Evaluation of An Ecological Program to Reduce Bullying in Schools

Leila Rahey
Wendy M. Craig
Queen's University

ABSTRACT

Recently researchers have made efforts to reduce the incidence of bullying in the schools using a systemic or Whole School Approach. Reports on the efficacy of antibullying programs have produced variable, but promising, results (Elsea & Smith, 1998; Olweus, 1993). The present study examined the short-term outcome of an antibullying program by comparing children (grades 1-8) attending a school involved in the program to children attending a school not receiving the program. Results indicated that bullying did not decrease four months after the antibullying program was introduced. There were, however, improvements reported in the level of victimization, peer isolation, and perceptions of school safety in older children (grades 3-8). Contradictory findings were found for younger children (grades 1 and 2). Implications and limitations of the study are discussed from a systemic perspective.

RÉSUMÉ

Dans les dernières années, les chercheurs ont essayé de réduire le phénomène de l'intimidation dans les écoles en utilisant une approche systèmique ("Whole School Approach"). Les résultats des démarches prouvant l'efficacité des programmes contre l'intimidation varient mais sont prometteurs (Elsea & Smith, 1998; Olweus, 1993). La présente étude a examiné le résultat à court terme d'un programme contre l'intimidation en comparant des enfants (de 1ère année à la 8e année) d'une école impliquée dans le programme à une école comparative. Les résultats on démontré que l'intimidation n'avait pas diminué 4 mois après que le programme fut amorcé. On a noté, cependant, chez les enfants plus âgés (3e à 8e année) des améliorations dans les niveaux de victimisation, dans l'isolement des pairs, et une perception de l'école comme étant plus sécuritaire. Les chercheurs ont trouvé des résultats contradictoires chez le groupe d'enfants plus jeunes (1ère et 2e année) et entre les garçons et les filles. Nous explorons les implications et limites de la présente étude en utilisant une perspective systémique.

Peer victimization is an area that recently has received significant attention. Studies indicate that 15-20% of children are involved in bullying as either the

aggressor or the victim (Craig, 1998; Olweus, 1993; Rigby & Slee, 1993). Researchers have found both immediate and distal problems are associated with victimization and bullying. Repeated victimization is associated with social anxiety, loneliness, depression, poor self-esteem, and unhappiness at school (Austin & Joseph, 1996; Craig, 1998). Moreover, depression in adulthood, and in rare incidents suicide, are related to severe peer victimization (Olweus, 1993; Smith & Sharp, 1994). Children who bully others report elevated levels of depression, unhappiness at school, and family conflict (Oliver, Oaks, & Hoover, 1994). Olweus (1993) reported that children involved in bullying in grades 6 through 9 were four times as likely to have criminal convictions by early adulthood. Bullying also affects peers who may witness the aggression and the resulting distress experienced by the victim (Olweus, 1993). Bullying problems are pervasive and effect all members of the school environment.

The negative prognosis for victims, bullies, and their peers necessitates intervention. The prevailing approach in bullying interventions utilizes a systemic design that targets the school environment and its community (Smith & Sharp, 1994). Whole School programs reduce bullying by effecting change at each level of the system. These programs operate at the levels of the community (parents), the whole school, the playground, each classroom, and individual students. Objectives of these programs include: increasing awareness among school members; engaging school personnel, parents, and peers; developing a school policy with explicit rules against bullying behaviour; and providing assistance to victims. The goal is to implement a climate of "positive peer pressure" within the school that condemns bullying and commends prosocial behaviour within a supportive atmosphere (Garrity, Jens, Porter, Sager, & Short-Camilli, 1996).

The theoretical basis of Whole School programming derives from research on the mechanisms that reinforce, maintain, and terminate bullying behaviours (Olweus, 1993; Smith & Sharp, 1994). Bullying is embedded in a larger context beyond the bully-victim dyad (Craig & Pepler, 1995; Salmivalli, Lagerspetz, Bjorkqvist, Osterman, & Kaukiainen, 1996; Twemlow, Sacco, & Williams, 1996). Peers are often involved in bullying situations as active participants or as passive on-lookers (Craig & Pepler, 1995). Bullying may be transmitted through the peer group when children with insecure peer status "model" the behaviours of a "powerful," aggressive child (Olweus, 1993). Thus, bullying may act as a social contagion whereby children observing these actions later engage in bullying themselves. Twemlow et al. (1996) suggest that witnessing bullying may vicariously victimize other children, sending the message that certain behaviours result in negative consequences, and thus decreasing the possibility of peer intervention. Bullying can permeate through the peer network and leave children feeling unsafe and insecure in their daily surroundings. The implication for intervention is to change the behaviours and actions of the peers.

School climate influences negative peer interactions and consequently, it needs to be addressed in an antibullying program. Olweus (1993) found that school factors such as teachers' attitudes toward bullying, the amount of supervision, and school policies regarding violence contributed to decreasing bullying.

