Status of Daily Physical Activity (DPA) in Ontario elementary schools

Findings and recommendations from an evaluation of DPA policy implementation

EVALUATION RESEARCH REPORT

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Findings and recommendations from an evaluation of DPA policy implementation
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List of Abbreviations

AEFO - Association des enseignantes et des enseignants franco-ontariens
CODE - Council of Directors of Education
CPCO - Catholic Principals’ Council of Ontario
DPA - Daily Physical Activity
EDU - Ontario Ministry of Education
EQAO - Education Quality and Accountability Office
ETFO - Elementary Teachers’ Federation of Ontario
HPE - Health and Physical Education
MIDENT - Ministry of Education School Identifying Number
MOHs - Medical Officers of Health
MVPA – moderate to vigorous physical activity
OASPHE - Ontario Association for the Support of Physical and Health Educators
OECTA - Ontario English Catholic Teachers’ Association
OPC - Ontario Principals’ Council
OPHEA - Ontario Physical and Health Education Association
OSDUHS - Ontario Student Drug Use and Health Survey
OTF - Ontario Teachers’ Federation
PHO - Public Health Ontario
PHU - public health unit
PPM - Policy/Program Memorandum
Q&A - question and answer
Executive Summary

Introduction

In 2005, the Ontario Ministry of Education (EDU) released Policy/Program Memorandum (PPM) No. 138: Daily Physical Activity (DPA) in elementary schools, Grades 1-8. This policy requires school boards to ensure that all elementary students, including students with special needs, receive a minimum of 20 minutes of sustained moderate to vigorous physical activity (MVPA) each school day during instructional time. As a school-based structured opportunity, this policy potentially contributes to students achieving the Canadian guidelines of 60 minutes of physical activity per day, and the associated physical, social and mental health benefits. However, since its release, there have been no Ontario-wide evaluations of its implementation. In light of this, Public Health Ontario (PHO) conducted the current study to examine the extent to which DPA is being implemented across Ontario elementary schools and the factors that may influence implementation. This report summarizes findings from the study and provides evidence-informed recommendations to the EDU for strengthening the policy in Ontario.

Methods

Two cross-sectional online surveys were administered during the 2013–14 school year; one of Ontario elementary school administrators and one of elementary school teachers. The surveys focused on implementation fidelity to the DPA policy (the extent to which the policy is being implemented as intended), within their respective schools (via the school administrator survey) or classrooms (via the teacher survey). The surveys also examined factors that may be associated with implementation.

To measure implementation fidelity, we asked participants questions related to each of the six requirements of the policy, which we operationalized as:

1) Duration (minimum of 20 minutes);
2) Frequency (each school day);
3) Scheduling (during instructional time);
4) Intensity (moderate to vigorous physical activity);
5) Continuity (sustained physical activity); and
6) Inclusivity (including children with special needs).

Based on the responses, we calculated a composite score for each respondent and used this value to categorize their respective school or classroom as either meeting or not meeting the DPA policy requirements. The surveys also included questions related to participants’ awareness of DPA policy requirements; perceptions of the DPA policy; scheduling and monitoring activities; use of DPA resources and supports; perceptions of barriers to implementation; self-efficacy to carry out DPA activities; and personal characteristics.
As indicated earlier, our study sample was comprised of two groups: Ontario elementary schools (where school administrators responded on behalf of their respective schools) and Ontario elementary school classrooms (where teachers responded on behalf of their respective classrooms). Our school sample was designed to be representative of all elementary schools within the province based on four characteristics: school board language (French versus English); school board type (public versus Catholic); school location (urban versus rural); and school enrolment size (small, medium and large). Additionally, our sample of classrooms consisted of grades 3, 5 and 7 to ensure representation from primary, junior and intermediate levels.

In February 2014, we contacted principals from 532 randomly-sampled schools for approval to conduct the study there. From these, 228 principals agreed to have their school participate and were subsequently invited to participate in our school administrator survey. In April 2014, we invited 508 teachers whose school administrator had participated in the survey to participate in a separate but similar teacher survey.

Univariate (descriptive) analyses were conducted to determine the frequency and distribution of responses for both the school administrator and teacher surveys. In addition, we used chi-square tests and generalized linear mixed models to examine the relationship between various predictors of implementation and implementation fidelity at the school and classroom levels, respectively.

Survey results

Demographics

| School administrator results | 209 school administrators participated in the school administrator survey for a response rate of 39.3% and formed the analytic school sample for our study. Within this sample, the representation of school board and school characteristics was similar to that of all Ontario elementary schools. |
| Teachers results | 307 teachers participated in the teacher survey for a response rate of 60.4% and formed the analytic classroom sample for our study. |

Overall implementation fidelity

| School administrator results | 61.4% of schools were classified as meeting the policy requirements. Of the six individual policy requirements, implementation fidelity is lowest for the continuity component of the policy among schools (i.e., the smallest proportion of schools meet the sustained physical activity requirement). |
| Teachers results | Exactly half (50.0%) of classrooms were classified as meeting the policy requirements. Similar to school administrator results, implementation fidelity is lowest for the DPA continuity component among classrooms. |
## School board/school characteristics and implementation fidelity

| School administrator results | A significant difference in school-level implementation fidelity was found by board type. Two-thirds (66.7%) of public schools meet the DPA policy requirements compared to slightly less than half (47.4%) of Catholic schools. |
| Teachers results | We found no significant associations between overall implementation fidelity at the classroom level and school board and school characteristics. |

## Awareness of DPA and implementation fidelity

| School administrator results | Most school administrators (81.1%) are aware of four or more of the six policy requirements. However, awareness is lowest for the level of intensity at which DPA is to be conducted (49.5%) and whether it is to be conducted continuously (41.1%). Overall awareness of the DPA policy is significantly associated with school-level implementation fidelity. |
| Teachers results | At the classroom level, the majority of teachers (62.3%) are aware of four or more of the six policy requirements. Consistent with school administrator results, less than half of teachers are aware of the intensity (44.7%) and less than one-third (31.5%) are aware of the continuity policy requirements. Overall awareness of DPA is also significantly associated with implementation fidelity at the classroom level. |

## Scheduling/monitoring activities and implementation fidelity

| School administrator results | Most school administrators (66.5%) reported that DPA is scheduled within their teachers’ timetables. However, the majority (72.3%) also indicated that their school lacks a monitoring procedure for implementing the policy. Both activities are significantly associated with school-level implementation fidelity; schools that have scheduling or monitoring activities are more likely to meet DPA policy requirements. |
| Teachers results | Most teachers (67.0%) indicated that DPA is scheduled within their own timetables. However, as with school administrator results, the majority (69.9%) stated that there is no DPA monitoring procedure within their school. Both activities are significantly associated with classroom-level implementation fidelity; classrooms are more likely to meet DPA policy requirements when teachers report the use of scheduling or monitoring activities. |
### Organization of DPA delivery and implementation fidelity

| **School administrator results** | In exploring how DPA may be delivered within schools, a greater proportion of school administrators (65.8%) reported that classes carry out DPA at separate times, as opposed to using a school-wide format. Further, most school administrators (83.7%) reported that DPA is typically led by a generalist teacher as opposed to one with a Health and Physical Education specialization. Neither aspects of DPA delivery are significantly associated with implementation fidelity at the school level. |
| **Teachers results** | DPA at the classroom level typically consists of classes participating at their own scheduled times, separate from other classes (48.5%), or having variations of school-wide and separate participation (41.2%). The majority of teachers (75.9%) reported that DPA is typically led by a generalist teacher. Similar to school administrator results, neither aspects of delivery are significantly associated with classroom-level implementation fidelity. |

### Self-efficacy and implementation fidelity

| **School administrator results** | Most school administrators reported a high level of confidence, a measure of self-efficacy, in successfully planning (65.2%) and implementing (62.8%) DPA activities. However, we did not find significant associations between school administrators’ confidence levels and school-level implementation fidelity. |
| **Teachers results** | Most teachers reported being highly confident in planning (62.3%) and implementing (60.1%) DPA. In contrast to school administrators, teachers’ confidence levels are significantly associated with classroom-level implementation fidelity. Classrooms where teachers are more confident are also likelier to meet DPA policy requirements. |

### Use of DPA resources and supports

| **School administrator results** | Only 11.3% of school administrators reported regularly using DPA-specific resources (learning tools) and only 8.7% regularly use supports (individuals/organizations) to help plan, implement and monitor DPA. When asked about the frequency of communicating with public health units (PHUs) regarding DPA, most school administrators (69.9%) said they rarely or never did. The use of DPA resources and supports is significantly associated with implementation fidelity at the school level, but the frequency of PHU communication is not. |
| **Teachers results** | We found similarly low regular use of resources (10.6%) and supports (5.3%) among teachers. Further, almost all (94.7%) teachers reported rarely or never communicating with their local PHUs regarding DPA. As with school administrator results, the use of |
DPA resources and supports is significantly associated with implementation fidelity at the classroom level, but the frequency of PHU communication is not.

**Perceived barriers to implementation**

| School administrator results | According to school administrators, the top three barriers to implementing DPA are competing curriculum priorities, lack of time and lack of teacher readiness. These barriers, along with others, are significantly associated with implementation fidelity at the school level. Specifically, the more school administrators agree that the barrier exists, the greater the likelihood that their school does not meet DPA policy requirements. |
| Teachers results | The top three barriers cited by teachers are lack of time, competing curriculum priorities and lack of space. These and other barriers were found to be significantly associated with classroom-level implementation fidelity. Similar to school administrator results, the more teachers agree that the barrier exists within their classroom, the greater the likelihood that their classroom does not meet DPA policy requirements. |

**Perceptions of the DPA policy**

| School administrator results | Most school administrators believe the DPA policy has positive impacts on students, including their physical (93.3%) and emotional (90.4%) well-being, and the development of physical activity habits (87.1%). Three-quarters of administrators (75.4%) believe that the policy is equally important as other school curriculum requirements, however just over half (56.0%) consider the policy realistic and achievable. |
| Teachers results | Among teachers, 91.8%, 89.1% and 80.6% believe DPA has a positive impact on students’ physical well-being, emotional well-being, and the development of physical activity habits, respectively. Just over half of teachers (58.3%) perceive the policy as equally important as other curriculum requirements, and less than half agree that the policy is realistic and achievable (43.0%). |
Recommendations

Based on findings from the school administrator and teacher surveys, we are providing 10 recommendations (described in detail in the report) for re-invigorating the DPA policy:

1. Renew DPA as a key component of a healthy school, and a core structured opportunity designed to benefit all students in publicly-funded elementary schools.
2. Re-confirm the importance of full implementation fidelity to the requirements of the policy at the school and classroom level, as a primary goal of a strengthened DPA initiative in Ontario elementary schools (grades 1-8).
3. Re-confirm that DPA is equally as important as other curriculum components.
4. Clarify all components of the DPA policy requirements to avoid ambiguity in awareness, understanding, and implementation.
5. Schedule DPA on a consistent basis in schools and classrooms.
6. Improve tracking and monitoring of DPA implementation status on a regular basis, to increase fidelity to the policy and demonstrate accountability.
7. Provide opportunities for school administrators and classroom teachers to increase their awareness of the DPA policy requirements, and increase teacher self-efficacy to plan and implement DPA.
8. Review and develop innovative ways to update existing DPA resources and supports for dissemination.
9. Develop innovative ways (in conjunction with the Ministry of Health and Long-Term Care and other stakeholders) to enhance reciprocal communication between the education and public health sectors to promote and support additional school-based opportunities for physical activity, including DPA.
10. Identify ways for school boards, schools and classrooms to make use of available space for DPA.
Sommaire

Introduction

En 2005, le ministère de l’Éducation de l’Ontario (EDU) a publié la note politique/programmes n° 138: sur l’activité physique quotidienne dans les écoles élémentaires, de la 1re à la 8e année. Cette politique exige que les conseils scolaires veillent à ce que tous les élèves du palier élémentaire, y compris les élèves ayant des besoins particuliers, fassent au moins vingt minutes d’activité physique soutenue, d’intensité modérée à vigoureuse, chaque jour de classe durant les heures d’enseignement. En prévoyant une activité structurée en milieu scolaire, cette politique pourrait contribuer à ce que les élèves se conforment aux lignes directrices canadiennes de 60 minutes d’activité physique par jour et bénéficient des avantages qui y sont liés sur les plans physique, social et de la santé mentale. Toutefois, depuis sa publication, aucune évaluation de sa mise en œuvre n’a été réalisée à l’échelle de l’Ontario. Dans ce contexte, Santé publique Ontario (SPO) a mené une étude afin d’examiner dans quelle mesure l’activité physique quotidienne (APQ) est mise en œuvre dans toutes les écoles élémentaires de l’Ontario et les facteurs qui peuvent influer sur la mise en œuvre. Le présent rapport résume les conclusions de l’étude et énumère les recommandations fondées sur des données probantes qui ont été présentées au ministère de l’Éducation dans le but de renforcer la politique en Ontario.

Méthodes


Afin d’évaluer la conformité de la mise en œuvre, nous avons posé aux participantes et participants des questions relatives à chacune des six exigences de la politique, qui se traduisent comme suit :

1) durée (au moins 20 minutes);
2) fréquence (chaque jour de classe);
3) horaire (durant les heures d’enseignement);
4) intensité (activité physique d’intensité modérée à vigoureuse);
5) continuité (activité physique soutenue);
6) inclusivité (incluant les élèves ayant des besoins particuliers).
À la lumière des réponses, nous avons calculé un pointage global pour chaque répondant et utilisé cette valeur afin de déterminer si son école ou sa salle de classe se conformait ou ne se conformait pas aux exigences de la politique d’APQ. Les sondages comprenaient également des questions aux participantes et participants concernant leurs connaissances des exigences de la politique d’APQ; leurs perceptions de la politique d’APQ; les activités de mise à l’horaire et de suivi; l’utilisation des ressources et des soutiens en matière d’APQ; les perceptions des obstacles à la mise en œuvre; l’auto-efficacité à réaliser les activités liées à l’APQ; et les caractéristiques personnelles.

Comme indiqué précédemment, notre échantillon de l’étude était composé de deux groupes : les écoles élémentaires de l’Ontario (où les administratrices et administrateurs scolaires ont répondu au nom de leurs écoles respectives) et les salles de classe du palier élémentaire de l’Ontario (où les enseignantes et enseignants ont répondu au nom de leurs salles de classe respectives). Notre échantillon d’écoles a été conçu pour être représentatif des écoles élémentaires de la province en fonction de quatre caractéristiques : la langue du conseil scolaire (français ou anglais); le type de conseil scolaire (public ou catholique); l’emplacement de l’école (milieu urbain ou rural); et la taille de la population scolaire (petite, moyenne et grande). En outre, notre échantillon de salles de classe était composé de classes de 3e, 5e et 7e année afin d’assurer la représentation des cycles primaire, moyen et intermédiaire.

En février 2014, nous avons contacté les directrices et directeurs de 532 écoles choisies au hasard dans l’échantillon afin d’obtenir leur autorisation d’y mener l’étude. De ce nombre, 228 directions ont accepté que leur école participe et elles ont ensuite été invitées à participer à notre sondage auprès des administratrices et administrateurs scolaires. En avril 2014, nous avons invité 508 enseignantes et enseignants à participer à un sondage distinct, mais semblable à celui auquel les administratrices et administrateurs scolaires avaient pris part.

Des analyses descriptives ont été réalisées afin de déterminer la fréquence et la répartition des réponses aux sondages réalisés auprès des administratrices et administrateurs scolaires et des enseignantes et enseignants. En outre, nous avons utilisé des tests du chi carré et des modèles mixtes linéaires généralisés pour examiner la relation entre les divers facteurs prédictifs de la mise en œuvre et la conformité de la mise en œuvre à l’échelle des écoles et des salles de classe, respectivement.

