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Process Evaluation of a School-Based Intervention to Increase Physical Activity and Reduce Bullying

Donna Bowes, BHA
Monica Marquis, BScHE, CHES
Wendy Young, PhD
Philippa Holowaty, PhD
Winston Isaac, PhD

Increases in schoolyard bullying and physical inactivity have become important issues to many stakeholders. Peers Running Organized Play Stations (PROPS) is a program designed to address these two issues in elementary schools. Using a “train the trainer” approach, PROPS was introduced to 41 schools. Results of a process evaluation indicate that the implementation rate was 39%. Resources were identified by some respondents as an implementation facilitator. A variety of barriers to implementation were identified: The PROPS program was not a component of anyone’s job at the school level, teachers or parent volunteers are needed to run the program, and there is no funding to purchase equipment or storage bins for the equipment. In addition, support for PROPS is vulnerable to changing environments. This process evaluation points to some needed changes for long-term sustainability of the program while highlighting challenges associated with implementing a program in the elementary school setting.

Keywords: *process evaluation; bullying; physical inactivity; school-based intervention; train the trainer*

The education sector has become increasingly interested in working with the health sector to increase the activity levels of children and youth. This interest has been driven by concern over the individual and societal impacts of increasing obesity in the

population (Health Canada, 2002). It is well documented that inactivity contributes to the obesity epidemic (Basrur, 2004; Katzmarzyk, 2002) and more than half of Canadian children and youth are not active enough for optimal growth and development (Canadian Fitness and Lifestyle Research Institute, 2004).

There is also research supporting the need for bullying prevention interventions for children (Millen, 2004; Pepler & Craig, 1997), with students reporting the playground as the most likely location for bullying (Olweus, 1993; Pepler, Craig, Ziegler, & Charach, 1994; Whitney & Smith, 1993).

Elementary schools are faced with numerous challenges to educate children, while public health departments are mandated to work with schools and school boards to implement health promotion programming. Both education and public health in our area (Halton Region) identified physical inactivity and bullying behaviors in children as priorities for interventions (M. Marquis, personal communication, October 1, 2002), and school was the recommended setting to implement interventions (Millen, 2004; Public Health Research, Education and Development Program, 2001). The literature (Public Health Research, Education and Development Program, 2001) recommends providing more physical activity opportunities during recess and lunch breaks, however there are no recommendations regarding programs or implementation strategies.

The Halton Region Health Department identified three programs that had been implemented within Ontario elementary schools to address physical inactivity and/or bullying. These three programs were Active Playgrounds, Playground Activity Leaders in Schools (PALS), and Peers Running Organized Play Stations (PROPS). All three programs were designed to increase physical activity, and two of the programs also addressed bullying behaviors.

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The Authors

Donna Bowes, BHA, is the dental coordinator at Halton Region Health Department, Oakville, Ontario, Canada.

Monica Marquis, BScHE, CHES, is a health promoter for Heart Health & Cancer Prevention in the Halton Region Health Department, Oakville, Ontario, Canada.

Wendy Young, PhD, is a professor in the School of Health Services Management at Ryerson University, Toronto, Ontario, Canada.

Philippa Holowaty, PhD, is an epidemiologist in Halton Region Health Department, Oakville, Ontario, Canada.

Winston Isaac, PhD, is the director of the School of Health Services Management at Ryerson University, Toronto, Ontario, Canada.

Active Playgrounds was designed and promoted by the Canadian Intramural Recreation Association (CIRA) to increase physical activity in elementary schools. The online resource detailed how to paint markings for games, such as hopscotch and four-square, on playgrounds to enable children to play these games. A resource guide with games and rules was also available.

PALS and PROPS are similar, much more comprehensive programs that address both physical activity and bullying on the playground using trained peer leaders. The components of the three programs are displayed in Table 1.

PALS was created by Peel Region, located in central east Ontario, Canada, and although it had been implemented in the elementary schools within that region, it was not in the public domain, as it was still in development.