When teachers view bullying as a serious problem, encourage positive behaviour, and intervene in a systematic fashion, reports of bullying decreased. By creating an atmosphere of adult concern, and improving communication between teachers and students, students can communicate when someone is being victimized (Smith & Sharp, 1994).

Improving the frequency of intervention by teachers also can be accomplished by increasing teacher availability. Olweus (1993) found that increasing teacher density on the play ground led to decreased bullying. The issue of supervision may be two fold: low levels of supervision decrease the chances that children who are bullying others will be identified; and low supervision may be interpreted by students that teachers are not concerned about bullying. Teacher attitudes and behaviours may be altered through an implementation model that targets the school policy (Pepler et al., 1993; Smith & Sharp, 1994). Schools with the best long-term outcomes were those with consistent routines of responding to bullying. The administration needs to set the example that bullying is taken seriously and will not be tolerated. Principals play a significant role in influencing the efficacy of antibullying programs (Farrington, 1993).

To date, researchers using systemic models in bullying prevention programs report positive results in reducing incidents of bullying (Pepler et al., 1993; Sharp & Smith, 1991). Eight months after introducing a systemic antibullying program, Pepler et al. (1993) reported that victimization decreased in children in grades 3 through 8. Olweus (1993) reported a 50% decrease in bullying after the introduction of antibullying programs. The present study extended previous research by evaluating the effectiveness of an antibullying program implemented at an elementary school (i.e., grades 1-8). Researchers have not examined children who are not able to read, yet they have included these children in their interventions. A second goal was to examine the intervention effects, with a consideration of sex and age differences.

Earlier intervention efforts have been systemic in their design; however, researchers have examined only the individual characteristics of bullies and victims. We examined (a) individual problems with bullying and victimization, and (b) peer group and school environment processes utilizing a systemic interactional model with an evaluation at each level of the intervention. The program aimed to create a supportive and safe environment within the school and establish firm limits and consistent consequences for bullying. Specific goals included increasing awareness, empathy and supervision, invoking the peers to speak against bullying and support others when they are victimized, and formulating a clear set of rules against bullying.

METHOD

Participants

Participants at one Intervention and one Comparison school were children in grades one through eight. Questionnaires were completed by 240 children (114

boys and 126 girls) at the Intervention school and 251 children (123 boys and 128 boys) at the Comparison school. Drop outs in the study from Time 1 to Time 2 were due to children missing school. A two-way analysis of variance revealed no significant differences on scores of bullying and victimization between schools on those that dropped out of the study from Time 1 to Time 2. Parents and teachers of the students completed questionnaires on bullying, victimization, and internalizing and externalizing behaviours of their children prior to the program and at the end. Questionnaires were completed by 23 teachers and 184 parents.

Intervention and Comparison schools were selected based on an expressed interest in reducing bullying. The two schools were comparable on the school programs, number of students, family composition (78% living with both natural parents, 5% living with one natural parent and a step-parent, 15% living with one natural parent, and 0.9% living in an "other" family configuration), race of the children (97% White, 0.3% Black, 1% First Nations and, 1% Asian), and age of children (M_{age} = 9.4 years).

<div align="center">INSTRUMENTS</div>

Child Questionnaires

Bully/victim questionnaire. A shortened version of the Olweus (1993) questionnaire was employed to assess perceptions of being bullied and bullying others. This questionnaire is the most commonly employed measure that assesses bullying. The scales included:

1. Standardized bullying/victimization self-report. A sum total of the items on bullying and victimization in the last five days and in the last six weeks was calculated. Scores were standardized and higher scores indicated higher levels of bullying and victimization. A similar scale was given to parents; hence, bullying and victimization reports for parents were computed. For the self and parent scales, Cronbach's · ranged from .70 - .79.

2. Frequency and severity of victimization, bullying and group bullying. Items included the frequency that each child bullied, bullied with a group or was bullied in six different school locations (e.g., on the bus). Each item was answered on a five-point scale, with high scores indicating more severity and frequency. Utilizing the same scale format, severity of seven types of victimization (e.g., "Being teased in an unpleasant way") was summed.

3. Content of victimization and the number of locations where bullying occurred. Items examined the frequency of bullying, group bullying, victimization, and the severity of victimization. The total number of places where bullying, victimization, and group bullying occurred, and the number of ways children were victimized were calculated. The total possible score was six for number of places of bullying and victimization scales, and seven for the content of victimization scale. (Cronbach's α for all items ranged from .68 - .99).

Peer Questionnaires

Sociometric scale. (Coie & Dodge, 1988) Nomination scores involved soliciting children's friendship choices. Students also nominated children in their class who they believed bullied others and were bullied by others. Proportions and standardized scores were calculated within each class for bullying, victimization and number of best friends.