**Résultats des sondages**

**Caractéristiques démographiques**

<table>
<thead>
<tr>
<th>Résultats obtenus auprès des administratrices et administrateurs scolaires</th>
<th>Un total de 209 administratrices et administrateurs scolaires ont participé au sondage auprès des administratrices et administrateurs scolaires, ce qui représente un taux de réponse de 39,3 % et constitue l’échantillon d’analyse de notre étude. Au sein de cet échantillon, la représentation des caractéristiques des conseils scolaires et des écoles était semblable à celle des écoles élémentaires de l’Ontario.</th>
</tr>
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<tbody>
<tr>
<td>Résultats</td>
<td>Un total de 307 enseignantes et enseignants ont participé au sondage auprès des</td>
</tr>
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</table>
obtenus auprès des enseignantes et enseignants, ce qui représente un taux de réponse de 60,4 % et constitue l’échantillon d’analyse des salles de classe de notre étude.

**Conformité générale de la mise en œuvre**

<table>
<thead>
<tr>
<th>Résultats obtenus auprès des administratrices et administrateurs scolaires</th>
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<tbody>
<tr>
<td>On a constaté que 61,4 % des écoles se conformaient aux exigences de la politique. Parmi les six exigences de la politique, c’est celle se rapportant à la continuité qui a obtenu le plus faible pointage au chapitre de la conformité de la mise en œuvre parmi les écoles (c.-à-d. la plus faible proportion des écoles se conformait à l’exigence en matière d’activité physique soutenue).</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Résultats obtenus auprès des enseignantes et enseignants</th>
</tr>
</thead>
<tbody>
<tr>
<td>On a constaté que la moitié (50,0 %) des classes se conformait aux exigences de la politique. Tout comme dans le cas des résultats du sondage auprès des administratrices et administrateurs scolaires, c’est le volet de la continuité de l’APQ qui a obtenu le plus faible pointage au chapitre de la conformité de la mise en œuvre parmi les salles de classe.</td>
</tr>
</tbody>
</table>

**Caractéristiques des conseils scolaires et des écoles et conformité de la mise en œuvre**

<table>
<thead>
<tr>
<th>Résultats obtenus auprès des administratrices et administrateurs scolaires</th>
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<tbody>
<tr>
<td>Une importante différence a été constatée en matière de conformité de la mise en œuvre selon le type de conseil scolaire. Les deux tiers (66,7 %) des écoles publiques se conformaient aux exigences de la politique d’APQ, alors que c’était le cas d’un peu moins de la moitié (47,4 %) des écoles catholiques.</td>
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<table>
<thead>
<tr>
<th>Résultats obtenus auprès des enseignantes et enseignants</th>
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<tbody>
<tr>
<td>Nous n’avons constaté aucun lien significatif entre la conformité générale de la mise en œuvre à l’échelle des salles de classe et des conseils scolaires et les caractéristiques des écoles.</td>
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**Connaissance de la politique d’APQ et conformité de la mise en œuvre**

<table>
<thead>
<tr>
<th>Résultats obtenus auprès des administratrices et administrateurs scolaires</th>
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<tbody>
<tr>
<td>La plupart des administratrices et administrateurs scolaires (81,1 %) connaissent quatre exigences ou plus des six exigences de la politique. Toutefois, le taux de connaissance le plus faible se rapporte au degré d’intensité auquel l’APQ doit être réalisée (49,5 %) et à savoir si l’activité doit être réalisée de façon continue (41,1 %). La connaissance générale de la politique d’APQ est étroitement liée à la conformité de</td>
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la mise en œuvre à l’échelle des écoles.

À l’échelle des salles de classe, une majorité d’enseignantes et enseignants (62,3 %) connaîtraient quatre exigences ou plus des six exigences de la politique. Tout comme les résultats obtenus auprès des administratrices et administrateurs scolaires, moins de la moitié des enseignantes et enseignants (44,7 %) connaissaient l’exigence relative à l’intensité, tandis que moins du tiers (31,5 %) connaissaient l’exigence relative à l’activité continue. La connaissance générale de la politique d’APQ est aussi étroitement liée à la conformité de la mise en œuvre à l’échelle des salles de classe.

Mise à l’horaire et activités de suivi et conformité de la mise en œuvre

La plupart des administratrices et administrateurs scolaires (66,5 %) ont indiqué que l’APQ est prévue à l’horaire des enseignantes et enseignants. Toutefois, la majorité d’entre eux (72,3 %) ont aussi indiqué que leur école ne disposait pas d’un mécanisme de suivi de la mise en œuvre de la politique. Ces deux aspects sont étroitement liés à la conformité de la mise en œuvre à l’échelle des écoles. Les écoles qui mettent l’APQ à l’horaire ou ont des activités de suivi sont plus susceptibles de se conformer aux exigences de la politique d’APQ.

La plupart des enseignantes et enseignants (67,0 %) ont indiqué que l’APQ est prévue à leur horaire. Toutefois, tout comme les résultats obtenus auprès des administratrices et administrateurs scolaires, la majorité des enseignantes et enseignants (69,9 %) ont indiqué qu’il n’y avait aucun mécanisme de suivi de l’APQ dans leur école. Ces deux aspects sont étroitement liés à la conformité de la mise en œuvre à l’échelle des salles de classe. Les salles de classe sont plus susceptibles de se conformer aux exigences de la politique d’APQ lorsque les enseignantes et enseignants indiquent que l’APQ est prévue à l’horaire et qu’il y a des activités de suivi.

Organisation de la prestation de l’APQ et conformité de la mise en œuvre

En analysant la façon dont la prestation de l’APQ est assurée dans les écoles, une plus grande proportion d’administratrices et administrateurs scolaires (65,8 %) ont indiqué que les classes effectuaient l’APQ à divers moments, plutôt qu’au même moment pour l’ensemble de l’école. En outre, la plupart des administratrices et administrateurs scolaires (83,7 %) ont indiqué que l’APQ était habituellement dirigée par une enseignante ou un enseignant généraliste, plutôt que par une enseignante ou un enseignant spécialisé en santé et éducation physique. Aucun des aspects de la prestation de l’APQ n’est lié à la conformité de la mise en œuvre à l’échelle des écoles.

Dans les salles de classe, l’APQ est habituellement réalisée selon un horaire distinct,
sans égard à celui des autres classes (48,5 %), ou l'horaire peut varier selon qu'il s'agit d'une activité pour l'ensemble de l'école ou d'une activité distincte (41,2 %). La majorité des enseignantes et enseignants (75,9 %) ont indiqué que l'APQ est habituellement dirigée par une enseignante ou un enseignant généraliste. Comme dans le cas des résultats obtenus auprès des administratrices et administrateurs scolaires, aucun des aspects de la prestation de l'APQ n'est lié de façon importante à la conformité de la mise en œuvre à l'échelle des salles de classe.

Auto-efficacité et conformité de la mise en œuvre

La plupart des administratrices et administrateurs scolaires ont indiqué un degré de confiance élevé, une mesure de l'auto-efficacité, en matière de planification (65,2 %) et de mise en œuvre (62,8 %) de l'APQ. Toutefois, nous n'avons constaté aucun lien significatif entre les degrés de confiance des administratrices et administrateurs scolaires et la conformité de la mise en œuvre à l'échelle des écoles.

La plupart des enseignantes et enseignants ont indiqué qu'ils étaient très confiants à l'égard de la planification (62,3%) et de la mise en œuvre (60,1 %) de l'APQ. Contrairement aux administratrices et administrateurs scolaires, les degrés de confiance des enseignantes et enseignants sont étroitement liés à la conformité de la mise en œuvre à l'échelle des salles de classe. Les salles de classe dans lesquelles le degré de confiance des enseignantes et enseignants est plus élevé sont également celles qui sont plus susceptibles de satisfaire aux exigences de la politique d'APQ.

Utilisation des ressources et des soutiens en matière d’APQ

Seulement 11,3 % des administratrices et administrateurs scolaires ont indiqué qu'ils utilisaient régulièrement les ressources en matière d’APQ (outils d’apprentissage) et seulement 8,7 % utilisaient régulièrement les soutiens (particuliers et organismes) afin de les aider à planifier l’APQ, à la mettre en œuvre et à en assurer le suivi. Interrogés au sujet de la fréquence des communications avec les bureaux de santé publique (BSP) au sujet de l’APQ, la plupart des administratrices et administrateurs scolaires (69,9 %) ont indiqué que ces communications étaient rares ou inexistantes. L’utilisation des ressources et des soutiens en matière d’APQ est étroitement liée à la conformité de la mise en œuvre à l’échelle des écoles, mais cela n’est pas le cas en ce qui concerne la fréquence des communications avec les BSP.

Nous avons aussi constaté la même faible utilisation des ressources (10,6 %) et des soutiens (5,3 %) en matière d’APQ chez les enseignantes et enseignants. En outre, presque la totalité des enseignantes et enseignants (94,7 %) ont indiqué qu’ils communiquaient rarement ou jamais avec leur BSP local au sujet de l’APQ. Comme
dans le cas des résultats obtenus auprès des administratrices et administrateurs scolaires, l'utilisation des ressources et des soutiens en matière d’APQ est étroitement liée à la conformité de la mise en œuvre à l’échelle des salles de classe, mais cela n’est pas le cas en ce qui concerne la fréquence des communications avec les BSP.

Obstacles perçus à la mise en œuvre

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<tr>
<th>Résultats obtenus auprès des administratrices et administrateurs scolaires</th>
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<tbody>
<tr>
<td>Selon les administratrices et administrateurs scolaires, les trois principaux obstacles à la mise en œuvre de l’APQ sont les priorités concurrentes du curriculum, le manque de temps et le manque de préparation du personnel enseignant. Ces obstacles, ainsi que d’autres, sont étroitement liés à la conformité de la mise en œuvre à l’échelle des écoles. De façon plus précise, plus les administratrices et administrateurs scolaires étaient conscients de l’existence de ces obstacles, plus leur école était susceptible de ne pas se conformer aux exigences de la politique d’APQ.</td>
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<tr>
<td>Les trois principaux obstacles mentionnés par les enseignantes et enseignants sont le manque de temps, les priorités concurrentes du curriculum et le manque d’espace. Ces obstacles, ainsi que d’autres, sont étroitement liés à la conformité de la mise en œuvre à l’échelle des salles de classe. Comme dans le cas des résultats obtenus auprès des administratrices et administrateurs scolaires, plus les enseignantes et enseignants étaient conscients de l’existence de ces obstacles dans leur salle de classe, plus celle-ci était susceptible de ne pas se conformer aux exigences de la politique d’APQ.</td>
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Perceptions de la politique d’APQ

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<tr>
<th>Résultats obtenus auprès des administratrices et administrateurs scolaires</th>
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<tr>
<td>La plupart des administratrices et administrateurs scolaires estiment que la politique d’APQ a des retombées positives sur les élèves, notamment sur leur bien-être physique (93,3 %) et affectif (90,4 %), et l’acquisition d’habitudes concernant l’activité physique (87,1 %). Les trois quarts des administratrices et administrateurs (75,4 %) croient que la politique est tout aussi importante que les autres exigences du curriculum scolaire. Toutefois, seulement un peu plus de la moitié d’entre eux (56,0 %) jugent la politique réaliste et réalisable.</td>
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<tr>
<td>Chez les enseignantes et enseignants, 91,8 %, 89,1 % et 80,6 % estiment que la politique d’APQ a des retombées positives sur le bien-être physique et affectif des élèves, et l’acquisition d’habitudes concernant l’activité physique, respectivement. Un peu plus de la moitié des enseignantes et enseignants (58,3 %) croient que la politique est tout aussi importante que les autres exigences du curriculum scolaire, tandis que moins de la moitié (43,0 %) jugent la politique réaliste et réalisable.</td>
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Recommandations

À la lumière des conclusions des sondages réalisés auprès des administratrices et administrateurs scolaires et des enseignantes et enseignants, nous présentons 10 recommandations (celles-ci sont décrites de façon plus détaillée dans la version complète du rapport) afin de donner un nouvel élan à la politique d’APQ.

1. Réaffirmer que l’APQ constitue un élément clé d’une école saine et une activité de base structurée conçue pour bénéficier à tous les élèves des écoles élémentaires financées par les fonds publics.
2. Réaffirmer l’importance que la mise en œuvre soit conforme aux exigences de la politique à l’échelon de l’école et de la salle de classe, comme objectif principal d’une initiative de renforcement de l’APQ dans les écoles élémentaires de l’Ontario (de la 1re à la 8e année).
3. Réaffirmer que l’APQ est tout aussi importante que les autres éléments du curriculum.
4. Préciser toutes les composantes des exigences de la politique d’APQ afin d’éviter toute ambiguïté concernant la sensibilisation, la compréhension et la mise en œuvre.
5. Veiller à ce que l’APQ soit mise à l’horaire d’une manière cohérente dans les écoles et les salles de classe.
6. Améliorer le suivi et la surveillance périodiques de l’état de la mise en œuvre de l’APQ afin d’accroître la conformité à la politique et de démontrer la responsabilité.
7. Fournir aux administratrices et administrateurs scolaires et aux enseignantes et enseignants des occasions de mieux connaître les exigences de la politique d’APQ et d’améliorer l’auto-efficacité du personnel enseignant en matière de planification et de mise en œuvre de l’APQ.
8. Étudier et concevoir des moyens novateurs afin de mettre à jour les ressources et les soutiens disponibles en matière d’APQ.
9. Concevoir des moyens novateurs (en collaboration avec le ministère de la Santé et des Soins de longue durée et d’autres intervenants) afin de renforcer la communication entre les secteurs de l’éducation et de la santé publique afin de promouvoir et de soutenir d’autres possibilités d’activité physique en milieu scolaire, y compris l’APQ.
10. Trouver des moyens permettant aux conseils scolaires, aux écoles et aux salles de classe d’utiliser les locaux disponibles aux fins de l’APQ.
1. Introduction

In 2005, the Ontario Ministry of Education (EDU) released Policy/Program Memorandum (PPM) No. 138: Daily Physical Activity (DPA) in elementary schools, Grades 1-8. This policy requires that school boards ensure that all elementary students, including students with special needs, have a minimum of 20 minutes of sustained moderate-to-vigorous physical activity (MVPA) each school day during instructional time.¹

In 2012, researchers at Public Health Ontario (PHO) initiated three studies to assess DPA at a provincial level. In this report to the EDU, we present the findings from DPA Study 3, “Status of Daily Physical Activity in Ontario Elementary Schools”. It consisted of online surveys of school administrators and classroom teachers on DPA implementation in schools and classrooms. Based on these study findings, we also present evidence-informed recommendations to the EDU on strengthening the DPA policy.

In this section, we:

- Briefly review background information relating to physical activity (and its association with the health of children and youth), school-based opportunities for physical activity, and the introduction of the DPA policy in Ontario.
- Discuss the importance of evaluation.
- Summarize some key scientific literature on factors influencing physical activity policy and program implementation.
- Review the existing research that informed the need for a province-wide evaluation in Ontario.

In the subsequent sections, we explain the process of developing and administering the school administrator and teacher surveys, describe the methods for analyzing data from these surveys, and provide a descriptive summary of the findings. We finish with a discussion, including an interpretation of the findings, and a statement of evidence-informed recommendations to strengthen the DPA policy in Ontario.

1.1. Background

1.1.1. PHYSICAL ACTIVITY BENEFITS AND TRENDS

Physical activity is an important contributor to health, well-being and quality of life for Canadians of all ages. Regular moderate to vigorous physical activity (MVPA) by children and youth contributes to their physical health (e.g., adiposity, skeletal health, cardiorespiratory fitness), mental health, self-esteem, and is also positively related to academic performance.² ³
Canadian physical activity guidelines state that children should accumulate, through various activities, at least 60 minutes of MVPA daily in order to gain the health benefits described above. However, recent data based on objective measurement of physical activity indicate that only 7% of Canadian children and youth (age 6-19) are reportedly meeting that recommended guideline. Self-reported data often provide higher estimates of positive health behaviours. In Ontario, self-reported data from the 2013 Ontario Student Drug Use and Health Survey (OSDUHS) estimate that 31.1% of students in grade 7 meet the Canadian guidelines of 60 minutes of MVPA per day in the past seven days. The proportion of students meeting the guidelines is lower among progressive grade levels. Moreover, it is widely recognized that there are consistent declines in physical activity, especially among females, as students progress into and through secondary school.