The original PROPS program was developed in the Durham Region (central east Ontario) by a collaboration of key stakeholders, including school board officials from five school boards, teachers, and health department staff, and was released in 2002. A comprehensive approach including needs assessment, program plan and design, implementation strategies, and evaluation tools were incorporated into a manual. The PROPS manual is a step-by-step guide that provides direction on how to gain support for the program, how to recruit and train peer leaders, and how to implement, sustain, and evaluate program outcomes. The PROPS manual can be found at <http://www.lin.ca/resource/html/props/propstoc.htm>. Peer leaders are taught leadership skills, conflict resolution, and cooperative playground games such as four-square, wall ball, rock-paper-scissors, seven-up, skipping, and so forth. Trained PROPS leaders, ages 10 to 13, teach

TABLE 1
Comparison of PROPS, PALS, and Active Playgrounds Components

Component	PROPS PALS	Active Playgrounds
Support from administration	Yes	Yes
Painted schoolyards	Yes	Yes
Games taught	Yes	Yes
Equipment available	Yes	Yes
Squad of trained student leaders	Yes	No
Volunteer teachers and/or parents	Yes	No
Playground supervisors	Yes	No
Organized games and activities	Yes	No
Ongoing training sessions	Yes	No

NOTE: PROPS = Peers Running Organized Play Stations; PALS = Playground Activity Leaders in Schools.

and supervise younger children on the playground. The goals for the PROPS program are to increase physical activity, foster and develop leadership skills, and decrease bullying. PROPS was identified as the preferred program because of its comprehensiveness and, based on the opinions of Halton key stakeholders, comprised of health department staff, teachers, and curriculum consultants from both the public and Catholic school boards.

Halton Region is a large geographic area in southern Ontario with an ethnically diverse population of 450,000. There is a mix of rural and urban areas, with 300,000 people living in the urban areas. Two school boards are accountable for 112 elementary schools with 50,592 students.

The health department did not have the resources to visit all 112 schools in Halton to provide training on how to implement a PROPS program, so as a first step, it was decided that the PROPS binder would be distributed during two Active Playgrounds workshops that were already scheduled. CIRA offered free facilitated Active Playgrounds workshops throughout Ontario, and this was viewed as an ideal opportunity to introduce PROPS in the Halton Region. The two workshops were delivered in October 2003 to 36 schools, which sent 123 teachers, parents, and students. In a large group format, participants learned how to play traditional playground games. Each participating school was given a PROPS binder, CIRA resources (game books), physical activity guides, and skipping ropes.

Six months later, in April 2004, a comprehensive PROPS "train the trainer" workshop was delivered to 67 participants from 10 schools that had previously attended the workshops in 2003, as well as an additional

5 schools. This third workshop was structured differently and included a presentation outlining the goals of PROPS, leadership training for students, and implementation strategies for teachers and volunteers. Participants learned six games in a circuit and had an opportunity to practice being a leader. Forty-one unique schools registered for the workshops.

Preparation for the study involved a systematic description of the program, including the history, objectives, and a Logic Model (see Appendix A). Using the evaluation checklist from the *Program Evaluation Tool Kit* (Porteous, Sheldrick, & Stewart, 1997), the program lead identified the key evaluation questions to be answered in the process evaluation. Use of the *Program Evaluation Tool Kit* is standard practice in health units across Ontario.

The process evaluation was undertaken to determine if the implementation strategy used by the Halton Health Department was enough to encourage schools to implement a PROPS program as outlined in the PROPS binder. In addition, the evaluation was expected to provide information about the implementation barriers and enablers and whether the resources provided by the health department were useful.

► METHOD

A two-stage evaluation approach was designed using both electronic and word version questionnaires. The study met the requirements for ethical approval from the two school boards as well as Ryerson University. The principals of the 41 schools that participated in the workshops were notified by the school boards of the upcoming survey and were encouraged to respond. The principals were then contacted by e-mail and asked a few questions that would filter out the schools that implemented either Active Playgrounds or the PROPS program from those that implemented neither (see Appendix B). The initial filtering survey consisted of dichotomous questions that did not require pretesting. The schools that indicated they had implemented the program were then asked to participate in a more in-depth follow-up questionnaire, and the principal was asked to identify the best person to contact for the follow-up. The follow-up questionnaire (see Appendix C) was pretested with three teachers.