Parent and Teacher Questionnaires

Child Behavior Checklist - Parent Rating Form (CBCL-PRF) (Achenbach & Edelbrock, 1983) and *Teacher Rating Form of the Child Behavior Checklist (CBCL-TRF)* (Achenbach & Edelbrock, 1991). These standardized instruments are the most widely used measures of child psychopathology. Only the anxious (14 items), social withdrawal (9 items), somatization (12 items), delinquency (11 items), and aggression (20 items) subscales of the parent form were used. Alpha levels ranged from .62 - .88 on all subscales for Time 1 and 2. Only the anxious (18 items), delinquency (9 items), and aggression (25 items) subscales for the teacher form were used. Alpha values for anxious, delinquency, and aggression subscales ranged from .70 - .97 for Time 1 and 2. Two items were added to the Teacher Report Form: "is bullied by others" and "bullies others."

Program Integrity Measures

Administrative data. Program leaders completed weekly checklists to determine program adherence. Approximately 80-85% of the material was covered in each class. Material that was missed was included in following sessions increasing program integrity to 90%. There was missing data for two classes. Homework assignments were completed 54% of the time.

PROCEDURE

Program

The twelve-week program was based on the Bully Proofing Your School program (Garrity et al., 1996) which is designed to increase understanding of bullying and decrease the incidence of bullying. Program components included: school-wide programs including a psycho-educational program implemented within each classroom, a Peer Mediation program, and groups for children referred for involvement in bullying and victimization. The program was modified for children in grades 1 and 2 so that the terminology, techniques, and tools were age appropriate. Testing was done at Time 1, two weeks before the program began, and at Time 2, one week after the program ended.

School-wide programs. The psycho-educational program was implemented by seven graduate psychology students who received training sessions and program manuals. Weekly meetings assessed the program progress and addressed any problems. Prior to the psycho-educational program, a school assembly

introduced students to the program. Classroom programs consisted of education with experiential opportunities, such as role plays and puppet techniques. Central topics included: bullying and victimization, conflict resolution, empathy, listening skills, and individual differences. The peer mediation program was based on the Peacemakers program (Alexander & McConnell, 1993) and involved 16 students in grades 5 through 8.

Individual programs for children involved in bullying. These sessions consisted of social skills, listening, and empathy training as well as supportive counselling. Children were referred to the bully or victim groups by teachers and the principal. These groups met separately for 45 minutes each week. Ten students were involved and met for eight sessions during the program.

Teacher programs. Three meetings were held with the teachers to discuss bullying, intervention approaches, and student support for those involved in bullying. Preliminary feedback was given to the teachers on the Time 1 data to increase awareness and sensitivity to bullying, the locations of bullying, and the level that students felt teachers intervened. During the intervention, the program coordinators met with the principal and teachers.

<center>RESULTS</center>

In order to assess changes related to the program implementation, scores on bullying, victimization, internalizing and externalizing behaviours at Time 1 needed to be equivalent for both schools. Scores on measures that differed at Time 1 were covaried using a MANCOVA. A Repeated Measures MANOVA was used to examine changes across time for scales that did not have a significant difference across schools at Time 1.
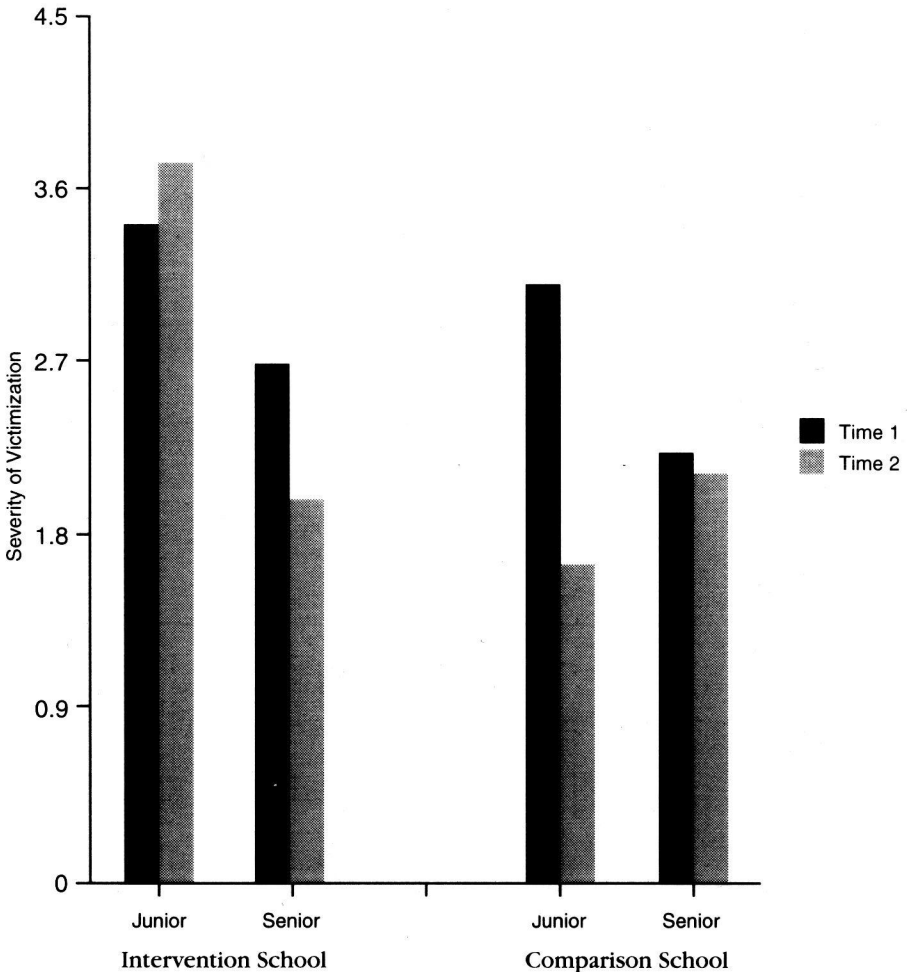
Peer and Self Child Reports