Trends in physical inactivity among Canadian children and youth are concerning, as physical inactivity is recognized as a major contributor to increasing levels of overweight and obesity. National data from 2009–11 estimate that 24.8% of children and youth (age 5-17) are classified as overweight or obese, which is significantly higher than estimates from 35 years ago. Excess weight in childhood is linked to a range of immediate health concerns as well as potential health problems in adulthood. Therefore, it is important that measures are taken to promote positive health-related behaviours and environments conducive to maintaining healthy weights at all ages.

### 1.1.2. SCHOOL-BASED OPPORTUNITIES FOR PHYSICAL ACTIVITY

The provision of school-based opportunities for physical activity is an important approach as nearly all Canadian children and youth spend a significant amount of time at school. School-based physical education and physical activity programs have been shown to be effective in improving physical activity and fitness levels and other health outcomes among students. There are also other benefits. School-based physical activity is associated with improved classroom behaviour, concentration, and improved academic performance. Moreover, it has not been found to compromise academic performance. This last point addresses concern that time taken from academic subjects for physical activity will lead to lower academic performance.

Traditionally, Health and Physical Education (HPE) classes and recess have provided elementary students the venue and time for structured and unstructured physical activity during the school day. However, HPE and recess requirements vary across and within jurisdictions (provinces, school boards). That leads to differences in the amount of physical activity that students receive each day. For example, delivery of HPE can vary among schools by the number of days per week, active minutes per week, intensity of physical activity and quality of instruction. In many cases, HPE class does not meet every school day; sometimes, the class is devoted to health subjects in a classroom setting. Similarly, student activity levels during recess can vary.

In response to the need for increased physical activity, other school-based opportunities for physical activity have been developed to supplement traditional HPE class. Many of these opportunities are part of a broader, comprehensive approach to school health. This approach aims to address multiple health factors such as healthy eating, physical activity and mental health. In Ontario, the *Foundations for a
Healthy School framework, introduced in 2006 and revised in 2014, includes a physical activity component within its comprehensive approach. The revised framework document includes five components of a healthy school: curriculum, teaching and learning; school and classroom leadership; student engagement; social and physical environments; and home, school and community partnerships. As such, the DPA policy in Ontario is highly compatible with the broader conceptual approach identified in the Foundations for a Healthy School framework and similar healthy schools approaches. It is also consistent with the provincial government’s commitment to student well-being.

1.1.3. DAILY PHYSICAL ACTIVITY (DPA)

As previously mentioned, the EDU released the DPA policy in 2005. It was introduced as part of the Ontario’s Healthy Schools Strategy to support Canada’s Physical Activity Guidelines for Children and Youth. The DPA policy was intended to be inclusive of all students and be offered on days when students did not receive this amount of physical activity during HPE class. Physical activity must be sustained for 20 minutes to maximize time spent in MVPA.

“School boards must ensure that all elementary students, including students with special needs, have a minimum of twenty minutes of sustained moderate to vigorous physical activity each school day during instructional time.”

Full implementation of the DPA policy was projected for the end of the 2005–06 school year. Various DPA resources, including resource guides, were made available to school administrators and teachers to assist with implementation. Some school boards developed their own resource materials. Several important factors influenced the development and implementation of the DPA policy in Ontario. That included the need for flexibility in planning, scheduling and delivering DPA sessions at the school board, school and classroom levels.

Various DPA initiatives have been developed and implemented in other parts of Canada. Alberta Education implemented a DPA initiative in 2005, and the British Columbia and Nunavut Education ministries implemented policies in 2008. DPA is not currently mandated in elementary schools in any other provinces, although some have implemented similar initiatives or pilot projects. A unique feature of Ontario’s DPA, compared to similar policies or programs in other provinces, is that it must be offered during instructional time – not during recess, lunch hour, or after school. As such, it is a required component of the curriculum as well as a provincial policy.

1.2. Evaluation of DPA

Many types of school-based strategies for increasing physical activity among students, such as DPA, have been implemented throughout Canada and other countries with varied success. In addition to differences in strategies, various contextual factors can influence the adoption, implementation and potential impact of each policy or program. Therefore, it is important to evaluate such initiatives to identify the factors (i.e., program elements or contextual factors) that challenge or facilitate
implementation. That will inform future planning and decision-making. For public policies that are supported and funded by government, it is particularly important to conduct high quality evaluations of the policy to enhance accountability.\textsuperscript{8,40-42}

\subsection*{1.2.1. FACTORS AFFECTING IMPLEMENTATION OF SCHOOL-BASED PHYSICAL ACTIVITY INTERVENTIONS}

To inform our studies of DPA implementation, we conducted a scoping review – a process for rapidly mapping “the key concepts underpinning a research area and the main sources and types of evidence available.”\textsuperscript{43} Our scoping review explored the factors that may impede or facilitate implementation of school-based physical activity or physical education interventions. This review was updated in 2014 for the current report. Some articles were directly related to DPA policies in Canada,\textsuperscript{44-47} though most of the literature on this topic extends beyond DPA specifically. Consistent with the Social Ecological Model,\textsuperscript{48} many of these factors can be conceptualized on the organizational, interpersonal, and personal levels.

**Organizational-level** factors that were found to affect successful implementation of DPA or other physical activity/education interventions in schools include:

- The provision of appropriate training and resources to teachers for planning and implementing the programs, and modifying the programs to ensure inclusivity.\textsuperscript{44,47,49-53} This may include having a physical education specialist teacher working in the school.\textsuperscript{46,47,54}

- Availability of time within the curriculum,\textsuperscript{28,44,46,47,50-52} space/facilities,\textsuperscript{28,44-47,50-52,55} equipment,\textsuperscript{28,45,46,52,55} and budget.\textsuperscript{45,46}

- Level of accountability and performance measures required for the program (compared to other subjects that have clear expectations and performance measures).\textsuperscript{28,44}

In addition to these organizational-level factors, there are also **interpersonal-level** factors that school administrators and teachers may experience that affect implementation, such as:

- The level to which the program seems to be supported and prioritized within the school environment.\textsuperscript{28,44,46,50,51,53,54} For example, school administrators are considered key to developing a supportive environment for school-based physical activity policies and programs, and may influence how well it is received by others within the school environment.

- Perceived levels of support from school colleagues,\textsuperscript{55,56} community partnerships,\textsuperscript{49,55-57} and parents.\textsuperscript{46,49,55}

At the individual **teacher level**, some factors that may influence implementation include:

- The teacher’s personality (e.g., willingness to change),\textsuperscript{56} confidence level,\textsuperscript{47,53,56} relevant education and experience with physical activity.\textsuperscript{54,56}

- The teacher’s personal beliefs about the importance of the program.\textsuperscript{46,52,53}
In summary, these identified barriers and facilitating factors may influence implementation outcomes, particularly program fidelity (i.e., implementation as intended). Implementation outcomes, in turn, may then influence short and longer-term impacts of the policy, such as improving or maintaining physical fitness, overall health and wellness, and academic performance.\(^{41}\)

### 1.2.2. EXISTING STUDIES OF DPA IN ONTARIO

A number of previous studies have assessed components of DPA in Ontario. Robertson-Wilson and Lévesque examined DPA’s fit with the Hogwood and Gunn preconditions for perfect policy implementation, based on the information available in relevant 2005–07 EDU policy documents.\(^{58}\) This study found that several preconditions were accounted for in the development of the policy. However, the strategy still had gaps that could be addressed to facilitate optimal implementation, including “sustainability of resources, extent to which the policy is valued, and evaluation plans.”\(^{58}\)

Stone et al. later conducted an assessment in Greater Toronto Area schools of whether DPA was meeting its objectives in reach (all students), duration (20 minutes), intensity (moderate to vigorous) and frequency (every day) of physical activity.\(^{59}\) Using accelerometry, a physical measure of physical activity, the study found that most schools were not sufficiently implementing DPA.\(^{59}\) In fact, none of the students included in the study were found to meet the requirements of 20 minutes of sustained MVPA during the study period.\(^{59}\)

Patton investigated teachers’ perspectives and experiences in implementing DPA in the Greater London Area (Thames Valley District School Board) using a survey.\(^{44}\) Findings indicated that DPA was not being conducted as intended in terms of duration, intensity or frequency. Respondents also reported a number of barriers to program delivery.\(^{44}\)

The findings from these existing studies have contributed to some understanding of the current levels of policy implementation and the important factors associated with it. However, none of these studies have provided a provincial-level assessment of the status of DPA based on data derived from school administrators and classroom teachers.

### 1.2.3. DPA PROGRAM OF STUDY

Findings that DPA is not being implemented as intended in some school boards,\(^{44,59}\) combined with a review of the factors that may affect implementation of school-based physical activity/education interventions, provide the rationale to inform a provincial evaluation of DPA.

While other provinces have had provincially-focused implementation evaluations of DPA initiatives, there has not yet been an evaluation of policy implementation in Ontario. In light of this limitation, a joint report by Cancer Care Ontario and PHO made an evidence-informed recommendation to the Ontario government. It called for the evaluation of the status and quality of DPA in Ontario elementary schools.\(^{40}\) Such an evaluation was seen as a means of addressing the need for government accountability for monitoring this policy initiative, and also to establish a process for contributing to continued intervention quality.
The importance of this evaluation has also been raised in several recent reports such as the 2013 Annual Report of the Office of the Auditor General of Ontario regarding the Healthy Schools Strategy,\textsuperscript{60} as well as the 2013 Healthy Kids Strategy proposed to Ontario’s Minister of Health and Long Term Care.\textsuperscript{61}

In the spring of 2012, researchers at PHO, in collaboration with others, initiated a series of studies to assess DPA on a provincial level. This included three separate but related studies, each examining various factors associated with the development and implementation of the DPA policy.

**DPA Study 1: Development and implementation of the DPA policy in Ontario, Canada: A retrospective analysis**

This study was based on interviews with key informants representing organizations involved in the release of DPA. The study identified some primary factors affecting initial development and implementation, and provided insight into some ongoing challenges to implementing the policy.\textsuperscript{35}

**DPA Study 2: The role and experiences of public health unit (PHU) personnel in supporting DPA in Ontario**

This study explored how PHU staff was involved in supporting and promoting DPA through their relationships with school board and school personnel. It involved an online survey and key informant interviews. We are developing manuscripts reporting the findings from this study.

**DPA Study 3: Status of DPA in Ontario elementary schools**

This current study employed sample surveys of school administrators and teachers from across Ontario to report on their knowledge of and experiences with implementing the DPA policy.

\textbf{1.2.4. CONCEPTUAL FRAMEWORK FOR DPA PROGRAM OF STUDY}

Dissemination and implementation research in health, education and other fields is an important component of intervention policy and program evaluation.\textsuperscript{62} Two key papers influenced our adoption of a conceptual framework.\textsuperscript{63,64} This framework illustrates the multi-level factors influencing implementation for our DPA series of studies. Specifically, we adapted a framework developed by Chaudoir and colleagues, which depicts five levels of factors that influence five implementation outcomes (Figure 1).\textsuperscript{63} We revised this framework by dividing the organizational level of factors into: 1) organizational-macro and 2) organizational-micro. We also added a major component demonstrating the potential benefits and impacts of implementation.

Our three DPA studies address the three levels in the framework, including structural (Study 1), organizational-macro (Study 2) and organizational-micro and teacher (Study 3). For the current study, we focused on the organizational-micro (i.e., school and school administrator) and teacher-level factors that may influence DPA implementation in Ontario elementary schools and classrooms. The fidelity construct was the main implementation outcome evaluated; fidelity is the extent to which the DPA policy is being implemented as originally intended.\textsuperscript{63}
1.3. DPA Study 3: purpose and objectives

This study aimed to assess DPA implementation in Ontario elementary schools and classrooms, based on sample surveys of school administrators and teachers. There were four research objectives.

Based on the school administrator survey data:

1. Identify the extent to which Ontario elementary school administrators perceive that DPA is being implemented in their school during the 2013–14 school year, as outlined in PPM No. 138.

2. Identify the association between DPA implementation and school-level characteristics, as reported at the school level by elementary school administrators.

Based on the teacher survey data:

3. Identify the extent to which Ontario elementary school teachers perceive that DPA is being implemented in their classroom during the 2013–14 school year, as outlined in PPM No. 138.

4. Identify the association between DPA implementation and classroom-level characteristics, as reported at the classroom level by elementary school teachers.
2. Methods

To address the research objectives, we conducted a study consisting of two online surveys. One was conducted among a representative sample of Ontario elementary school administrators, and one with a representative sample of Ontario elementary school teachers.

We chose online surveys due to our recruitment of a large sample, as well as the relatively low cost and greater efficiency of this type of data collection methodology compared to others (mail or telephone). For data collection, we applied the Dillman Tailored Design Method, which uses a social exchange perspective. This approach suggests that “people’s voluntary actions are motivated by the return these actions are expected to, and often do, bring from others.” To encourage high quality and rates of responses, we used a number of different procedures for contacting potential participants (e.g., email, mail and phone), and included a small token of appreciation with our invitation. The Dillman approach has been shown to enhance participation in surveys administered by mail, internet, and mixed methods.

Ethical approval to conduct the study was received from PHO’s Ethics Review Board in November 2013.

2.1. Survey development

2.1.1. STUDY MEASURES

An unpublished review co-authored by PHO researchers (unreferenced, see footnote1) examined measures for assessing implementation outcomes of school-based physical activity interventions, as reported by school administrators and teachers. This review found no existing complete survey instruments that we could adapt for the DPA study. However, specific items from several surveys were relevant for measuring DPA implementation predictors and outcomes.

We developed two survey instruments – a school administrator survey as well as a teacher survey – both titled Status of DPA in Ontario Elementary Schools. Survey instrument development was informed by relevant items from existing surveys, our revised Chaudoir framework, results from our two previous DPA studies, and DPA guidelines and other resource documents from the EDU. Both survey instruments were reviewed and pilot-tested by the research team and Study Advisory Committee and revised accordingly.

2.1.1.1. PRIMARY OUTCOME VARIABLE

Our primary outcome variable measures the fidelity construct of policy implementation. We further defined fidelity, in the context of DPA implementation, by dividing it into six components based on the

1 This review is currently in draft prior to being submitted for publication.
requirements of the DPA policy: 1) duration; 2) frequency; 3) scheduling; 4) intensity; 5) continuity; and 6) inclusivity (Table 1).

Table 1. Components of DPA implementation fidelity

<table>
<thead>
<tr>
<th>Fidelity Component</th>
<th>DPA Policy Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>Minimum of 20 minutes</td>
</tr>
<tr>
<td>Frequency</td>
<td>Each school day</td>
</tr>
<tr>
<td>Scheduling</td>
<td>During instructional time</td>
</tr>
<tr>
<td>Intensity</td>
<td>Moderate to vigorous physical activity</td>
</tr>
<tr>
<td>Continuity</td>
<td>Sustained physical activity (for 20 minutes continuously)</td>
</tr>
<tr>
<td>Inclusivity</td>
<td>Including children with special needs</td>
</tr>
</tbody>
</table>

For a detailed description of how we measured the outcome variable, please refer to Appendix A.

2.1.1.2. PREDICTOR VARIABLES

The study focused on identifying school- and classroom-level predictors of implementation. However, as part of the sampling design predictor variables were also developed for factors that may potentially influence implementation at the school board level (e.g., English versus French school board; public versus Catholic school board).