► RESULTS

A 100% response rate to the filtering questionnaire sent to the 41 schools was achieved when follow-up methods were used to augment the interactive Web survey. The number responding to the electronic survey was

15, or 36.5%, with the remaining 26 (63.5%) responses collected through a telephone survey with identical questions. Respondents indicated that 11 of the 41 schools (27%) had an Active Playgrounds or PROPS program currently running and an additional 5 (12%) schools had a program running at some point since 2003. Figure 1 presents the overall results in a flow chart format.

The 25 schools that indicated that they did not have a PROPS or Active Playgrounds program were questioned about bullying prevention programs in their schools. Twenty, or 80%, of those schools indicated that they had undertaken some form of bullying prevention activity. In addition, the 25 schools were also asked if they had any programs, other than physical education, that promoted physical activity, with 16 (64%) of them indicating that they had some type of program in place.

A 100% response rate for the follow-up questionnaire was achieved through an initial e-mail and then two follow-up contacts. Of the 16 responses from schools that had ever had PROPS or Active Playgrounds, 9 schools reported that they were currently running a PROPS program and 2 were running Active Playgrounds, 3 others had a PROPS program in the past, and 2 had Active Playgrounds programs at some time since 2003.

Of the nine schools that had implemented a PROPS program, three were operating it 3 or more days per week and five were operating it 1 to 2 days each week. One school was unable to answer this because of staff turnover. Seven of the nine schools ran their program in the fall and winter, whereas eight of the nine ran it in the spring. Out of the nine schools that were running PROPS, eight reported that they had a squad of trained leaders.

The PROPS binder was viewed as extremely useful by four of the schools and useful and moderately useful by the other four.

In response to a question about what worked well in implementing PROPS, most indicated that the support of administration (including school boards and school support staff), teachers, students, and parents was the key to success, along with regular training sessions and "lots of publicity."

Responses to what did not work well in implementing PROPS identified lack of storage space for PROPS equipment as an issue; time for training and staff participation were also indicated as major problems.

Three schools that reported they had a PROPS or Active Playgrounds program at some time since 2003 but no longer had a program stated it was discontinued because they were unable to get or keep volunteers interested in running the program.

The two schools that indicated they were currently running only the Active Playgrounds portion of the PROPS program were satisfied with the level of use of