Nominations of bullying and victimization. A 2 (school) x 2 (sex) x 2 (level) x 2 (time) repeated MANOVA examined the effect of the antibullying intervention on self-reports of bullying and victimization. The two levels of grade were Junior (grades 1-4) and Senior (grades 5-8). Only relevant interactions are described. A school by sex by level interaction (multivariate $F(5,433) = 2.45$, $p < .05$) was found for the number of places bullying occurred (univariate $F(1, 437) = 5.20$, $p < .05$) and number of places that group bullying occurred (univariate $F(1,437) = 7.65$, $p < 0.01$). Post hoc tests revealed that older girls at the Comparison school reported more places where both individual and group bullying occurred ($M =1.5$, $M =1.6$, respectively) than older girls at the Intervention school ($M =.21$, $M =.35$). Older boys at the Comparison school reported fewer places where both individual and group bullying occurred ($M = .81$, $M = .66$) than at the Intervention school ($M = 1.5$, $M = 1.3$). No differences were found for younger boys or younger girls on the locations of bullying and group bullying.

A time by sex by level interaction (multivariate $F(5,433) = 2.34$, $p < .05$) was found for content of victimization (univariate $F(1,437) = 8.35$, $p < .01$). Older girls perceived that the number of ways they were victimized increased from

Time 1 to Time 2 at both schools (M = 2.4, and 3.3, respectively). No differences were found for younger girls, younger boys or older boys.

   Self-nominations of bullying, number of friends, and severity of victimization. A MANCOVA indicated a significant school by level interaction (multivariate $F(3,429)$ = 3.36, $p < .05$) for severity of victimization (univariate $F(1,429)$ = 8.77, $p < .01$). Post hoc tests revealed that older children at the Comparison school reported higher severity of victimization at Time 2 than older children at the Intervention school. Younger children, at the Comparison school reported lower severity of victimization at Time 2 when compared to younger children at the Intervention School. Figure 1 presents the means for severity of victimization.

FIGURE 1
*Severity of victimization at Time 1 and Time 2.*

Frequency of bullying and victimization. A significant sex by level interaction (multivariate $F(3,436) = 3.57$, $p < .05$) was found for frequency of victimization (univariate $F(1,438) = 5.01$, $p < .05$). No significant differences were found for the frequency of bullying and group bullying. Post hoc tests revealed that younger boys reported higher frequencies of victimization ($M = 2.6$) than older boys ($M = 1.1$). There was no significant difference between older and younger girls on frequency of victimization.

Peer group and school environment. A repeated MANOVA examined the effect of the antibullying intervention on perceptions of safety, peer acceptance, and peer and teacher involvement in intervening when bullying occurred. Only the significant interactions are discussed. A time by school by level interaction (multivariate $F(7,372) = 4.02$, $p < .05$) was found for safety (univariate $F(1,378) = 11.18$, $p < .01$), being alone (univariate $F(1,378) = 4.56$, $p < .05$), being left out