School board/school characteristics and the MIDENT number

School board and school characteristics were obtained directly from the EDU. This included information on 2011–12 enrolment in publicly-funded elementary schools related to the four characteristics by which our random sample of schools was stratified: board language (French versus English schools); board type (public versus Catholic schools); school location (urban versus rural schools); and school enrolment size (small versus large schools).

EDU also provided a list of MIDENT numbers of all Ontario elementary schools. This is a unique identification number assigned to each publicly-funded school in Ontario. MIDENT numbers replaced their corresponding school names for data analysis purposes. That allows us to link school board, school and classroom information for potential future analyses (e.g., multi-level analysis).

School- and classroom-level implementation factors

Survey questions were developed to measure other predictor variables related to school-level and classroom-level implementation. For both school administrator and teacher surveys, we organized these questions into seven sections (please refer to Appendix B for detailed descriptions of each section):

1) Awareness of DPA policy requirements;
2) Perception of DPA policy;
3) Scheduling and monitoring DPA;
4) Use of DPA resources and supports;
5) Perceptions of barriers to implementing DPA;
6) Self-efficacy (level of confidence) to carry out DPA activities; and
7) Personal characteristics (including gender, years of experience, prioritization of physical activity in daily personal life).

2.1.2. ONLINE SURVEY DEVELOPMENT

Both the school administrator and teacher surveys were created using FluidSurveys, an online survey tool hosted on Canadian servers. The surveys were translated into French so respondents could complete it in either language.

School administrators and teachers received similar surveys. They were asked to respond to the same questions regarding DPA implementation, school administrators from a school-level perspective and teachers from a classroom-level perspective. The school administrator survey also included additional questions regarding DPA planning at the school level.

Each survey consisted of primarily closed-ended questions (e.g., multiple choice, Likert scale), with some questions containing open-ended response categories. Skipping and branching patterns were applied for questions to be relevant to the respondent.

Each survey was designed to take approximately 15 minutes to complete, as per our Study Advisory Committee’s suggestion. The online surveys were pilot-tested by committee members and PHO personnel to assess question comprehension, skip patterns, flow and completion time. Please refer to Appendix C and Appendix D for the complete school administrator and teacher surveys, respectively.

2.2. Study sample and recruitment

2.2.1. STUDY SAMPLE

We used a nested and stratified random sampling strategy to identify our study sample. The sample included two groups:

1. Ontario elementary schools (school administrators responded on behalf of their schools); and
2. Ontario elementary school classrooms (teachers responded on behalf of their classrooms).
School administrators included principals or vice-principals who were delegated as an alternate respondent (one school administrator per participating school). Teachers included a random sample of grade 3, 5 and 7 teachers (one teacher per grade level at each participating school, where applicable). The three grade levels ensured representation from primary, junior and intermediate levels.

Our random sample of schools was designed to be representative of Ontario elementary schools based on the following four characteristics:

- school board language (French versus English);
- school board type (public versus Catholic);
- school location (urban versus rural, based on postal code); and
- school enrolment size (small of up to 200 students, medium of 201-400 and large of 401-plus). For our analysis, we split enrolment size into two categories: small (up to 295 students) and large (296-plus students). This was done due to a small number of cases in some categories.

Specifically, the sample was drawn and stratified to represent categories within the four characteristics in all possible combinations. Each combination was weighted to represent the distribution of all elementary public schools across Ontario. As mentioned above, school characteristics were derived from 2011–12 enrolment information obtained from the EDU.

Appendix E provides a detailed description of our procedure for calculating sample sizes.

2.2.2. RECRUITMENT PROCEDURE

Participant recruitment occurred in three stages:

1. We requested approval from school boards to conduct the study at the school(s) sampled within each one.

2. Upon receiving school board approvals, we requested principals’ approvals to conduct the study within their schools. Where approved, we proceeded with school administrator recruitment.

3. We recruited one teacher from each of grade 3, 5 and 7 (where applicable) from those schools where a school administrator had completed a school administrator survey.

These procedures are summarized below. For a more detailed description of the recruitment procedures at each level, please refer to Appendix F.

2.2.2.1. SCHOOL BOARD APPROVALS

In September 2013, we identified the school boards (n=40) associated with the randomly-sampled schools. We notified the respective Directors of Education about our study and plans to submit formal
research requests to their boards, and sent those requests between September and November 2013. That generated a 75.0% approval rate (n=30).

2.2.2.2. SCHOOL-LEVEL (SCHOOL ADMINISTRATOR) RECRUITMENT

Recognizing that school administrators are the key decision-makers at the school level, we staggered our recruitment (and data collection) of participants. Specifically, we invited school administrators to participate before inviting teachers from those schools.

Upon receiving school board approvals, we contacted principals from the sampled schools for approval to conduct the study in their school. School-level recruitment took place between February and April 2014. Of the 532 sampled schools that we sought approval from, we received a 42.9% approval rate (n=228). We subsequently invited one school administrator from each of those 228 schools to participate in the online survey by sending them information letters and email invitations.

2.2.2.3. CLASSROOM-LEVEL (TEACHER) RECRUITMENT

At the end of April 2014, we sent mailed information letters and email invitations (similar to those sent to school administrators) to teachers (n=508) whose school administrator had completed a survey. One teacher from each of grades 3, 5 and 7 (where applicable) was selected and invited from the participating schools. These teachers were randomly selected from a complete list of teaching staff provided by principals upon approval of the study.

2.3. Data collection

As mentioned above, data collection was staggered; we first collected data from school administrators, and then from teachers. Since school-level approvals were received throughout February and April 2014, data collection among school administrators was administered in waves between late February and May 2014. Data collection was also administered in waves among teachers from late April to July 2014. In total, data collection lasted 19 weeks (13 weeks for school administrators and 11 weeks for teachers, with five weeks overlapping).

The survey link directed respondents to an information letter and consent form outlining the details of the study and use of the data, and assuring confidentiality. Respondents had to click on the “I consent to participate” button to continue. Those who did not provide consent (by clicking on the “I do not consent to participate” button) were led to a page that confirmed the termination of their survey.

Both school administrator and teacher surveys remained open for five weeks. We sent reminder letters (by email or letter) to participants at weeks two and four following their invitation to complete the surveys. Reminder letters also provided participants with the option to complete a paper-based or telephone survey; no participants requested these options.
2.4. Stakeholder engagement

To support the recruitment of participants, and implementation of other research activities, we believed it was important to involve and request support from key groups and individuals. In collaboration with the External Relations group at PHO, we developed a stakeholder engagement strategy to enhance the success and quality of our study. The objectives of the strategy were to:

1. Gather insight and information from stakeholders that would optimize study planning and implementation activities.

2. Facilitate necessary school board and school approval processes for the study.

3. Enhance participation rates of school administrators and teachers in the surveys.

4. Ensure that all stakeholders had an accurate and consistent understanding of the study.

5. Proactively anticipate and/or address stakeholder concerns related to the study.

Development of the strategy and key activities carried out throughout the study are described in Appendix G.

2.5. Data analysis

School administrator and teacher survey data were imported from FluidSurveys to IBM SPSS version 21, in two separate files, for processing (cleaning and coding) and subsequent analysis by two members of the research team. All French responses were translated to English. Please refer to Appendix H for a detailed description of our data cleaning and management procedures.

For responses to closed-ended survey questions, we employed quantitative data analyses using IBM SPSS version 21. While we explored qualitative data, we did not conduct comprehensive qualitative analyses for this report. Members of the research team will carry that out at a later date to identify themes among participants’ perspectives on the DPA policy and implementation.

For this report, we used:

- Univariate analyses to capture descriptive characteristics of the sample, and determine the frequency and distribution of responses for the outcome and selected predictor variables.

- Bivariate analyses (i.e., Chi-Square tests for independence), using school administrator survey data, to examine the relationship between various predictors and implementation fidelity at the school level.
• Fisher’s Exact Test, in cases where the assumption of minimum expected cell frequency was violated (an assumption of the Chi-Square test).

• Generalized linear mixed models (GLMM), using teacher survey data and adjusting for school-level clustering effects, to examine the relationship between predictors and implementation fidelity at the classroom level.

Significant p-values (p<0.05) from Chi-square tests and GLMMs were reported to demonstrate the association between a predictor and outcome variable. All findings were reported at an aggregate level, representing all Ontario publicly-funded elementary schools and classrooms in our sample. We did not include names or other identifiers in any findings.
3. School administrator and teacher survey findings

In this section, we present findings from the surveys of school administrators and teachers. Specifically, we describe the sample and summarize DPA implementation fidelity at the school and classroom levels. We also describe the relationship between implementation fidelity and several board-, school-, and classroom-level factors; the use and availability of DPA resources/supports; barriers to implementation; and participants’ perceptions of the policy.

For reference purposes, findings from the school administrator survey are described as “school administrator” or “school-level” results. For the teacher survey, we use “teacher” or “classroom-level” results.

3.1. Sample description

3.1.1. PARTICIPANT CHARACTERISTICS

School Administrator Results

We invited 532 school administrators to participate in the school administrator survey, of which 209 responded, yielding a response rate of 39.3%. These responding school administrators formed the analytic school sample for our study. Please refer to Appendix I for a visual summary of response rate calculations.

Among school administrator participants, the majority are female (67.9%), and more than half (59.0%) have 6-15 years of experience in their role. When asked about their level of HPE training, approximately three-quarters of school administrators (76.2%) reported having little to no training. However, nearly two-thirds (60.2%) said physical activity was a high priority in their own personal daily life. Table 2 shows the representation of participating school administrators by personal characteristics.

Teacher Results

We invited 508 teachers to participate, of which 307 responded, yielding a response rate of 60.4% (Appendix I). As with the school administrator survey, these responding teachers formed the analytic classroom sample for our study.

Teacher participants were distributed across three grade levels; 36.3% are grade 3 teachers, 35.2% are grade 5 teachers, and 25.6% are grade 7 teachers. Four respondents reported teaching a grade level other than 3, 5 or 7. For analysis purposes, these respondents were kept in our analytic sample and grouped into the most appropriate grade level based on their teaching division: Primary (Grades K-3),
Junior (Grades 4-6) or Intermediate (Grades 7-8). A small proportion of participants (2.9%) reported that they taught two or more of the sampled grades, or provided an indeterminate response.

Similar to the school administrator survey, most participants are female (71.9%), and nearly half (49.6%) have 6-15 years of experience. Most teachers (80.8%) reported having little to no HPE training; however, nearly two-thirds (62.5%) reported physical activity being a high priority in their own personal daily life. Table 2 shows the representation of participating teachers by personal characteristics.

**Table 2. Representation of school administrators and teachers by personal characteristics**

<table>
<thead>
<tr>
<th>Personal Characteristics</th>
<th>Percentage of School Administrators (%)</th>
<th>Percentage of Teachers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>32.1</td>
<td>28.1</td>
</tr>
<tr>
<td>Female</td>
<td>67.9</td>
<td>71.9</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=184)</td>
<td>100.0 (n=274)</td>
</tr>
<tr>
<td><strong>Years of experience in current role</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 years or less</td>
<td>28.1</td>
<td>14.9</td>
</tr>
<tr>
<td>6 -15 years</td>
<td>59.0</td>
<td>49.6</td>
</tr>
<tr>
<td>16 years or more</td>
<td>13.0</td>
<td>35.5</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=185)</td>
<td>100.0 (n=276)</td>
</tr>
<tr>
<td><strong>Level of HPE training</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Little to no training</td>
<td>76.2</td>
<td>80.8</td>
</tr>
<tr>
<td>University-level training</td>
<td>13.6</td>
<td>9.8</td>
</tr>
<tr>
<td>Other training*</td>
<td>10.3</td>
<td>9.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=185)</td>
<td>100.0 (n=276)</td>
</tr>
<tr>
<td><strong>Priority level of physical activity in daily life</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>11.3</td>
<td>6.6</td>
</tr>
<tr>
<td>Moderate</td>
<td>28.5</td>
<td>30.9</td>
</tr>
<tr>
<td>High</td>
<td>60.2</td>
<td>62.5</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=186)</td>
<td>100.0 (n=275)</td>
</tr>
</tbody>
</table>

Note: Percentage totals may not equal 100.0% due to rounding.
* Other training includes school board workshops, fitness and coaching certifications
3.1.2. REPRESENTATION OF SCHOOL BOARD AND SCHOOL CHARACTERISTICS

School Administrator Results

Our random sample was designed to be representative of all publicly-funded Ontario elementary schools based on four characteristics: school board language, school board type, school location, and school size. We found the proportions of each category to be similar when comparing the distribution of our analytic school sample to all publicly-funded Ontario elementary schools (Table 3).

Table 3. Comparison of analytic school sample with Ontario elementary schools, across school board and school characteristics

<table>
<thead>
<tr>
<th>School Board/School Characteristics</th>
<th>Analytic School Sample (%)</th>
<th>Distribution of Ontario Elementary Schools (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School board language</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>94.3</td>
<td>91.2</td>
</tr>
<tr>
<td>French</td>
<td>5.7</td>
<td>8.8</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=209)</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>School board type</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>71.8</td>
<td>64.5</td>
</tr>
<tr>
<td>Catholic</td>
<td>28.2</td>
<td>35.5</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=209)</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>School location</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>74.2</td>
<td>79.7</td>
</tr>
<tr>
<td>Rural</td>
<td>25.8</td>
<td>20.3</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=209)</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>School size</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>50.7</td>
<td>52.5</td>
</tr>
<tr>
<td>Large</td>
<td>49.3</td>
<td>47.5</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=209)</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* Schools were classified as urban or rural based on postal code
† Schools were classified based on enrolment: small—up to 295 students, large—296 or more students

Teacher Results

We also examined the school board and school characteristics represented within our analytic classroom sample (Table 4). The proportion of classrooms in each category was similar to our analytic
school sample. We did not, however, compare the representation within our analytic classroom sample to that of Ontario elementary schools, as classrooms were not the sampling unit for our study.

Table 4. Representation of school board and school characteristics within analytic classroom sample

<table>
<thead>
<tr>
<th>School Board/School Characteristics</th>
<th>Analytic Classroom Sample (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School board language</strong></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>94.1</td>
</tr>
<tr>
<td>French</td>
<td>5.9</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=307)</td>
</tr>
<tr>
<td><strong>School board type</strong></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>68.4</td>
</tr>
<tr>
<td>Catholic</td>
<td>31.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=307)</td>
</tr>
<tr>
<td><strong>School location</strong></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>72.0</td>
</tr>
<tr>
<td>Rural</td>
<td>28.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=307)</td>
</tr>
<tr>
<td><strong>School size</strong></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>50.5</td>
</tr>
<tr>
<td>Large</td>
<td>49.5</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=307)</td>
</tr>
</tbody>
</table>

3.2. Current status of DPA implementation

3.2.1. IMPLEMENTATION FIDELITY

We asked school administrator and teacher participants to report on whether DPA was currently being implemented in their respective schools or classrooms. “Currently” was defined as having been implemented at least once in the 2013–14 school year. Participants who said yes were asked to indicate the frequency with which their school or classroom met each of the six requirements of the DPA policy (i.e., duration, intensity, continuity, frequency, scheduling, and inclusivity). Based on these responses, we categorized schools and classrooms as meeting or not meeting the DPA policy requirement (Appendix A).
Composite scores were generated from each participant’s responses to capture overall implementation fidelity at the school and classroom levels. These scores were created by summing responses to each of the six requirements, measured on a frequency Likert scale. Based on these scores, we categorized schools and classrooms as meeting or not meeting the DPA policy requirements overall for the 2013–14 school year (please refer to Appendix A for a detailed description of how the outcome variable was categorized and measured). We then compared overall DPA implementation fidelity with several school board-, school-, and classroom-level factors.