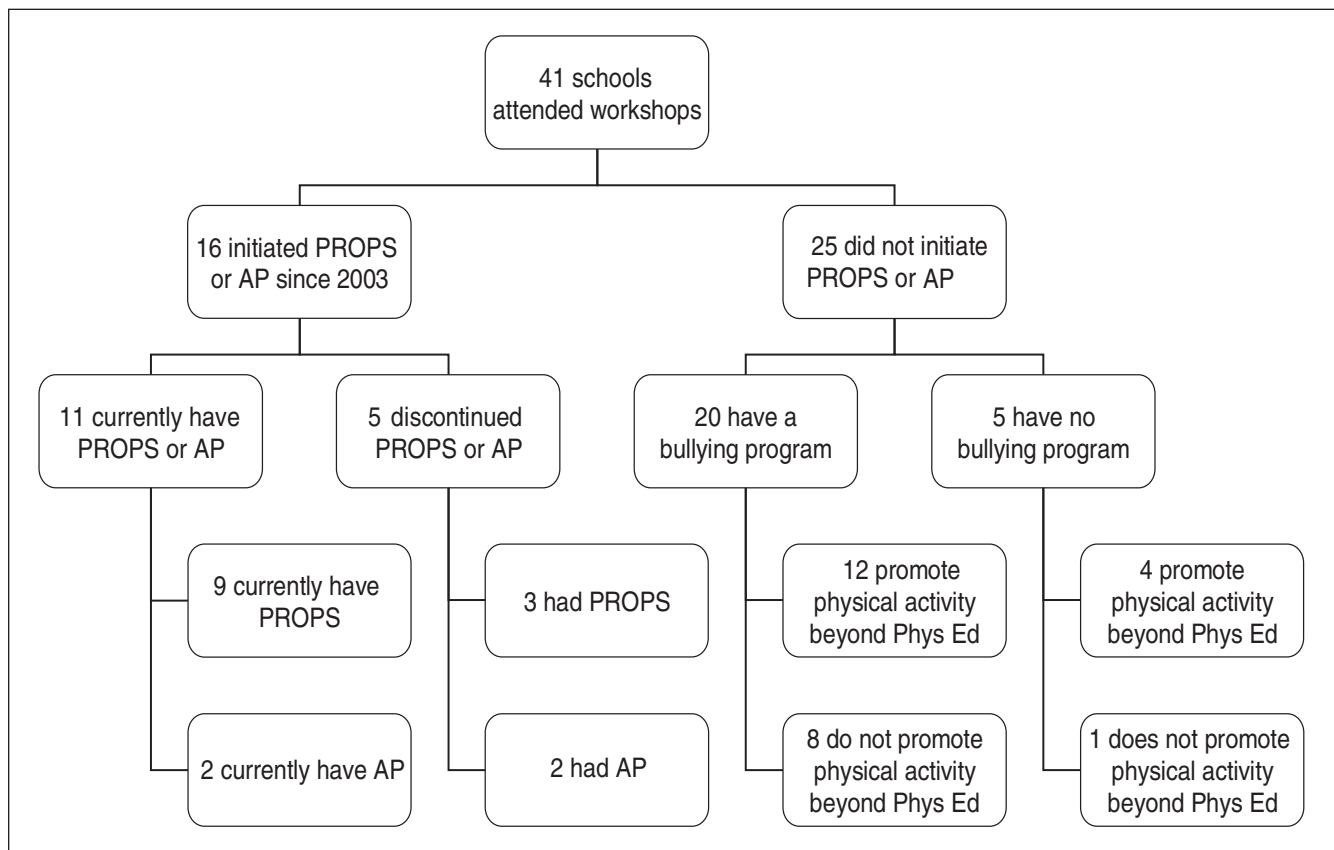


FIGURE 1 Programming Related to Physical Activity and Bullying Prevention in the 41 Schools That Attended the Workshops: Main Results Based on Two-Stage Questionnaire

NOTE: PROPS = Peers Running Organized Play Stations; AP = Active Playgrounds.

the playground and did not feel the need for a more formal playground program.

When asked what other support the school would require to implement or maintain the PROPS or Active Playgrounds program, the responses varied. Some felt that money was needed for more equipment and to pay for a supply teacher to free up time for the volunteer teacher to conduct a series of training sessions. Others indicated that they needed support and ideas for recruiting senior students, teachers, and parents as well as support from administrative staff. One respondent commented that it would be helpful to have some information about integrating autistic children into the games.

► DISCUSSION

This study determined that the implementation rate was 16 out of 41 schools (39%). Specific factors that contributed to the ability of schools to implement a PROPS program are not clear, however resources were identified

by some respondents as an implementation facilitator. There were a variety of barriers to implementation identified: The PROPS program was not a component of anyone's job at the school level, teachers or parent volunteers are needed to run the program, and there is no funding to purchase equipment or storage bins for the equipment. In addition, support for PROPS is vulnerable to changing environments, including staffing changes at school boards, within schools, and within the health department.

Strengths of this study include the following: (a) a 100% response rate, (b) the study fills a gap in knowledge about implementation rate following a "train the trainer" approach, (c) good data were collected on one implementation strategy, (d) this is a unique study, and (e) it is likely generalizable to other school jurisdictions.

Determining whether the PROPS program was implemented as planned was challenging, as teachers and principals change schools on a regular basis. The use of an electronic survey required follow-up via telephone, as many teachers do not use e-mail regularly in

these schools. Of the 25 schools that reported not implementing the program, it is not known if any programs were ever implemented because the contact person was no longer at the school. We were not able to collect outcome data, as there were no pre- and post observations of physical activity or bullying behaviors. There is no comparable data, and we did not try more than one strategy.