FIGURE 2

Mean scores on school environment factors for Junior students at both schools at Time 1 and Time 2.
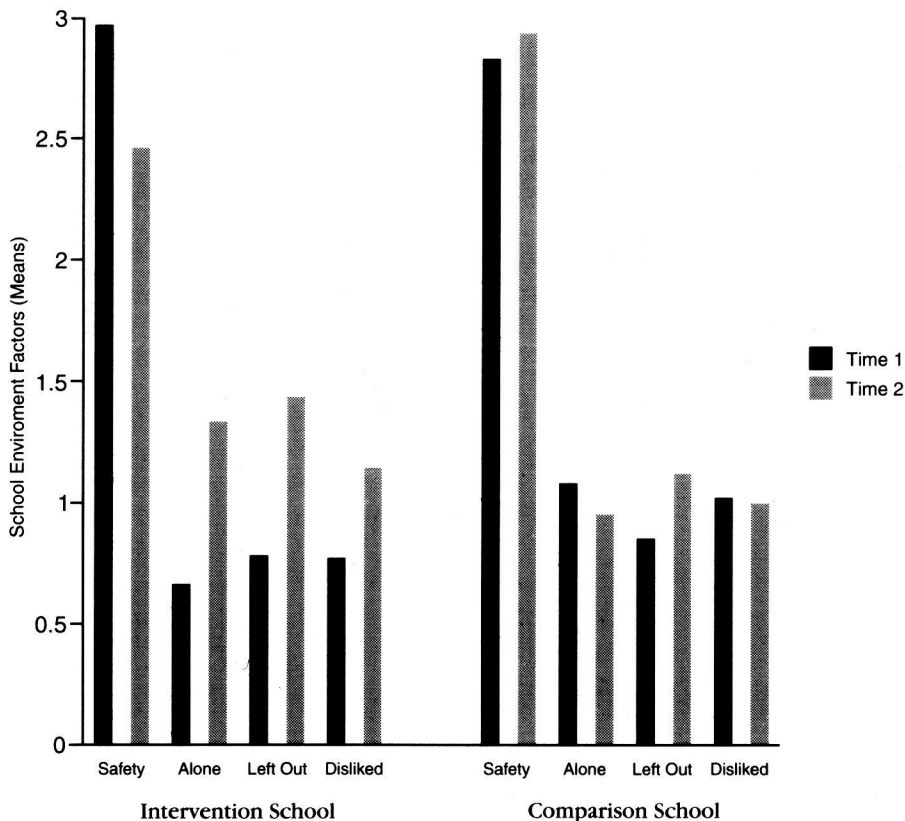
(univariate $F(1,378)$ = 9.28, $p < .01$), and being well liked by peers (univariate $F(1,378)$ = 11.93, $p < .001$). Younger children at the Intervention school reported a decrease in safety, a decreased perception of being well liked, and an increase in exclusion from Time 1 to Time 2. Older children at the Intervention school reported an increased perception of school safety and being well liked by their peers and a decrease in exclusion by peers. School environment and peer factors are presented in Figure 2 and Figure 3. No significant effects were found for older or younger children at the Comparison school on these variables.

A significant sex by school by level interaction (multivariate $F(7,372)$ = 2.08, $p < .05$) was found for perceptions of peer intervention (univariate $F(1,378)$ = 4.84, $p < .05$). Older boys at the Comparison school reported higher levels of peer intervention (M = 1.9) than did older boys at the Intervention school (M = 1.2). There was no significant differences between the older girls at both schools.

FIGURE 3

Mean scores on school environment factors for Senior students at both schools at Time 1 and Time 2.
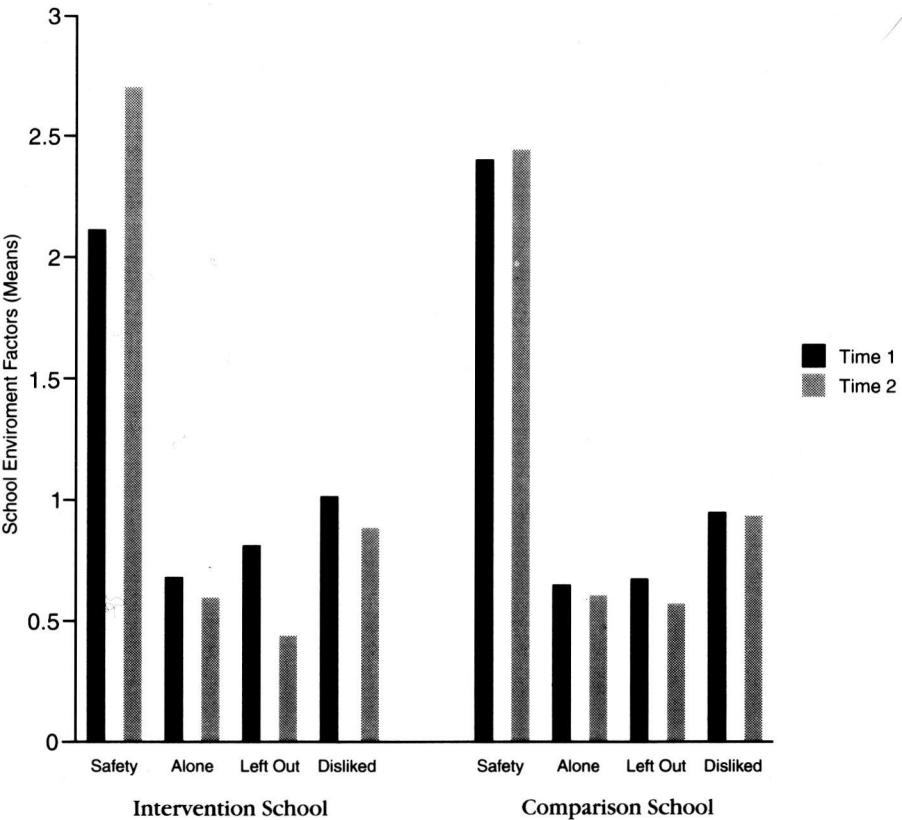
A time by school interaction (multivariate $F(7,372) = 2.33, p < .05$) was found for being left out by peers (univariate $F(1,378) = 7.58, p < .05$) and perceptions of teacher concern in reducing bullying (univariate $F(1,378) = 5.94, p < .05$). Children at the Intervention school reported an increase in teacher concern ($M = 1.6$ Time 1, $M = 2.4$ Time 2) when compared to children at the Comparison school who did not report any differences on teacher concern ($M = 2.0$ Time 1 and Time 2).