**School Administrator Results**

According to school administrator responses, nearly all schools (97.6%) implemented the DPA policy within the 2013–14 school year. Based on composite scores, 61.4% of schools are meeting the policy requirements, while 38.6% are not (Figure 2). We also examined the two outcome groups based on the frequency of meeting the policy requirements within each group (Figure 3). When we did, we found that among the schools categorized as meeting DPA policy requirements, the majority fall within the “often” category. That is, they often meet the requirements of the DPA policy. Among the schools that are categorized as not meeting DPA policy requirements, the majority fall within the “sometimes” category.

**Figure 2. Overall school-level implementation fidelity (n=207)**
Upon examining the individual policy components, the majority of schools meet five of the six DPA policy requirements. However, only 44.4% meet the requirement for continuity (sustained activity).

Figure 4 depicts implementation fidelity to the DPA policy overall, as well as to each policy requirement at the school level.

Figure 4. School-level implementation fidelity to overall DPA policy and individual policy requirements*

* The total number of respondents (n) range from 207 to 208
In addition to questions on implementation fidelity, school administrators were asked to report the total duration of DPA on a typical school day, as well as the average time spent in MVPA during DPA, from a school-level perspective.

Based on school administrator responses, the majority of schools (65.8%) carry out DPA for 20 minutes or more. Time spent on DPA within remaining schools is either less than 20 minutes (21.8%) or unknown (12.4%). There was no observable trend for the duration of MVPA within DPA. Schools were distributed across the following categories: less than 15 minutes (25.5%), 15-19 minutes (18.1%), greater than or equal to 20 minutes (36.7%), and I don’t know (19.7%).

**Teacher Results**

The majority of teachers (90.2%) also reported that DPA was being implemented within their classroom during the 2013–14 school year. Overall implementation fidelity to the DPA policy requirements was split precisely fifty-fifty (Figure 5). As with school administrator results, we examined the two outcome groups based on the frequency of meeting the policy requirements (Figure 6). Among the classrooms categorized as meeting DPA policy requirements, the majority fall within the “often” category. Similarly, among the classrooms categorized as not meeting DPA policy requirements, the majority fall within the “sometimes” category.

**Figure 5. Overall classroom-level implementation fidelity (n=306)**

![Graph showing overall classroom-level implementation fidelity](image-url)
Similar to school administrator survey findings, most classrooms meet five of the six policy requirements. However, for DPA continuity, less than half (42.2%) are meeting the policy requirement. Figure 7 depicts classroom-level fidelity to overall DPA implementation as well as to each of the individual DPA policy requirements.

**Figure 7. Classroom-level implementation fidelity to overall DPA policy and individual policy requirements**

* The total number of respondents (n) range from 306 to 307
Teachers were also asked to report, from a classroom perspective, the duration of DPA on a typical school day, and the average time spent at MVPA intensity. The majority of classroom teachers (61.9%) reported that DPA lasts 20 minutes or more. The remaining teachers reported that time spent on DPA lasts less than 20 minutes (32.8%), or is unknown (5.2%).

Similar to school administrator survey findings, there was no observable trend for the duration of MVPA during DPA. Responses were fairly evenly distributed across the following categories: less than 15 minutes (30.0%); 15-19 minutes (28.9%); and greater than or equal to 20 minutes (28.2%). A small portion of respondents reported that they did not know the duration (12.8%).

3.2.2. PARTICIPANT CHARACTERISTICS AND IMPLEMENTATION FIDELITY

We examined participant characteristics (refer to Section 3.1.1) in relation to overall implementation fidelity at the school and classroom levels to determine whether or not associations existed.

School Administrator Results

Results from the school administrator survey revealed that their years of experience, and the degree to which they prioritize physical activity in their lives, are associated with overall implementation fidelity at the school level (both at p<0.05). Specifically, schools where administrators have greater years of experience or high priority rankings of physical activity are more likely to meet policy requirements.

Teacher Results

We found no significant associations between overall implementation fidelity at the classroom level and teacher participant characteristics.

3.2.3. SCHOOL BOARD/SCHOOL CHARACTERISTICS AND IMPLEMENTATION FIDELITY

We also examined school board and school characteristics (refer to Section 3.1.2) in relation to overall implementation fidelity at the school and classroom levels.

School Administrator Results

Of the four school board and school characteristics, the only significant relationship found was between school board type and overall implementation fidelity at the school level (p<0.05). In exploring the survey responses, we found that 66.7% of public schools meet the DPA policy requirements, while 47.4% of their Catholic counterparts meet the requirements.
Teacher Results

We found no significant associations between school board and school characteristics and overall implementation fidelity at the classroom level.

3.2.4. **AWARENESS OF DPA AND IMPLEMENTATION FIDELITY**

To understand participants’ awareness of the DPA policy requirements, we asked school administrators and teachers to select the correct responses to a series of questions describing each of the six policy requirements (e.g., for at least how many minutes must DPA last each day?).

If the respondent chose an incorrect response or “I don’t know”, they were classified as being unaware of the policy requirement. Based on these responses, we computed an overall level of awareness for each participant. We categorized individuals as being aware of either the majority of the requirements (four or more), or less than the majority (less than four). We also explored their awareness of individual policy requirements, and the associations between awareness and implementation fidelity.

School Administrator Results

Overall, the majority of school administrators (81.1%) are aware of four or more of the policy requirements. Not surprisingly, we found a significant association between overall awareness level and overall implementation fidelity at the school level (p<0.05). Specifically, schools with administrators who are aware of four or more of the policy requirements are more likely to meet the DPA requirements.

Of the individual policy requirements, awareness is lowest for two components: intensity and continuity. Only half of school administrators (49.5%) are aware that DPA must be conducted at moderate to vigorous intensity. Less than half (41.1%) are aware that the policy requires DPA to be conducted continuously (i.e., no stops or breaks in activity). Figure 8 presents the awareness levels of school administrators across the six policy requirements.

We also examined potential relationships between the awareness and actual implementation of each policy requirement. Results revealed a significant association between awareness and implementation of the intensity (p<0.05), frequency (p<0.05), and scheduling (p<0.05) requirements. Specifically, schools with administrators who are aware of these policy requirements are more likely to meet them.
Teacher Results

Similar to school administrator results, the majority of teachers (62.3%) are aware of more than half of the policy requirements. We found a significant association between overall awareness and implementation fidelity at the classroom level (p<0.05). Classrooms where teachers are aware of four or more requirements are more likely to meet the DPA policy requirements than classrooms where teachers are aware of less than four of the requirements.

Consistent with school administrator survey findings, awareness is also lowest for the intensity and continuity components of the policy. Specifically, less than half of teachers (44.7%) are aware of the correct intensity at which DPA must be conducted. Less than one-third (31.5%) are aware that DPA must be conducted continuously. Figure 9 presents the awareness levels of teachers across the six policy requirements.

* The total number of respondents (n) range from 202 to 205.
We found significant associations between teachers’ awareness and classroom implementation fidelity to DPA duration (p<0.001), frequency (p<0.01), scheduling (p<0.001), and inclusivity (p<0.05). As with school administrator survey results, classrooms where teachers are aware of the policy requirement are more likely to meet them. There was no significant association between teacher awareness and classroom-level implementation fidelity related to continuity and intensity.

### 3.2.5. SCHEDULING/MONITORING ACTIVITIES AND IMPLEMENTATION FIDELITY

School administrators and teachers were asked if DPA is scheduled within teachers’ classroom timetables. School administrators were asked with reference to their teaching staff, while teachers were asked with reference to their own classroom timetables. Participants were also asked if there is a procedure for monitoring DPA within their school. Responses to questions on scheduling and monitoring activities were subsequently examined in relation to overall implementation fidelity.

**School Administrator Results**

Approximately two-thirds (66.5%) of school administrators reported that DPA is scheduled within their teacher’s timetables (see Figure 10). On further examination, we found a significant relationship (p<0.01) between DPA scheduling in teachers’ timetables and overall implementation fidelity at the school level. (Those responding that they did not know were excluded from the analysis.) Specifically,
schools where DPA is scheduled in teachers’ timetables are more likely to meet DPA policy requirements.

The majority of school administrators (72.3%) indicated the lack of a DPA monitoring procedure within their school (see Figure 11). When we examined this in relation to overall implementation fidelity (excluding those who responded that they did not know), we found a significant association (p<0.01). Specifically, schools where a monitoring procedure is reported to exist are more likely to meet DPA policy requirements.

![Figure 10. DPA scheduling within teachers’ timetables, as reported by school administrators (n=206)](image)

![Figure 11. Presence of a DPA monitoring procedure within schools, as reported by school administrators (n=206)*](image)

* Percentage totals may not equal 100.0% due to rounding

**Teacher Results**

Similar to findings from the school administrator survey, two-thirds of teachers (67.0%) indicated that DPA is scheduled within their classroom timetable (see Figure 12). We examined this activity in relation to overall implementation fidelity and found a significant association (p<0.001). Specifically, classrooms where teachers have DPA scheduled within their timetable are more likely to meet DPA policy requirements.

Most teachers (69.9%) stated that there is no monitoring procedure within their school for DPA (see Figure 13). When overall implementation fidelity at the classroom level was examined in relation to presence of a DPA monitoring procedure (excluding those responding that they did not know) we again found a significant association (p<0.01). Specifically, classrooms where teachers report that a monitoring procedure exists within their school are more likely to meet DPA policy requirements.
3.2.6. ORGANIZATION OF DPA DELIVERY AND IMPLEMENTATION FIDELITY

The DPA policy allows for flexibility in implementation. Therefore, we explored ways in which DPA may be delivered within schools and classrooms across Ontario, and whether certain modes of delivery are associated with overall implementation fidelity. Specifically, we asked participants to indicate how their school or classroom participates in DPA and who generally instructs DPA.

School Administrator Results

Nearly two-thirds of school administrators (65.8%) indicated that each class participates in DPA at separate times. Only 8.9% indicated that several or all classes engage in DPA at the same time. All other school administrators (25.3%) reported variability in the type of participation throughout the school year. Schools where several or all classes engage in DPA simultaneously appear more likely to meet DPA policy requirements than those participating at separate times or with varied participation. However, we found no significant associations between the form of DPA participation and overall implementation fidelity at the school level.

Most school administrators (83.7%) reported that DPA is typically led by a generalist teacher. In contrast, only 8.4% of school administrators indicated that DPA is instructed by a teacher with HPE specialization. The remaining respondents (7.9%) selected the “other” response category; that could potentially include another individual not listed as an option or a combination of individuals (e.g., teacher and student).

Schools where DPA is instructed by an HPE-specialized teacher are more likely to meet DPA policy requirements than schools where generalist teachers lead DPA. However, when we analyzed the type of individual who typically instructs DPA in relation to overall implementation fidelity (excluding those selecting “other”) we found no significant association.
Teacher Results

According to results from the teacher survey, DPA is primarily distributed between participation at separate times (48.5%) and varied participation throughout the year (41.2%). A small proportion of teachers (10.2%) indicated that several or all classes engage in DPA at the same time.

Similar to school administrator findings, classrooms that engage in DPA at the same time appear more likely to meet DPA policy requirements than those participating at separate times or with varied participation. However, no significant associations were found between the form of DPA participation and overall implementation fidelity at the classroom level.

The majority of teachers (75.9%) also indicated that a generalist teacher typically instructs DPA within their classroom, while 16.8% reported a teacher with HPE specialization and 7.3% selected “other”. We found no significant association between the type of individual who typically instructs DPA (with those selecting “other” excluded from the analysis) and overall implementation fidelity at the classroom-level.

3.2.7. SELF-EFFICACY AND IMPLEMENTATION FIDELITY

We asked school administrators and teachers about their self-efficacy in carrying out DPA activities. Self-efficacy refers to an individual’s belief in their ability to perform specific behaviours. We measured this by asking questions related to participants’ confidence levels in planning and implementing DPA. We examined the distribution of those who have a high level of confidence (i.e., those who responded quite or completely confident to survey questions) versus those who have a low-to-moderate level of confidence (i.e., those who responded not at all, slightly or moderately confident to survey questions) in carrying out DPA activities. We also analyzed this in relation to implementation fidelity.

School Administrator Results

According to survey results, most school administrators (65.2%) have a high level of confidence in successfully planning DPA activities, while the remaining (34.8%) have a low-to-moderate level of confidence. Similar proportions were observed for successfully implementing DPA activities. The majority of school administrators (62.8%) have a high level of confidence, and slightly more than one-third (37.2%) have low-to-moderate confidence.

Schools where administrators reported a high level of confidence in successfully planning or implementing DPA activities appear to be more likely to meet DPA policy requirements. However, we did not find significant associations between confidence level in carrying out either of the activities and overall implementation fidelity at the school level.

Teacher Results

Similar to school administrator survey findings, most teachers (62.3%) have a high level of confidence in successfully planning DPA activities; while slightly more than one-third (37.7%) have low-to-moderate level of confidence. Confidence levels in successfully implementing DPA were similar to that of planning activities; 60.1% of teachers were highly confident, while 39.9% reported low-to-moderate confidence.
In contrast to school administrator results, we found significant associations between confidence levels in carrying out both activities and overall implementation fidelity at the classroom level (both at p<0.001). Specifically, classrooms with teachers who are highly confident in planning and implementing DPA are more likely to meet DPA policy requirements.

### 3.3. Use and availability of DPA resources and supports

#### 3.3.1. USE OF DPA RESOURCES AND SUPPORTS

School administrators and teachers were asked to indicate how often they use resources and supports to help plan, implement and monitor DPA.

We defined DPA resources as learning tools that can assist with planning, implementing and monitoring DPA (e.g., DPA guides for teachers and school administrators developed by the EDU, DPA eWorkshops, Ophea workshops and websites). We defined DPA supports as individuals and/or organizations that can assist with planning, implementing and monitoring DPA (e.g., school and school board DPA committees, PHUs, HPE organizations, and physical activity consultants). We also asked school administrators about their use of specific DPA supports.

We examined the frequency of using these resources and supports in relation to overall implementation fidelity.

**School Administrator Results**

Among school administrators, only 11.3% reported that they often or always use DPA resources to plan, implement or monitor DPA (Figure 14). Only 8.7% indicated that they often or always use DPA supports to assist with DPA activities (Figure 15).

In addition to the frequency of using DPA supports overall, we examined school engagement with specific DPA supports in the education system. For instance, local PHUs are mandated by the Ontario Public Health Standards to support and promote DPA among the school boards and schools within their region[^29]. As well, school boards may have their own DPA or HPE consultants available for expert assistance. When asked, 69.9% of school administrators indicated that they rarely or never communicated with their local PHU regarding DPA (Figure 16). Half (50.2%) of school administrators indicated the presence of a DPA or HPE consultant within their board. Among these respondents, 61.5% reported rarely or never communicating with these individuals regarding DPA.

We also found significant associations between the frequency of using DPA resources (p<0.001), frequency of using DPA supports (p<0.01), and frequency of communicating with HPE consultants (p<0.05) with implementation fidelity. Specifically, school administrators reporting more frequent use of DPA resources/supports are more likely to meet DPA policy requirements at the school level than those reporting less frequent use of supports/resources. We found no significant associations between frequency of communicating with PHUs and overall implementation fidelity.
**Teacher Results**

Similar to school administrator results, only 10.6% of teachers indicated that they often or always use DPA resources (Figure 17). Also consistent with school administrator findings, only a small proportion of teachers (5.3%) indicated that they often or always use DPA supports to assist in planning, implementing or monitoring DPA (Figure 18). Almost all (94.7%) teachers reported rarely or never communicating with their local PHUs regarding DPA (Figure 19). Teachers were not asked about communicating with DPA or HPE consultants.