This process evaluation points to some needed changes (enablers) for long-term sustainability of the program in schools, while highlighting challenges (barriers) associated with implementing a program in the elementary school setting. Changes that are necessary to improve the ease of implementation include increased support from school boards for those at the individual school level to implement the program, storage space for equipment, and possibly a formal partnership agreement between the health department and school boards that does not depend on individuals for continuity.

The evaluation does not address the unintentional benefits that some schools or the community have anecdotally reported or the different implementation strategies that have been used. Based on a variety of anecdotal reports, future research questions include the following:

- Does the PROPS program improve school culture?
- Does uptake of a PROPS program facilitate policy change in schools?
- Can the PROPS program facilitate budget reallocation at a school board? For example, if schools are successful with a PROPS program, will school boards budget for lines to be painted on the tarmac for the games?
- Will other networks or organizations provide funding for equipment for this program?
- Can high school students be trained as PROPS facilitators to support individual schools?
- Will children play the games they learn at school at home and after school unsupervised?
- What is the most cost-effective implementation strategy?
- Does this program reduce bullying?
- Does this program increase daily physical activity?

Recommendations for Practice

Health promotion practitioners work in a dynamic, fast-paced environment. The political climate and the environment where programs are implemented are constantly changing. Oftentimes, the excitement of implementing new programs and the readiness of the community to act do not allow time for establishing formal agreements and following planning models.

Recommendations for improving the implementation and evaluation of a peer-led program designed to increase physical activity and/or reduce bullying in an elementary school environment are as follows:

1. *Establish support for teachers and volunteers at the school level.* These individuals need more support in the form of dedicated time for recruiting peer leaders, training leaders, and passing the program onto new staff when leaving the school. This support could come from the school boards in the form of dedicated teacher time, administrative support, and a designated part-time coordinator or from the health department in the form of a designated physical activity promoter to work with all interested schools at the local level.
2. *Obtain funds to purchase equipment, game books, and storage bins.* Funding could come from school councils via fundraising, school administration, or private donations. Accessible storage space for the equipment storage bins is critical.
3. *Monitor the changing environment and be ready to support the program and modify it if necessary.* Political developments can threaten the sustainability of a program. For example, the Ontario Ministry of Education recently mandated 20 min of daily vigorous activity. They also announced funding for all schools to establish a comprehensive bullying prevention strategy. The mandated 20 min of daily vigorous activity must occur during classroom time, and to be eligible for the bullying funding, schools must implement government-approved bullying programs. These two announcements will take school administration attention away from continuing to disseminate the program to local schools, as PROPS is not currently an approved program. The process for obtaining program approval is not clear but is being investigated. In the interim, creative implementation strategies may prove to be an effective way to meet government requirements. For example, all games chosen could be of a vigorous or moderate intensity level and taught by peer leaders during classroom time.
4. *Explore other implementation models.* For example, peer leaders can teach games on the playground during recess, or they can teach games during physical education classes. A school that used the latter model reported that it was very successful. The PROPS leaders visited every classroom for one physical education class. Eventually, all students in the school learned the games so that when they went out at recess, they did not need anyone to teach the games.
5. *Any program designed to increase physical activity and decrease bullying requires evaluation.* Involve key decision makers early in the process to get formal agreements to initiate the evaluation process from the outset. For example, the PROPS program has an evaluation component that includes a pre- and postsurvey. It is imperative that physical activity levels and bullying behaviors are tracked before and after implementation of a program. Without

these data, there is no means to measure program impact or effectiveness. In this case, schools did not track bullying events unless they resulted in suspension, nor did they monitor activity levels during recess periods, so little emphasis was placed on the evaluation component at the beginning of the program.