A time by level interaction (multivariate $F(7,372) = 10.04, p < .01$) was found for safety (univariate $F(1,378) = 8.07, p < .01$), being alone (univariate $F(1,378) = 20.80$, $p < .001$), being left out (univariate $F(1,378) = 6.91, p < .01$), teacher intervention in bullying (univariate $F(1,378) = 7.01, p < .01$), teacher concern about bullying (univariate $F(1,378) = 21.66, p < .001$) and being well liked by peers (univariate $F(1,378) = 11.03, p < .001$). Post hoc tests revealed that younger children reported an increase in being alone and being left out by others ($M = .6$ Time 1, $M = 1.3$ Time 2), an increase in teacher intervention and concern ($M = 1.2$ Time 1, $M = 2.6$ Time 2), and a increase in being well liked by their peers from Time 1 to Time 2 ($M = .7$ Time 1, $M = 1.2$ Time 2). Older children reported an increase in perception of school safety ($M = 2.1$ Time 1, $M = 2.8$ Time 2) and a decrease in being alone at school from Time 1 to Time 2 ($M = .6$ Time 1, $M = .4$ Time 2).

Parent Reports

Only the significant interactions are reported. A time by sex by level by school interaction (multivariate $F(4,171) = 4.07, p < .01$) was found for parents' reports of externalizing behaviour (univariate $F(1,174) = 4.83, p < .05$). Parents reported increases in externalizing behaviours in older boys at the Intervention school ($M = 5.7$ Time 1, $M = 8.5$ Time 2) and a decrease in older girls ($M = 6.2$ Time 1, $M = 5.2$ Time 2).

A time by sex by level interaction (multivariate $F(4,171) = 2.99, p < .05$) was found for parents' reports of internalizing behaviour (univariate $F(1,174) = 10.95$, $p = .001$). Parents reported decreases in internalizing behaviour in older boys from Time 1 to Time 2 ($M = 7.4$ Time 1, $M = 5.2$ Time 2), whereas they reported an increase in older girls ($M = 6.1$ Time 1, $M = 7.5$ Time 2). Younger boys and younger girls did not change over time.

A repeated measures MANOVA examined the effect of the antibullying intervention on parent reports of aggression, delinquency, withdrawal, somatization, and anxiety. A significant main effect was found for sex (multivariate $F(5,177) = 2.49, p < .05$) on delinquency (univariate $F(1,181) = 7.58, p < .05$) and aggression (univariate $F(1,181) = 3.80, p < .05$). Parents reported higher scores on delinquency ($M = 6.3$, $M = 1.2$, respectively) and aggression for boys compared to girls ($M = 6.6$, $M = 4.7$ Time 2).

Teacher Reports

A MANCOVA assessed the effect of the antibullying intervention on teacher reports of internalizing and externalizing behaviour and nominations. A significant sex by school interaction (multivariate $F(4,417) = 6.44, p < .05$) was found

TABLE 1
Summary of Program Related Effects

	Measure	Significance			
		Time x School	Time x School x Sex	Time x School x Level	Time x School x Level x Sex
	Comparison Groups				
Bully/Victim Measures	Severity of Victimization	ns	ns	*A	ns
	Peer Nomination: Victimization	ns	ns	ns	**B
	Teacher Nomination: Victimization	ns	*C	ns	ns
	Parent Nomination: Externalizing Behavior	ns	ns	ns	*D
Peer Factors	Left out	ns	ns	**A	ns
	Well Liked	ns	ns	**A	ns
School Environment	Teacher Concern	*E	ns	ns	ns
	Safety at School	ns	ns	**A	ns
	Alone at School	ns	ns	*A	ns

$^*p < 0.05$, $^{**}p < 0.01$

A effects are in the expected direction for Senior students and in the opposite direction for Junior students
B effects are in the expected direction for Junior girls and in the opposite direction for Junior boys
C effects are in the expected direction for girls
D effects are in the expected direction for Senior girls and in the opposite direction for Senior boys
E effects are in the expected direction

for teacher reports of victimization (univariate $F(1,420) = 15.58$, $p < .05$) and bullying (univariate $F(1,420) = 8.19$, $p < .05$). Post hoc tests revealed that teachers reported lower victimization scores in girls, but not boys, at the Intervention school when compared to the Comparison school ($M = .65$, $M = .15$). There were no differences between the two schools on teacher reports of bullying.