With regard to overall implementation fidelity, we found significant associations with the frequency of using DPA resources (p<0.001) or DPA supports (p<0.001). Specifically, those teachers reporting more frequent use of DPA resources and supports are more likely to meet DPA policy requirements at the classroom level. We found no significant associations between frequency of communicating with PHUs and overall implementation fidelity.
3.3.2. AVAILABLE SPACES FOR DPA

According to the DPA resource guide for school principals, the Ontario HPE curriculum emphasizes participation in physical activities that do not necessarily take place in a gymnasium. Therefore, principals are encouraged to identify other possible areas and facilities available for DPA within their school and community.33

As part of our survey, we identified a list of potential school spaces. We asked school administrators to indicate whether these spaces are available within their schools for conducting DPA. The majority (85.1%) agreed that the gym is an available space for conducting DPA. Additionally, over 90% of those who responded identified playgrounds (96.5%), classrooms (95.6%), pavement (93.9%) and outdoor field (90.5%) as available for conducting DPA. However, only 29.8% identified the availability of multi-purpose rooms, which the resource guide highlights as a space for conducting DPA.31-34 Figure 20 presents the spaces available for conducting DPA, as reported by school administrators.
3.4. Perceived barriers to DPA implementation

In the surveys, we provided a list of factors identified as potential barriers to DPA implementation. For each factor, we asked school administrators and teachers to indicate their level of agreement (from strongly disagree to strongly agree) as to whether the factor was a barrier to DPA implementation within their school or classroom. We subsequently examined participants’ perceived barriers in relation to overall implementation fidelity.

School Administrator Results

At the school level, administrators indicated competing curriculum priorities (76.4%), lack of time (61.4%) and lack of teacher readiness (47.2%) as the top three barriers. We found a significant relationship between these barriers – as well as lack of space and lack of school board support – with overall implementation fidelity.
Specifically, the more administrators agree that a particular barrier exists, the greater the likelihood that their school does not meet DPA policy requirements. Table 5 presents the proportion of school administrators who agree/strongly agree that the factors listed in the survey act as barriers to DPA implementation within their school. It additionally demonstrates the significant associations found between these perceived barriers and school-level implementation fidelity.

### Table 5: Barriers to DPA implementation, as reported by school administrators

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Percentage of School Administrators who Agree/Strongly Agree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competing curriculum priorities*</td>
<td>76.4</td>
</tr>
<tr>
<td>Lack of time†</td>
<td>61.4</td>
</tr>
<tr>
<td>Lack of teacher readiness†</td>
<td>47.2</td>
</tr>
<tr>
<td>Lack of space*</td>
<td>31.2</td>
</tr>
<tr>
<td>Bad weather</td>
<td>30.5</td>
</tr>
<tr>
<td>Students’ reluctance to participate</td>
<td>27.2</td>
</tr>
<tr>
<td>Lack of equipment</td>
<td>17.2</td>
</tr>
<tr>
<td>Lack of resources</td>
<td>15.4</td>
</tr>
<tr>
<td>Lack of school board support*</td>
<td>14.0</td>
</tr>
<tr>
<td>Lack of amenities</td>
<td>13.0</td>
</tr>
<tr>
<td>Lack of parent/guardian support</td>
<td>10.2</td>
</tr>
</tbody>
</table>

Note: The total number of respondents (n) range from 196 to 203.

* Significantly associated with school-level implementation fidelity (p<0.05)
† Significantly associated with school-level implementation fidelity (p<0.01)

### Teacher Results

Among teachers, lack of time (78.8%), competing curriculum priorities (78.5%) and lack of space (63.1%) were identified as the top three barriers to implementing DPA within classrooms. We found significant associations between all these barriers (except for students’ reluctance to participate) and overall implementation fidelity. Generally, the more teachers agree that a particular barrier exists within their classroom, the greater the likelihood that their classroom does not meet DPA policy requirements. Table 6 presents the proportion of teachers who agree/strongly agree that the factors listed in the survey act as barriers to DPA implementation within their classroom. It additionally presents the significant associations between these perceived barriers and classroom-level implementation fidelity.
Table 6: Barriers to DPA implementation, as reported by teachers

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Percentage of Teachers who Agree/Strongly Agree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of time‡</td>
<td>78.8</td>
</tr>
<tr>
<td>Competing curriculum priorities‡</td>
<td>78.5</td>
</tr>
<tr>
<td>Lack of space†</td>
<td>63.1</td>
</tr>
<tr>
<td>Lack of equipment†</td>
<td>42.8</td>
</tr>
<tr>
<td>Lack of teacher readiness*</td>
<td>41.0</td>
</tr>
<tr>
<td>Lack of resources‡</td>
<td>37.6</td>
</tr>
<tr>
<td>Bad weather‡</td>
<td>35.5</td>
</tr>
<tr>
<td>Lack of school board support‡</td>
<td>34.1</td>
</tr>
<tr>
<td>Students’ reluctance to participate</td>
<td>31.3</td>
</tr>
<tr>
<td>Lack of amenities†</td>
<td>20.5</td>
</tr>
<tr>
<td>Lack of parent/guardian support*</td>
<td>16.4</td>
</tr>
</tbody>
</table>

Note: The total number of respondents (n) range from 280 to 292
* Significantly associated with classroom-level implementation fidelity (p<0.05)
† Significantly associated with classroom-level implementation fidelity (p<0.01)
‡ Significantly associated with classroom-level implementation fidelity (p<0.001)

3.5. Perceptions of the DPA policy

School administrators and teachers were asked to share their perceptions of the DPA policy as well as its impact on students. Specifically, we asked them to indicate their level of agreement (from strongly disagree to strongly agree) to overall attributes of the policy and their thoughts on the type of impact (from very negative to very positive) on different aspects of students’ well-being and behaviour. We also examined their perceptions in relation to overall implementation fidelity.

School Administrator Results

The majority of school administrators believe that the DPA policy has positive impacts on student well-being, including academic outcomes, student conduct, social well-being and the development of physical activity habits. For each of these aspects, Table 7 presents the proportion of school administrators who believe that the DPA policy generates a somewhat/very positive impact.

Despite the general belief in the positive impacts on student well-being, only three-quarters (75.4%) of school administrators consider the policy equally important as other school curriculum requirements. Furthermore, while most (85.6%) agreed that the DPA policy is clear and easy to understand, little more than half of participants (56.0%) think that the policy is realistic and achievable (Table 8).
Upon further analyses, the only perceived impact that is significantly associated with school-level implementation fidelity relates to social well-being (p<0.05). We also found a significant association between school administrators’ perception of whether the DPA policy is realistic and achievable and implementation fidelity at the school level (p<0.01). Specifically, the more school administrators agree that the policy is realistic and achievable, the likelier that their school meets DPA policy requirements.

Table 7: School administrators’ perceptions of the impact of DPA on student well-being

<table>
<thead>
<tr>
<th>Dimension of Student Well-Being</th>
<th>Percentage of School Administrators who Indicated Somewhat Positive/Very Positive Impact (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students’ physical well-being</td>
<td>93.3</td>
</tr>
<tr>
<td>Students’ emotional well-being (e.g., mood, anxiety levels)</td>
<td>90.4</td>
</tr>
<tr>
<td>Students’ academic outcomes</td>
<td>82.9</td>
</tr>
<tr>
<td>Student conduct (e.g., attention in class)</td>
<td>87.3</td>
</tr>
<tr>
<td>Students’ social well-being (e.g., peer interactions, connectedness)*</td>
<td>82.4</td>
</tr>
<tr>
<td>The development of physical activity habits</td>
<td>87.1</td>
</tr>
</tbody>
</table>

Note: The total number of respondents (n) range from 201 to 208

* Significantly associated with school-level implementation fidelity (p<0.05)
Table 8: Overall perceptions of the DPA policy, as reported by school administrators

<table>
<thead>
<tr>
<th>Policy Attribute</th>
<th>Percentage of School Administrator Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear and easy to understand</td>
<td></td>
</tr>
<tr>
<td>Agree/strongly agree</td>
<td>85.6</td>
</tr>
<tr>
<td>Neutral</td>
<td>10.1</td>
</tr>
<tr>
<td>Disagree/strongly disagree</td>
<td>4.3</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=208)</td>
</tr>
<tr>
<td>Realistic and achievable*</td>
<td></td>
</tr>
<tr>
<td>Agree/strongly agree</td>
<td>56.0</td>
</tr>
<tr>
<td>Neutral</td>
<td>18.2</td>
</tr>
<tr>
<td>Disagree/strongly disagree</td>
<td>25.8</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=209)</td>
</tr>
<tr>
<td>Equally important as other school curriculum requirements</td>
<td></td>
</tr>
<tr>
<td>Agree/strongly agree</td>
<td>75.4</td>
</tr>
<tr>
<td>Neutral</td>
<td>14.0</td>
</tr>
<tr>
<td>Disagree/strongly disagree</td>
<td>10.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=207)</td>
</tr>
</tbody>
</table>

* Significantly associated with school-level implementation fidelity (p<0.01)

Teacher Results

The majority of teachers also believe that the DPA policy has positive impacts on student well-being. However, these percentages are lower than school administrators’ responses for all dimensions listed (Table 9).

Similar to school administrators, just over half (58.3%) of teachers perceive the policy as being equally important as other curriculum requirements. Less than half (43.0%) of teachers agree that the DPA policy is realistic and achievable, although most (82.9%) believe that it is clear and easy to understand (Table 10).

Overall, implementation fidelity at the classroom level is not associated with any perceived policy impacts on student well-being. However, we found significant associations between implementation fidelity at the classroom level (p<0.001) and teachers’ perception of whether the DPA policy is realistic and achievable, and whether it is equally important as other curriculum requirements. Specifically, the more teachers agree that the policy is realistic and achievable, the likelier their classroom meets DPA policy requirements. Similarly, the more teachers agree that the policy is equally important as other curriculum requirements, the more likely their classroom meets the requirements.
Table 9: Teachers’ perceptions of the impact of DPA on student well-being

<table>
<thead>
<tr>
<th>Dimension of Student Well-Being</th>
<th>Percentage of Teachers who Indicated Somewhat Positive/Very Positive Impact (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students’ physical well-being</td>
<td>91.8</td>
</tr>
<tr>
<td>Students’ emotional well-being (e.g., mood, anxiety levels)</td>
<td>89.1</td>
</tr>
<tr>
<td>Students’ academic outcomes</td>
<td>74.6</td>
</tr>
<tr>
<td>Student conduct (e.g., attention in class)</td>
<td>78.7</td>
</tr>
<tr>
<td>Students’ social well-being (e.g., peer interactions, connectedness)</td>
<td>75.0</td>
</tr>
<tr>
<td>The development of physical activity habits</td>
<td>80.6</td>
</tr>
</tbody>
</table>

Note: The total number of respondents (n) range from 295 to 304

Table 10: Overall perceptions of the DPA policy, as reported by teachers

<table>
<thead>
<tr>
<th>Policy Attribute</th>
<th>Percentage of Teacher Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear and easy to understand</td>
<td></td>
</tr>
<tr>
<td>Agree/strongly agree</td>
<td>82.9</td>
</tr>
<tr>
<td>Neutral</td>
<td>12.4</td>
</tr>
<tr>
<td>Disagree/strongly disagree</td>
<td>4.7</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=298)</td>
</tr>
<tr>
<td>Realistic and achievable*</td>
<td></td>
</tr>
<tr>
<td>Agree/strongly agree</td>
<td>43.0</td>
</tr>
<tr>
<td>Neutral</td>
<td>16.0</td>
</tr>
<tr>
<td>Disagree/strongly disagree</td>
<td>41.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=300)</td>
</tr>
<tr>
<td>Equally important as other school curriculum requirements*</td>
<td></td>
</tr>
<tr>
<td>Agree/strongly agree</td>
<td>58.3</td>
</tr>
<tr>
<td>Neutral</td>
<td>16.7</td>
</tr>
<tr>
<td>Disagree/strongly disagree</td>
<td>25.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0 (n=306)</td>
</tr>
</tbody>
</table>

* Significantly associated with classroom-level implementation fidelity (p<0.001)
4. Discussion

4.1. Importance of the study

An assessment of DPA policy implementation fidelity is important for several reasons. While PPM No. 138 was released in 2005, no provincial-level monitoring or evaluation of DPA implementation has taken place since then. Monitoring and evaluation of provincial policies, such as DPA, promote government, school board, school and classroom-level accountability for these large scale initiatives. As well, findings from the current study inform provincial government discussions and decisions regarding how best to improve DPA implementation in the future.

It is generally assumed that DPA is being unevenly delivered in provincial elementary schools and some studies conducted in single school boards in Ontario support this claim. This province-wide study provides evidence as to the extent of DPA implementation as well as the factors influencing implementation fidelity. Implications and recommendations derived from the study findings, in turn, will contribute to the development of a re-invigorated DPA, which can subsequently be assessed for impact.

An important feature of this study is its relationship to our earlier studies of DPA. Together, these three PHO studies provide a more complete assessment of the status of the DPA policy in Ontario. An initial study explored the factors influencing the original development and implementation of the policy. That was based on key informant interviews with several individuals and groups involved at that time. A second study in this series examined the role and experiences of PHU personnel in promoting and supporting DPA implementation in schools. Now, this current and larger study provides a much-needed assessment of policy implementation status at the school and classroom level.

Findings and methods from this study will also contribute to the emerging field of implementation science and, more specifically, to a clearer understanding of the factors influencing implementation of school-based physical activity policy interventions. By using an adapted conceptual framework for assessing the factors influencing implementation fidelity, we provide an important theoretical perspective for interpreting the findings.

We also deployed innovative approaches to measurement, with a new scale to assess implementation fidelity based on the six required components of DPA. This scale was instrumental in providing an overall picture of implementation fidelity to aid our analysis and interpretation of study findings.

4.2. Specific study findings

This report has already highlighted a number of important findings. Here we address the meaning of these findings, in their own right, and in relation to existing knowledge concerning DPA and similar interventions in other jurisdictions.
4.2.1. CURRENT STATUS OF DPA IMPLEMENTATION

Implementation fidelity

Based on findings from the teacher surveys, only half of the elementary school classrooms are currently meeting DPA policy requirements. These findings are concerning, as full implementation fidelity is an expectation of the EDU and a requirement of all publicly-funded school boards in the province. Notably, a higher proportion of school administrators indicate that their school is meeting the DPA policy than teachers at the classroom level. These differences occur at both an overall level and for specific components of the policy. Perhaps these differences reflect the respective frames of reference for these two groups. Teachers have a more specific understanding of the extent to which they are implementing the components of the policy in their classroom. Meanwhile, administrators provide a more general assessment of DPA implementation for the school overall.

Reported implementation fidelity, at both the school and classroom levels, was lower for both the continuity (sustained physical activity) and intensity (MVPA) components. This may relate to an uneven understanding of the policy requirements for these components, due to ambiguity in the source documents provided to administrators and teachers.

Specifically, PPM No. 138 states that 20 minutes of sustained MVPA is to be provided to students, while guidance documents indicate that time for a warm-up and cool-down are included in the 20-minute DPA session. For practical reasons, it is believed that some teachers offer shorter bouts of activity during the day. Stone, et al. had a similar conclusion – that students are more likely to complete a number of shorter sessions than 20 minutes of sustained MVPA – after finding that no students were meeting the current requirements. However, it is unclear if this assumption is correct, or whether schools can meet the 20 minutes of sustained activity at MVPA intensity under more favourable scheduling and logistical conditions. We will re-visit this issue when presenting study recommendations.

Participant characteristics and implementation fidelity

School administrators (but not teachers) who prioritize physical activity in their personal lives were more likely to report meeting the DPA policy requirement in their school. This is not surprising. Having a school champion such as the administrator is considered to be an important determinant of student opportunities for physical activity and other health-promoting activities. However, it is unlikely to be actionable as a recommendation, since administrator hiring and placement in specific schools is not normally based on this factor, and cannot feasibly be predicted or structured.