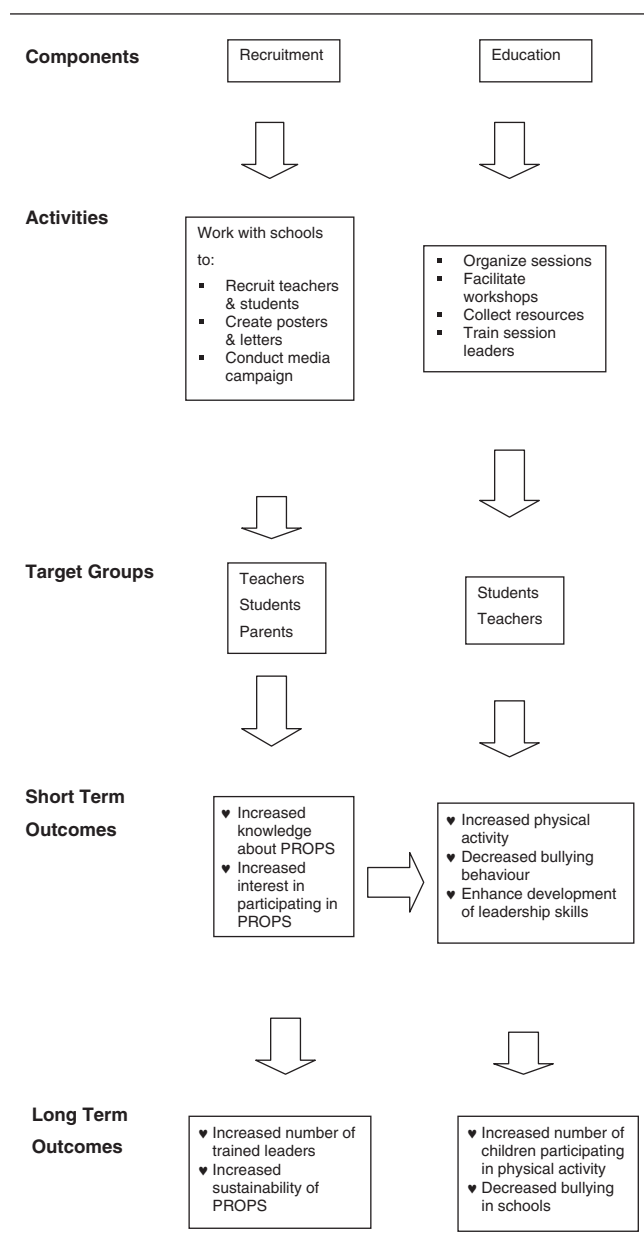
6. *When using electronic surveys, be prepared to follow up via telephone with those that do not respond.* In Halton schools, many teachers did not have access to e-mail on a regular basis, as there was often only one computer available for staff use. The 100% response

rate was achieved only when telephone contact was made during follow-up.

► CONCLUSION

Successful implementation of a peer-led program designed to increase physical activity and/or reduce bullying in an elementary school setting requires a creative multisector approach, which works collaboratively to build capacity of the individual schools to enable them to implement the program.

APPENDIX A PROPS LOGIC MODEL



APPENDIX B FILTERING E-MAIL FOR PRINCIPALS

Dear Principal,

The Halton Region Health Department, in co-operation with curriculum consultants from the HDSB and HCDSB promoted a program called PROPS designed to address issues of child inactivity/obesity and school bullying. The Health Department hosted two Active Playgrounds and one PROPS workshop between October 2003 and April 2004. Every school that attended received a PROPS binder to be used as a step-by-step implementation guide. Our records indicate that your school was represented at one or more of these workshops. According to our records, the attendee(s) from your school was/were: *specific names entered*

An evaluation of the PROPS program is being undertaken in order to determine:

- a) If the *Active Playground* portion of the PROPS program or the entire program has been implemented by any of the schools;
- b) Whether the PROPS binder provided by the Health Department was useful;
- c) What worked and did not work well in implementing the PROPS program; or
- d) Why the entire PROPS program was not implemented if only the Active Playgrounds portion is running.

The evaluation is being conducted by Donna Bowes, a student with Ryerson University, School of Health Services Management, who is also an employee with the Health Department. Individual responses to the following questions will remain confidential. If you have any questions or concerns, please contact Donna Bowes at 905-825-6000 Ext. 7567 or via e-mail at bowesd@region.halton.on.ca.

