program demonstrated a significant increase in emotional awareness, emotional expressiveness, and were able to name more calming strategies than the contrast group. These results are consistent with the results of Ball et al. (2002), Braukhaus et al. (2003), Lochman (1992), and Whisman (1990), which show that booster programs can be effective in enhancing skills learned in an earlier intervention. These findings are especially noteworthy given the small sample size.

One of the reasons why this booster group may have been successful is Vygotsky's (1978) theory of the zone of proximal development, which suggests that children can learn new skills that they are not able to master on their own when they are modelled, especially by peers. By way of illustration, one of the older members in the group was observed taking leadership in the group and teaching the other group members the concepts of the program. He had developed greater confidence with the STEAM language and skills since taking the initial group and was now sufficiently confident with them that he was able to teach the skills to other group members.

Another factor that may have contributed to the success of the pilot booster program was the pre-screening process. In this interview, parents were asked how their child expresses his or her emotions and about what they hoped the child would accomplish in the group. Knowing how the child expressed his or her emotions was helpful in selecting members for the group. One parent provided information that suggested her child was experiencing signs of schizophrenia, for example. The booster program would not have met this child's needs and thus she was referred to an indicated group specifically for children who were experiencing symptoms of schizophrenia. Ensuring that there are a variety of coping mechanisms within the group helps the children teach each other. For example, within the pilot booster program four members expressed themselves through sadness and kept their feelings to themselves, and three members expressed their emotions outwardly, mainly through screaming or hitting. During the group sessions, members who expressed their emotions outwardly talked about how important it was to them to express their emotions and the consequences of not expressing their emotions. This led to a discussion of healthy and unhealthy ways to express emotions.

Knowing the parents' goals for their children was also important because it allowed the facilitator to focus on those goals with that child. For example, one parent wanted the program to increase her child's self-esteem and confidence. This child was very quiet, and when she was nervous her face twitched. Because the facilitator was aware of this, she could pay particular attention to praising this child for her contributions in the group and ask her questions she was sure the child could answer. These attempts to boost her self-esteem seemed to work. At the end of the program her father made a comment that he felt the "program helped a lot with her self-confidence." She had begun to exercise her voice in the group setting and her nervous twitch never showed during the group.

A meta-analysis by Jeynes (2005) has shown that parent involvement in prevention programs is one predictor of their effectiveness. The booster program encouraged parent involvement by structuring the last 10 min of each booster session as a parent meeting. This parent meeting was important to help teach the parents about the skill their child was learning so they could communicate with their child about the group material and use the skills at home. The coaching time parents spent with their child may have helped them master the content.

The needs assessment component of the study offers some insight into the proportion of parents who may feel that a booster program would benefit their child—about 50%. This figure may be high because only 44% of parents invited to take part in the needs assessment participated, and those who participated may have

been more interested in having a booster program. Only 10% of children who were eligible for the booster program participated in it. This may be a more accurate estimate of the take-up rate that can be expected if a booster program is offered.

### Limitations of the Study and Suggestions for Future Research

Although the results of this pilot project are encouraging, a number of limitations to the study should be acknowledged. The sample size for the booster program and contrast group was small. A larger sample may have produced significant findings on more outcomes. The questionnaires used in the evaluation of the booster program were adapted from the STEAM and Temper Taming longitudinal study to continue the ongoing research. They may have limited the child's ability to show the full range of their knowledge because of a ceiling effect with some of the questions (Baker 1999). If children identified eight feelings at pre-test for example, then it was not possible for them to raise their scores at posttest. This is more likely to happen with a booster program than when children are taking a program for the first time. The results of this study are not generalizable to all children because the sample was selected purposively. They provide us with insights that might guide the development of other booster programs, however, especially with children in grades 7 and 8.

This study generated many ideas for further research. First, the study should be replicated with a larger sample of booster and contrast group participants to conclude with greater confidence that the program is effective. Second, with a larger sample of booster participants, an examination could be made of any differences in impact of the booster intervention there might be for children who were involved in school-based and community-based delivery of the initial intervention. Third, it would be useful to explore whether a universal school-based booster program is as effective as a community-based selective program in maintaining or enhancing the gains of the original selective group program. This information could guide resource allocation decisions about which program designs to offer. Lastly, there is limited research that compares booster program variations in structure, e.g., duration, content covered, number of participants and facilitators. Having an evidence-based understanding of what contributed to learning gains and what did not would be helpful in refining the design of this booster intervention.

### Conclusions

In this study, we asked whether parents of children who had participated in an emotion regulation program 3 years earlier felt that their child would benefit from a booster intervention. About half of the parents who participated in the needs assessment felt that this would benefit their child, and a pilot program was developed based on their preferences. Significant changes were found between pretest and posttest on four of ten measures for children who participated in the booster program, whereas none were found for a waitlist contrast group. These findings suggest that a booster program of a reasonably short 5 weeks' duration can

enhance the emotion regulation skills of children whose parents believe they will benefit from such support. Given the accumulating knowledge about the positive effects of well developed emotion regulation skills these findings suggest that offering booster programs to children who have taken an indicated emotion regulation program may be a wise social investment.

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