School board/school characteristics and implementation fidelity

We found significant differences in overall implementation fidelity by board type, with higher fidelity in public schools compared to Catholic schools. There are no clear explanations, though it may be that Catholic boards have more “competition” for instructional time.
Awareness of DPA and implementation fidelity

Awareness of the DPA policy requirements is significantly related to overall implementation fidelity for both administrators and teachers. This is the case for findings comparing overall measures of awareness with overall implementation fidelity, and in many cases, comparing awareness with implementation fidelity for specific policy components (for example, awareness of the duration component in relation to implementation fidelity for that specific component). This is an important finding with relevance to actionable recommendations. However, it is important to remember that awareness of policy requirements, in itself, may be a necessary but not sufficient factor related to implementation fidelity. Other factors, such as scheduling, monitoring, barriers to implementation, and available supports are also related to implementation fidelity, as described below.

Scheduling and monitoring activities and implementation fidelity

One of the key findings from our study is the significant relationship between scheduling DPA in teachers’ timetables and overall implementation fidelity. Both school administrators and teachers are more likely to report meeting the policy requirements if DPA is reportedly scheduled in teachers’ timetables.

Another important finding from our study, with relevant implications for system-wide recommendations, is the low level of DPA monitoring in schools and its significant relationship with overall implementation fidelity. Based on survey findings, 72.3% of administrators and 69.9% of teachers report no monitoring procedures for DPA at the school level. In a study of DPA’s development and implementation in Ontario, key informants said regular monitoring of policy implementation fidelity was a central factor. As an important tool for examining policy status, regular monitoring is generally considered to be a crucial component in assessing accountability. It can also contribute to more continuous learning by those responsible for implementing DPA, such as school boards, school administrators and classroom teachers.

These findings from our study are potentially actionable through our specific recommendations, to follow, for the education system at the provincial, school board, school and classroom levels.

Organization of DPA delivery and implementation fidelity

The study findings indicate interesting (though non-significant) patterns in the relationship between form of DPA delivery and overall implementation fidelity. Schools that have several or all classes engaged in DPA at the same time are more likely to meet DPA requirements than schools that engage in DPA at separate times, according to school administrators. This pattern is observed, to a lesser extent, with teachers. However, relatively few schools appear to be arranged this way. Mostly, teachers conduct DPA (when it is done) at a separate time for their classroom.

The findings in this analysis were not statistically significant. Still, they may have important policy implications for consideration. We understand that some school boards in Ontario are experimenting with more school-wide scheduling of DPA, which may lend itself to potential in-depth study of the
benefits and challenges of this approach. For example, this approach may enhance implementation as a function of more predictable scheduling. However, we do not know if having the entire school conduct DPA at the same time would discourage innovation (with all classrooms engaged in an overly uniform routine throughout the academic year).

**Perceived self-efficacy and implementation fidelity**

According to Bandura’s concept of self-efficacy (as part of Social Cognitive Theory), individuals who have confidence in taking action, or in overcoming barriers to take action, are more likely to implement the related behaviour.\footnote{2} Findings from our study support this claim in the case of classroom teachers. Those teachers expressing confidence in successfully planning and implementing DPA are more likely to report meeting the policy requirements than teachers expressing low or moderate confidence.

This relationship is not borne out for school administrators. Their perceptions of self-efficacy, compared to that of teachers at the classroom level, would not be expected to influence DPA implementation fidelity at the school level in the same way. In the case of school administrators, factors besides their sense of personal efficacy may be more related to implementation fidelity. That is, school administrators’ perspectives may focus more on school-wide implementation issues than on day-to-day challenges of implementing DPA on a classroom level.

We believe that the findings regarding teacher self-efficacy are very actionable in terms of the recommendations. For example, additional learning opportunities, peer coaching and feedback may facilitate and enhance teachers’ level of self-efficacy regarding DPA implementation. That may help them to address some of the barriers that make consistent implementation challenging.

**4.2.2. USE AND AVAILABILITY OF DPA RESOURCES AND SUPPORTS**

**Use of DPA resources and supports**

In developing the study and measurement instrument, we conceptualized resources and supports as being facilitating factors in relation to implementation fidelity. Our findings indicated that we need to consider them as potential rather than actual facilitators.

An important finding is that both school administrators and classroom teachers report very infrequent use of DPA resources and supports. It is unclear whether this is due to a lack of (or lack of awareness of) available resources and supports. In the specific case of resources, perhaps they are not current or newer resources and learning opportunities are offered on potentially more prominent topics. In any case, the frequencies of using DPA resources and supports were significantly associated with implementation fidelity at both the school and classroom level, indicating a potential facilitating role.

With respect to communicating with PHUs about DPA, 69.9% of administrators and 94.7% of classroom teachers indicated that they never or rarely do so. Our earlier study of the role and experiences of PHU personnel in promoting and supporting DPA indicated similar findings in terms of the school board and school response to offered support. Further analysis in the current study indicated that there was not a
significant relationship between communicating with PHUs and DPA implementation fidelity at the school or classroom level.

Some implications of these findings are potentially actionable through recommendations, in relation to possible development of new program resources and enhanced learning opportunities. It is important to acknowledge that other organizations in the public and private sectors may also contribute to meeting the needs for resources and supports for DPA, and many other policy and curriculum-based initiatives.

Available spaces for DPA

School administrators indicated the availability of a number of spaces for DPA to be conducted within their school, including most prominently playgrounds, classrooms, pavement, outdoor field, gym and hallways. These locations were not evaluated for suitability, quality, or scheduling challenges in the current study. It is also important to remember that the availability of some spaces is likely affected by factors such as climate and weather changes during the school year.

4.2.3. PERCEIVED BARRIERS TO DPA IMPLEMENTATION

Some of our most important findings relate to the perceived barriers to DPA implementation in schools and classrooms. There was general agreement between school administrators and classroom teachers that lack of time and competing curriculum priorities were two of the most salient perceived barriers. However, a greater proportion of administrators than teachers cited lack of teacher readiness as an important factor. Conversely, teachers were more likely than administrators to report lack of space as a prominent barrier.

Many of the barriers assessed were significantly related to meeting the DPA policy requirement, especially at the classroom level. The dominant pattern was that those citing a higher level of agreement with the prominence of a barrier were less likely to report meeting the DPA requirement.

Several of the specific findings are potentially actionable in relation to study recommendations. Importantly, barriers occur at a range of levels (individual, organizational, system), so recommendations can be shaped and targeted at a concurrent range. For example, competing curriculum demands, lack of time, lack of space and lack of school board support largely represent system-level barriers to implementation and would need to be addressed at the provincial and school board levels. As others acknowledge, this is not a simple proposition. In particular, lack of time as a structural factor might not be actionable in itself. Instead, it might be addressed indirectly through recommendations and subsequent action to increase key factors such as regular scheduling and monitoring of DPA implementation.

On a more proximal level, lack of teacher readiness is potentially more actionable if addressed with renewed emphasis on providing enhanced learning opportunities, updated administrator and teacher guides, and other innovative approaches and supports.
4.2.4. PERCEPTIONS OF THE DPA POLICY

DPA is considered to be equally important as other curriculum requirements, according to 75.4% of school administrators. However, a lower proportion (58.3%) of classroom teachers agreed or strongly agreed with this statement.

Our earlier scoping review of facilitators and barriers influencing implementation of school-based physical activity initiatives indicated a disconnect between the expectations and values held by school administrators and teachers. One explanation for the lower perceived priority of DPA among teachers relates to the barrier ‘competing curriculum demands’ (discussed above), although this was also a prominent barrier among administrators. Teachers, however, may experience more direct constraints on what can be accomplished in their classroom. For example, Patton’s study of DPA implementation in Thames Valley District School Board (London, Ontario), found that administrators very much favoured DPA programs. Yet teachers held a more instrumental view, maintaining that implementation lacked logistical supports. In any case, it is interesting to note that our study findings revealed that implementation fidelity is higher in classrooms where teachers agreed with the notion that DPA is equally important as other curriculum requirements.

Only 56.0% of administrators and 43.0% of teachers perceive the DPA policy to be realistic and achievable. This perception is significantly related to implementation fidelity at both the school and classroom level. That is, perceptions that the policy is realistic and achievable are associated with greater implementation fidelity. These findings confirm the importance of some specific proximal factors, based on perceptions of administrators and teachers, related to implementation fidelity.

Both administrators and teachers perceived that DPA is associated with a number of benefits, including improvements in students’ physical, social, and emotional well-being, academic outcomes, conduct, and physical activity habits. Conceptually, we consider these benefits to be potential facilitating factors. However, perceptions about these benefits, with one exception, are not significantly related to implementation fidelity at the school and classroom levels. This indicates that variability in implementation fidelity may be more related to other factors (e.g., awareness of DPA requirements, scheduling, monitoring and barriers) than to perceptions about DPA’s benefits to student well-being.

4.3. Study limitations

Research in school settings presents a number of challenges and our study was no exception. School boards, school administrators, and classroom teachers are extremely busy, and face many requests for research and other projects to consider in addition to their core responsibilities. While DPA is a policy requirement for school boards and schools, research on this topic is not always seen as a high priority among these groups. Given these challenges, our team designed and conducted a study intended to enhance participation and produce the best results possible. In order for our study findings to be considered potentially generalizable to the underlying distribution of publicly-funded schools in Ontario, we utilized a stratified random sample design for our school surveys. Our final analytic sample compared
quite favourably with the underlying distribution of elementary schools in the province (Table 3 in Section 3.1.2).

Our school-level response rate, based on survey completions by school administrators, was 39.3%. This response rate is similar to, or better than, those achieved in a number of other online school surveys. However, it limits the extent to which we can generalize our findings regarding implementation fidelity. It could be argued, for example, that non-participating schools from the sample drawn would be less likely than participating schools to reflect higher DPA implementation fidelity. Thus, our findings may be conservative estimates of the lack of implementation fidelity. This would, in effect, underestimate the extent of the implementation problem (although this was not determined).

Our school-level response rate, which was lower than anticipated, resulted in analytic sample sizes that were also lower than planned at the school and classroom levels. This influenced the statistical significance of associations between a number of factors and overall implementation fidelity. Our study findings reflect a large number of significant associations between factors (e.g., awareness, scheduling, monitoring, barriers) and overall implementation fidelity. Still, it is quite possible that some other relationships may have reached significance with a larger analytic sample size.

To address the challenges of recruiting school administrators and teachers, we engaged in a number of strategies, proactively using the Dillman approach for online surveys. For example, we provided small gifts of appreciation during recruitment, and sent reminder messages using different modes of communication (e-mail, regular mail, courier, and personal telephone calls). These decisions, and our stakeholder engagement strategy, contributed to some extent in increasing survey participation.

During school-level recruitment, telephone discussions with school administrators revealed a number of issues affecting participation by their schools. They spoke of being extremely busy with curriculum requirements, as well as with multiple requests to engage in other research studies and projects. Some were hesitant about having their school participate, citing concerns with competing school priorities and overburdening staff.

An additional limitation was that our study was based on self-reported data from school administrators and classroom teachers. More specifically, our measures of implementation fidelity were not validated with information from external sources. However, based on our literature review of existing survey measures, we did include a set of parallel questions that assessed information similar to the DPA policy requirements. For example, we had separate questions on the number of minutes of MVPA in DPA sessions. Within the scope of the current study, it was not feasible to have direct observation of DPA activities, objectively measure components such as the duration and intensity of DPA activities, or obtain classroom timetables. For subsequent studies of the impacts of DPA on students, it will be important to consider using additional measures.

We assume that, for the most part, participating school administrators and classroom teachers are providing informed and accurate information and assessments. They should be most familiar with these issues. However, it is possible that some participating teachers, for example, may not themselves be delivering DPA for their students. Instead, DPA may be delivered by a HPE teacher or someone else. In
such cases, the classroom teacher participating in the survey may not have been the most informed about the specific information requested regarding DPA for students in their classroom.

Due to the cross-sectional design of our surveys, the relationships between predictive and outcome factors should not be interpreted as causal.

4.4. Implications for policy, practice, and further research

Our study suggests a number of important implications for policy, practice, and further research. Most importantly, the findings confirm that DPA is not being implemented uniformly in Ontario elementary and schools. Moreover, we found a number of factors related to implementation fidelity, such as awareness of the policy requirements, scheduling, monitoring, teacher self-efficacy and barriers at both an individual and system level.

These findings represent evidence to inform and facilitate potential action at the policy and program level. They also suggest the need for additional evaluation research, to both monitor policy implementation and assess the impacts and outcomes of a re-invigorated DPA.
5. Recommendations

The following evidence-informed recommendations to the EDU address the policy and practice implications of this study. While these recommendations are actionable at the provincial level, several are potentially actionable at other levels of the education system. For each recommendation, we have identified the applicable group with initials: EDU (Ministry of Education), SB (school board), S (school), and C (classroom).

5.1. Reinvigorating DPA for full implementation fidelity

1. **Renew DPA as a key component of a healthy school, and a core structured opportunity designed to benefit all students in publicly-funded elementary schools.** (EDU, SB, S)

   If DPA is implemented consistently, the 20 minutes of MVPA per day will provide a meaningful contribution to three key goals:
   - the 60 minutes of MVPA per day recommended in the Canadian guidelines for children and youth;
   - the 60 minutes per day for physical activity specified in mandates of the EDU and the Ministry of Health and Long-Term Care; and
   - the provincial government’s program in partnership with ACTIVE AT SCHOOL and Ophea, Promoting Well-Being at School (60 minutes of physical activity for kids connected to the school day).  

2. **Re-confirm the importance of full implementation fidelity to the requirements of the policy at the school and classroom level as a primary goal of a strengthened DPA initiative in Ontario elementary schools (grades 1-8).** (EDU, SB, S)

   Based on our study findings, only 61.4% of schools and 50.0% of classrooms are meeting the DPA policy requirements. Full implementation in all schools and classrooms represents an equitable approach to providing structured school-based opportunities. This also means that all six policy requirements (duration, intensity, continuity, frequency, scheduling and inclusivity) need to be implemented consistently.

   By extension, this recommendation should be operationalized throughout the entire education system as well.

3. **Re-confirm that DPA is equally as important as other curriculum components.** (EDU, SB, S, C)

   Since DPA is to be conducted during instructional time, it competes with other curriculum priorities and expectations. However, increasing evidence attests to how school-based physical
activity benefits fitness, physical and mental health, academic performance, and attention to tasks.\textsuperscript{8}

School administrators and teachers recognize these benefits of DPA. Yet less than 60% of teachers in our study perceive DPA to be as important as other curriculum requirements. Moreover, the perception that DPA is equally important as other curriculum requirements is significantly related to implementation fidelity at the classroom level. To increase implementation fidelity at the classroom level, DPA needs to be re-confirmed as a central component of the curriculum at the provincial, school board school and classroom level.

4. **Clarify all components of the DPA policy requirements to avoid ambiguity in awareness, understanding, and implementation.** (EDU)

We found that administrator and teacher awareness of the DPA requirements was reasonably high, with the exception of the components of intensity and continuity. In addition, there was considerable variability in the reported time spent on MVPA during DPA.

To address this issue, the components of intensity and sustained activity should be clarified in line with the original policy requirement and guidance documents. Specifically:

- Does the 20 minutes of DPA include warm-up and cool-down time? (Recent discussions with EDU indicate that it does.)
- Is sustained (continuous) MVPA for 20 minutes required, or can shorter bouts be incorporated?

Offering several shorter periods of physical activity during the school day might satisfy the need for scheduling flexibility. However, administrators and teachers may find that needing to schedule DPA more than once a day may reduce the likelihood of doing so consistently. There is considerable scientific agreement about the dose-response relationship of higher levels of physical activity among children.\textsuperscript{2} Still, there is also continuing debate around whether MVPA needs to be continuous or in shorter bouts.\textsuperscript{8} The revised Canadian Physical Activity Guidelines for children 5-11 do not state the length of specific bouts of activity since there is a stated lack of evidence on this issue.\textsuperscript{76} All of this indicates the need for clarification.