A second MANCOVA examined the effect of the antibullying intervention on the scores of teacher reports on anxiety, aggression, and delinquency. A significant main effect for sex (multivariate $F(3,434) = 3.13$, $p < .05$) was found for teacher reports of anxiety (univariate $F(1,436) = 4.19$, $p < .05$). Teacher reports of anxiety were higher for girls than boys at both schools ($M = 1.5$, $M = 2.4$, respectively). No other significant effects were found. Table 1 provides a summary of the results that are most relevant in a program evaluation.

DISCUSSION

This study examined the efficacy of a 12-week antibullying program. This study extended previous research by incorporating a Whole School model and

a multi-informant approach. Results showed that bullying did not significantly decrease for children attending the intervention school. Changes in the reports of victimization, internalizing and externalizing problems, peer factors, and school factors varied as a function of grade level and sex. Older children at the intervention school benefited from the antibullying program while younger children did not. Children in Junior grades reported increased difficulty with victimization and its associated correlates at the end of the program. Finally, girls tended to show more improvement after the intervention than did boys.

Frequency and Prevalence of Bullying and Victimization

Children, irrespective of grade level and informant, did not report decreases in bullying. These results are not discrepant from previous studies which report variable reductions in bullying behaviours after a short-term intervention (Pepler et al., 1993; Olweus & Alasker, 1994; Smith & Sharp, 1994). Craig and Pepler (1995) found that bullying actually increased and teacher intervention decreased six months after an antibullying intervention began. More promising program effects were found eight months after their programs had been implemented. Because the present study is a short-term evaluation, it is possible that these results may be premature. Researchers have suggested that bullying is a persistent behaviour that may be highly resistant to change and, thus, a dosage level of 12 weeks may be inadequate to produce significant changes in bullying (Smith & Sharp, 1994).

In contrast to the findings on bullying, victimization decreased for older children, but increased for younger children. Senior students at the Intervention school reported a decrease in the severity of victimization. Contrary to our prediction, Junior students at the intervention school reported increases in the severity of victimization. It is possible that the program simply heightened the awareness of bullying in young children by providing clear definitions of bullying behaviours without ameliorating the problem. Another possibility is that the program was effective for older students, but that it did not appropriately address issues relevant to younger children. In light of the stability in bullying, it is also possible that older children began bullying younger children who were less capable of defending themselves due to limited skills.

The results in victimization were not consistent across informants. Peer group reports of victimization for Senior students did not change, whereas Junior students reported a decrease in victimization in girls, but not in boys. Over the course of a school year, peer reputation may become less amenable to change and, thus, a four-month intervention and assessment interval may be too brief a period to expect changes in peer nominations (Crick & Grotpeter, 1996). Peer nominations indicated that Junior girls benefited from the program, while boys did not. Perhaps the approach in antibullying programs provides more appropriate intervention techniques for younger girls than for younger boys. Younger boys engaged in physical bullying more than any other form of bullying, whereas younger girls and older boys and girls engaged in verbal bullying most often

(Farrington, 1993). Because sex differences have been reported by younger children on the form of bullying, differential effects by sex and age on the program could be expected. Our program relied heavily on verbal instruction and may have disadvantaged younger boys who may require a more applied approach to intervention.

Overall, the positive results reported for girls, but not boys, suggests that the intervention may have been better suited for girls. Elsea and Smith (1998) reported sex differences in their antibullying intervention, there were improvements in boys, but not in girls. Contradictory results may be attributed to methodological differences between early studies and the present study. Previous research has relied mainly on self-reports, whereas the present study employed a multi-informant approach. Because peer reports have been correlated with reports of peer rejection and isolation, their perspective is unique in evaluating an antibullying program. Moreover, intervention by teachers necessitates a level of awareness that bullying is taking place; thus teachers' perception of bullying is an important aspect of antibullying evaluations. That self- reports increased in younger girls but teacher reports decreased, may suggest that teachers are not monitoring younger girls to the extent necessary. Additionally, an increased awareness in younger girls may have increased their sensitivity to victimization. In summary, reports of bullying were not affected by the introduction of an antibullying program and reports of victimization were not consistently across different grades.

Peer processes that support bullying behaviour such as social exclusion and limited peer intervention were primary targets of the antibullying program. Decreasing peer rejection and increasing peer intervention communicates to children who bully that the peer culture does not support bullying behaviour (Craig & Pepler, 1995). Overall, peer intervention in bullying was not perceived to increase over the intervention. Other researchers have reported a decreased sensitivity to bullying behaviours after an antibullying program was implemented (Craig & Pepler, 1995). One possibility is that the educational format desensitized students rather than increasing empathy and action by students.

Other peer process factors such as exclusion and rejection indirectly impact bullying behaviours by not supporting victimized children. In Senior students, exclusion decreased and acceptance increased, while the reverse was found for younger students. The negative results for younger children suggest antibullying programs may not adequately address peer processes for this age group. However, the positive reports of Senior students suggest that antibullying programs are successful in this group. Information on peer process also help to explain and effect change on other systemic factors such as the school environment.