Please respond to the following four questions by **Friday, November 4, 2005.**

1. Do you have a PROPS or Active Playgrounds program in your school?
 - YES (go to 4)
 - NO (go to 2)

2. Have you had a PROPS or Active Playgrounds program in your school at any time since 2003?
 - YES (go to 4)
 - NO (go to 3)
 - Don't know (go to 3)
- 3a) Do you have any type of bullying program in your school?
 - YES (go to 3b)
 - NO (go to 3b)
- 3b) Other than physical education, do you have a program to promote physical activity in your school?
 - YES (go to 5)
 - NO (go to 5)
4. If you currently have, or have had, a PROPS or Active Playgrounds program in your school, would you be willing to answer a brief follow-up questionnaire about the implementation of the program? *Check all that apply*
 - Yes, I am willing to complete the brief follow-up questionnaire.
 - I would prefer to have the brief follow-up questionnaire completed by the teacher at the following e-mail address:

No, I do not wish to answer the follow-up questionnaire.

APPENDIX C FOLLOW-UP QUESTIONNAIRE

Dear Participant,

Thank for agreeing to participate in the evaluation of the Halton PROPS or Active Playgrounds program. This evaluation is being conducted for the Halton Region Health Department by Donna Bowes, a student with Ryerson University, School of Health Services Management, who is also an employee with the Health Department.

The following questionnaire poses questions about the implementation of the PROPS or Active Playgrounds program in your school. Responses are anonymous and will remain confidential. They will be used only to produce aggregate reports that do not identify individuals. The data will be used for administrative purposes, such as planning, and may also be used for scholarly and professional purposes.

This questionnaire should take 15 to 20 minutes to complete. Please complete the questionnaire by **Friday, November 18, 2005**.

Instructions:

- Read each question carefully and enter your response.
- After you have entered your response, click on the **Next** button to go to the next question.
- If you need to change your answer, click the **Back** button to return to the previous question.
- Questions marked with a * require a response to continue with the survey.

Your responses are received anonymously using this software.

If you have any questions, please contact Donna Bowes at 905-825-6000 Ext. 7567 or Toll Free at 1-866-442-5866.

Start the questionnaire by clicking on the **Next** button below.

DEFINITIONS:

Active Playgrounds is a version of PROPS that involves painting lines in schoolyards for games and making equipment available to the students. It may include some limited teaching of games and rules.

PROPS, or Peers Running Organized Play Stations, refers to an entire program implemented as outlined in the PROPS manual but may have been customized to suit the school. The program includes having a squad of trained student leaders, support from administration, volunteer teachers, playground supervisors, ongoing activity and games, painted schoolyards, and equipment available.

1. Please indicate if your Active Playgrounds or PROPS program:
 - Is currently running (go to 2)
 - Ran in the past but has been discontinued (go to 9)
2. Indicate which program is currently running in your school:
 - Active Playgrounds (go to 10)
 - PROPS Program (go to 3)
3. How many times per week does the PROPS program run?
 - 1 to 2 3 or more
4. Please indicate the time of year the program runs: (*check all that apply*)
 - Fall Winter Spring

5. Do you have a squad of trained leaders in your school?
- YES NO
6. On a scale of 1 to 5, with 1 being the lowest and 5 the highest, please rate the usefulness of the PROPS binder for implementing the program:
- | | | |
|-------------------|---|------------------|
| Not at all useful | | Extremely useful |
| 1 | 2 | 3 |
| | | 4 |
| | | 5 |
7. What worked well in implementing PROPS in your school?
8. What did not work well in implementing PROPS in your school?
9. Please indicate which program was in your school and tell us why it was discontinued.
- Active Playgrounds—reason discontinued (go to 11)
- PROPS—reason discontinued (go to 11)
10. Please give reasons why your school did not implement the entire PROPS program.
11. What other support does your school require to implement or maintain an Active Playground or PROPS program?
-

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