Researchers have shown that the school environment plays a significant role in reducing bullying (Olweus, 1993; Smith & Sharp, 1994). Teacher intervention did not increase at the Intervention school. Teacher supervision did not increase at the Intervention school, thus it is not surprising that intervention did not

increase. Olweus (1993) indicated that improving teacher presence on the school yard impacts on the incidence of bullying by increasing the opportunity for adult intervention. All students reported an increase in teachers' concern suggesting that creation of an atmosphere of concern was accomplished. By increasing the perception of concern, it is possible that students were more comfortable in reporting bullying incidents to teachers.

Other factors related to school environment were positive school climate and perceptions of school safety. Older children appeared to benefit, while the program appeared to have detrimental effects on younger children. Reports of school environment are consistent with those of victimization and internalizing problems in Senior and Junior students. The group of children who reported decreases in victimization and exclusion also reported increased feelings of safety at school, whereas children who reported increases in victimization and isolation reported decreases in their perception of school safety. The consistency of results across each system of the Whole School model provides support for the use of a systemic approach to intervention. Shifts in one area of the system impact, either negatively or positively, other aspects of the system. Taken together, the school culture may have improved for older children, but not for younger children. Because older children report being less affected by bullying, perhaps the capacity for change was more easily met in older children. Perhaps changes in older children are more easily achieved through the method employed in the present study.

Limitations

Program components were not implemented as strongly as intended. The program integrity measures, although quite high, revealed that the homework portion of the intervention was not implemented effectively. Homework is used to generalize program effects. By not implementing the program appropriately, the results may not reflect the potential effects of the antibullying program. Related to the program design is the model by which the program was implemented. A top down approach that provided the intervention for the school rather than a consultant model was utilized. This approach may have decreased the investment in the program by school personnel (Smith & Sharp, 1994). However, implementation via trained graduate students has produced better results than programs implemented by school staff (Gottfredson, Gottfredson, & Skroban, 1998). The complication in antibullying programs derives from the orientation of the model being whole school based. When attempting to change the environment, it may be prudent to spend more time training members of the environment (i.e., teachers) while closely monitoring progress, rather than implementing the program externally (Smith & Sharp, 1994).

CONCLUSION

There are several implications from this study for educators and counsellors addressing problems of bullying and victimization. The theoretical premise of

antibullying programs should be systemic including interventions at the school level, in the classrooms, on the playground, as well as with individual children who are at risk for engaging in bullying or being victimized by others. Given the perception of both bullies and victims of school, it is important to address the school climate and environment to ensure schools are inclusive as well as consistent in addressing bullying. At the school level, policies recognizing and addressing the problem of aggression need to be developed and clearly articulated with respect to the roles and responsibilities of individuals implementing the policy. In addition the policies should include: procedures for assessing the problem of aggression and victimization; procedures for reporting and recording problems; principles to derive educational consequences for bullying; methods for ensuring the continued safety and protection of the victim; identification of key personnel to address the initiative and ensure the maintenance of antiviolence programs; methods of communication among staff regarding incidents; identification of school-wide campaigns to support the initiative; and support to educate and train staff and the school community.

Some individuals whose involvement in victimization and bullying has persisted over time may require more intensive intervention, such as support from local mental health agencies. Commitment to supporting these individuals to address problematic issues they may face, as well as focussing on developing their strengths requires recognition and commitment to maintaining the quality and importance of these services in our communities. In addition, promotion of partnerships with these agencies, schools, and families is important. There were also age and sex differences regarding the efficacy of the program suggesting we need to develop age-specific, as well as potentially gender-specific, programs aimed at reducing bullying and victimization.

This study made significant contributions in examining the systemic perspectives involved in Whole School programs. Two themes that emerged were differential effects of program by sex and age, and differences in reports depending on informant. Those at greatest risk for bullying and victimization (i.e., boys) were less affected by antibullying programs. Furthermore, younger children, who experienced more bullying (Farrington, 1993) benefited less from the antibullying intervention than older children. More extensive research in bullying programs for young children is important. Finally, long-term analysis of systemic effects of bullying prevention programs would provide greater insight into the trajectories of bullying and victimization after antibullying programs have been implemented.

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About the Authors

Leila Rahey is the Safe and Drug-Free Schools Middle School Coordinator in Boston. Her research interests include violence and substance use prevention in early adolescence.

Wendy Craig, Ph.D., is an Associate Professor of Psychology at Queen's University, Kingston, Ontario. She conducts research in the areas of bullying, victimization, girls' aggression, and dating violence.

Address correspondence to Dr. Wendy Craig, Department of Psychology, Queen's University, Kingston, Ontario, K7L 3N6, (613) 533-6014, fax (613) 545-2499, e-mail: <craigw@psyc.queensu.ca>.