5.2. **Key components moving forward**

5. **Schedule DPA on a consistent basis in schools and classrooms.** (EDU, SB, S, C)

Scheduling DPA is significantly related to implementation fidelity. However, only about two-thirds of school administrators and classroom teachers report that DPA is scheduled in the classroom timetable.
To facilitate consistent scheduling, expectations need to be clarified at the provincial, school board, school, and classroom level. DPA should be delivered routinely each day within the school to increase implementation fidelity. This requires school-level coordination, so that classrooms will conduct DPA sessions according to school and classroom timetables. Implementing and adhering to consistent scheduling is vital to implementation fidelity, and provides a mechanism to address lack of time as a barrier.

6. **Improve tracking and monitoring of DPA implementation status on a regular basis, to increase fidelity to the policy and demonstrate accountability. (SB, S, C)**

Monitoring DPA is also significantly related to implementation fidelity. However, most administrators and teachers state that there is no monitoring procedure for DPA within their school.

To improve DPA monitoring, school boards – in consultation with other partner organizations and in collaboration with provincial knowledge organizations – should adopt a plan and methodology to monitor DPA status periodically. Responsibility for monitoring should be shared, with leadership from school boards and strong participation from schools and classrooms.

Overall coordination of what information each school board collects, and how, is important. To illustrate, monitoring could include standardized data collection tools and procedures, and collecting supportive documentation (e.g., school and classroom timetables). Fuller tracking could rely on systematic observation of DPA activities in samples of schools and classrooms.

Like scheduling, monitoring and tracking provide mechanisms for indirectly addressing barriers to implementation like lack of time and competing curriculum priorities. These processes promote accountability for DPA implementation fidelity at all levels.

7. **Provide opportunities for school administrators and classroom teachers to increase their awareness of the DPA policy requirements, and increase teacher self-efficacy to plan and implement DPA. (EDU, SB)**

Greater awareness of the components of DPA, and self-efficacy to plan and implement it, are associated with a higher degree of implementation fidelity. Based on evidence from our study, awareness of particular policy requirements, such as the need for 20 minutes of continuous MVPA, should be increased among administrators and teachers to enhance consistency.

To increase teacher self-efficacy, the system and boards can adopt innovative learning opportunities and approaches, peer coaching and program support activities. Offering these regularly can increase DPA implementation fidelity. This is particularly important for the almost 40% of teachers indicating low-to-moderate levels of self-efficacy to plan and implement DPA in their classrooms.
5.3. Additional resources and supports

8. **Review and develop innovative ways to update existing DPA resources and supports for dissemination.** (EDU, SB, S, C)

   The frequency of using DPA resources and supports is significantly related to implementation fidelity at the school and classroom level, though current rates of use are very low in both settings. In reviewing and updating resources and supports, emphasis should be placed on the importance and benefits of DPA; the need for consistency in implementation; and any specific changes, modifications, or clarifications of the expectations (at the provincial, school board, school, and classroom level).

   In addition, working with partner organizations, innovative ways to update existing DPA resources in order to enhance utilization of DPA resources and supports should be explored.

9. **Develop innovative ways (in conjunction with the Ministry of Health and Long-Term Care and other stakeholders) to enhance reciprocal communication between the education and public health sectors to promote and support additional school-based opportunities for physical activity, including DPA.** (EDU, SB, S)

   Reciprocal communication between the education and public health sectors is important at all levels (provincial, school board and school). Both parties have a mutual interest in promoting student health and well-being. In Ontario, public health personnel are mandated to work with and support school boards and schools on promoting physical activity among students.

   Evidence from this study, as well as our earlier study on the role of public health personnel in supporting and promoting DPA, suggests that school personnel are not using this support. DPA is an important component of overall school-based physical activity. For mutual benefit, developing innovative strategies to enhance communications – between education, public health, and other partner organizations – should include the broader range of physical activity initiatives.

10. **Identify ways for school boards, schools and classrooms to make use of available space for DPA.** (SB, S, C)

    Classroom teachers considered lack of space to be a central barrier to implementing DPA. It’s likely that geographic (urban versus rural), structural and seasonable factors affect space and its utilization. Nevertheless, there may be creative ways to maximize available space on school property (such as multi-purpose rooms) and adjoining community spaces and facilities. A particular challenge may be the greater space needs of students in the higher grades. To maximize available space for DPA, school boards, schools and classrooms should examine further opportunities within school property, and contiguous community facilities and grounds.
6. Beyond the study: Next steps in re-invigorating and evaluating DPA

Next steps for our team include developing manuscripts for submission to peer-reviewed journals. This will be based on further analyses (e.g., logistic regression) to identify sets of factors most predictive of implementation fidelity at the school and classroom level. In addition to producing the quantitative findings summarized in this report and in subsequent analyses, our surveys of school administrators and classroom teachers generated additional, more qualitative, findings in response to open-ended questions. We will also code and analyze this information prior to developing manuscripts for submission to peer-reviewed journals.

Public Health Ontario is well-positioned to prospectively track the impact of these recommendations on reinvigoration of the DPA policy and subsequent decisions and actions taken at the provincial, school board, and school level. We will be pleased to discuss the future research implications of this report and recommendations with the EDU and other partners.
References


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Appendix A: Outcome variable measurement

To measure the outcome variable, we first asked participants to indicate whether DPA has been implemented at least once within their school (for school administrators) or classroom (for teachers) during the 2013–14 school year.

- If participants responded “No” – we asked them to indicate whether any other school-based physical activity program is being implemented at their school in addition to health and physical education classes, but did not ask any further questions regarding DPA implementation.
- If participants responded “Yes” – we asked additional questions about DPA implementation within their school or classroom, including six specific questions regarding fidelity to the six policy requirements defined above.

The six questions asked participants to indicate the frequency (or number of days per week) that the DPA policy requirement in question was typically met or implemented in their school or classroom. Response options for each item ranged from 1-5:

- 1 = Never/1 day;
- 2 = Rarely/2 days;
- 3 = Sometimes/3 days;
- 4 = Often/4 days; and
- 5 = Always/5 days.

The response option chosen for each individual item represented the fidelity score (out of five) for its corresponding DPA policy requirement.

We then constructed a scale of overall DPA implementation fidelity consisting of these six items. To do so, we calculated a composite score measuring overall implementation fidelity (out of 30). This summed up the participants’ fidelity scores across the six items.

Participants who indicated “No” on the initial question were still included in analyses related to DPA implementation fidelity. In those cases, they received a score of zero for each of the six scale items, and thus a composite score of zero for overall implementation fidelity (since they indicated DPA has not been implemented at least once in their school/classroom in 2013–14).

For analysis purposes, the overall implementation fidelity scores were grouped into two categories:

1. **Meets DPA policy requirements (scores 24-30)**: This includes participants who indicated that DPA is currently being implemented in their school or classroom and *often or always* meets policy requirements (averaged a score of at least 4 for each of the six items).
2. **Does not meet DPA policy requirements (scores 0-23.99):** This includes participants who indicated that DPA is currently *not* being implemented in their school or classroom (i.e., score of 0), or is currently being implemented but *never, rarely or sometimes* meets policy requirements (averaged a score of less than 4 for each of the six items).

Where participants had missing or “I don’t know” responses to less than four questions related to implementation fidelity, we used the mean method of imputation to replace and calculate the missing values. Those with four or more missing or “I don’t know” responses were not included in the analyses related to overall implementation fidelity. Please refer to Appendix H for a more detailed description of how we addressed missing data.

In addition to the six questions pertaining to overall implementation fidelity, we asked participants to provide more detailed information about how the DPA policy is implemented within their schools or classrooms. For example, other survey questions asked participants to indicate the minutes typically spent on DPA (e.g., for instruction, warm-up, cool-down, sustained activity), how students participate in DPA, and who instructs DPA. We included these survey questions in both the school administrator and teacher surveys.
Appendix B: Description of survey sections

1. **Awareness of DPA Policy Requirements**
   Participants were asked to answer questions related to each of the six DPA policy requirements (as defined in Table 1 of Section 2.1.1.1) based on their current knowledge and awareness of the policy.

2. **Perception of DPA Policy**
   Questions measured participants’ perception of the DPA policy and potential impacts on students’ well-being. Participants were asked about their level of agreement with statements regarding the policy’s clarity, achievability and importance in comparison to other curriculum requirements. Additionally, participants were asked about their perceptions of the impact (i.e., from very negative to very positive) DPA has on various aspects of students’ well-being and outcomes in school.

3. **Scheduling and Monitoring DPA**
   The EDU’s DPA resource guides recommended a number of activities for principals and teachers to plan and monitor DPA. This section asked participants about the implementation of these activities within their respective school and classrooms, including the presence of a DPA implementation committee and action plan, scheduling DPA in teachers’ timetables, and monitoring DPA.

4. **Use of DPA Resources and Supports**
   Questions measured participants’ use of resources (i.e., learning tools) and supports (i.e., individuals and/or organizations) for planning, implementing and monitoring DPA, as recommended by the EDU’s DPA resource guides. School administrators, in particular, were also asked about how they allocate their school budgets for DPA and the types of spaces available at their school for conducting DPA. Response options relating to the types of spaces available were adapted from the Alberta Ministry of Education’s *Daily Physical Activity Survey Report.*

5. **Perceptions of Barriers**
   This section provided a list of potential barriers to implementing DPA. Participants were asked to indicate their level of agreement with each barrier, and provide any other factors that they believe act as barriers to implementing DPA within their respective schools or classrooms.

6. **Self-efficacy**
   This section focused on measuring participants’ confidence in their ability to successfully plan and implement DPA within their respective schools or classrooms.

7. **Personal Characteristics**
   Participants were asked to provide information about their background, including: gender; years of experience in their role and at their school; highest level of formal training in HPE; and the extent to which physical activity is a priority in their personal daily lives.
Appendix C: School administrator survey

Status of DPA in Ontario Elementary Schools / L’état de l’APQ dans les écoles élémentaires de l’Ontario

Language selection / Choix de la langue:

Please select your language preference / Veuillez choisir la langue dans laquelle vous souhaitez répondre au questionnaire:

- English / anglais
- French / français
Please note: The Survey Introduction, below, was included as a document in the information package that was recently mailed to you. If you have read this information, please scroll down to the Consent Form at the bottom of the page to continue with the survey.

Survey Introduction

You are being asked to participate in a research study. This study is being conducted by Dr. Ken Allison, Senior Scientist, Health Promotion, Chronic Disease & Injury Prevention (HPCDIP), Public Health Ontario. Before you agree to participate in this study, it is important that you understand what it is about. Please read this information carefully and contact us if you have any questions (contact information below).

Title of Research Project: Status of Daily Physical Activity (DPA) in Ontario Elementary Schools

Principal Investigator: Dr. Kenneth R. Allison, Senior Scientist, HPCDIP, Public Health Ontario

Additional Project Team Members:

- Dr. Erin Hobin, Scientist, HPCDIP, Public Health Ontario
- Dr. John J. M. Dwyer, Associate Professor, Applied Human Nutrition, University of Guelph
- Dr. Steve Manske, Senior Scientist, Propel Centre for Population Health Impact
- Dr. Heather Manson, Chief, HPCDIP, Public Health Ontario
- Dr. Jennifer Robertson, Manager, Knowledge Synthesis and Evaluation Services, Infection Prevention and Control, Public Health Ontario
- Dr. Nour Schoueri-Mychasiw, Research Coordinator (on maternity leave), HPCDIP, Public Health Ontario
- Karen Vu-Nguyen, Research Coordinator, HPDCIP, Public Health Ontario
- Bessie Ng, Research Assistant, HPCDIP, Public Health Ontario
- Sonam Shah, Research Assistant, HPCDIP, Public Health Ontario

Sponsor: This study is being funded by Public Health Ontario

Introduction

In response to physical inactivity among children, the Ontario Ministry of Education implemented a Daily Physical Activity (DPA) policy in schools in October 2005. To improve our understanding of DPA implementation in Ontario elementary schools, Public Health Ontario is conducting online surveys with school administrators (i.e., principals or vice-principals) and teachers to identify the extent to which DPA is being implemented in schools and classrooms across Ontario, and the various factors associated with DPA implementation.

Purpose and Use of the Research

We are interested in understanding the extent to which DPA is being implemented in schools and classrooms across Ontario, as well as the various factors that are associated with DPA implementation. To address these objectives, we are inviting school administrators and teachers


from a random sample of schools across Ontario to participate in a 15-minute online survey. Please note that this study is not meant to evaluate DPA implementation specifically in your school or classroom. Rather, a summary of findings from across the province will be used to assess the current status of DPA implementation, along with recommendations to the Ministry of Education as to how this policy can be strengthened. The Ministry of Education is very interested in this study and has provided representatives on our Study Advisory Committee. However, this study is not an Ontario Ministry of Education initiative and no information, including your survey responses, or your decision on whether or not to participate in this project, will be disclosed to them or to the school board. Public Health Ontario intends to share the results with study participants as a 1-2-page summary and possibly as part of a manuscript or presentation at an academic conference.

As a key person who may be involved in DPA implementation, your input in this study will be integral to our understanding of how DPA is currently implemented in schools and classrooms across Ontario, and to informing how the current policy may be strengthened.

Procedure

- This study has been approved by the Public Health Ontario's Ethics Review Board and, where required, your school board.

- Your school was selected to participate in this study from a random sample of elementary schools across Ontario. The school principal (or designated vice-principal) is invited to participate in an online survey and up to three teachers from the school representing grades 3, 5, and 7 are being randomly selected and invited to participate in a separate survey.

- You are being asked to participate in this online survey because you may be involved in implementing DPA within your school, and have unique experiences and perspectives on how the DPA policy is currently being carried out.

- The online survey will take approximately 15 minutes to complete and can be completed at any time within a 4-week time frame. Questions will be related to DPA implementation, school characteristics, and personal information (e.g. gender, years of experience).

Voluntary Participation and Withdrawal from Study

Participation is voluntary and you may withdraw your participation up until April 3, 2014. To withdraw from the study, please contact Karen Vu-Nguyen, Research Coordinator, by telephone or email (contact information listed at the end of this form), at which point your survey responses will be destroyed. Following April 3, 2014, your survey responses will be analyzed, and grouped with results of other participants, without your personal or school information. At that point, your responses cannot be removed from any reports. Therefore please be aware that you can withdraw your participation up until April 3, 2014.

Potential Risks and Discomforts

This survey will require approximately 15 minutes of your time and may be completed at any time. Since the survey contains questions about your involvement, experiences and perspectives on DPA implementation in your school or classroom, you may experience some discomfort if your responses suggest that obligations are not being fulfilled regarding DPA. To minimize this risk, we
would like to emphasize that this study is not meant to evaluate DPA implementation specifically in your school and any data gathered during the survey will not be linked to you or the school you represent within reports, manuscripts or presentations. Additionally, your decision to participate will not be shared with the Ontario Ministry of Education or your school board. Data will be presented as aggregate results (i.e., combined with responses from other respondents across the province).

**Potential Benefits**

While there are no direct benefits to you, you may appreciate the opportunity to share valuable information that you have gained through your unique experiences and perspectives in the implementation of DPA in your school or classroom. In doing so, you will be contributing to a research project that will inform policy, practice and strategies for potentially strengthening the DPA policy in Ontario and other jurisdictions in the future, as well as inform future studies intended to monitor and assess the status of DPA in Ontario schools. As a result, potential changes to the DPA policy made by the Ontario Ministry of Education may support and improve your future involvement and experiences in implementing DPA at the school and classroom levels.

**Access to Information, Confidentiality, and Results Publications**

Before proceeding, we would like to provide you with some additional information about the online survey and how we plan to maintain confidentiality throughout the study. Your answers will not be associated with your name, contact information, or the school that you represent or are affiliated with in any reports, manuscripts, or public presentations. The responses that you provide will only be reported in aggregate form (i.e., combined with responses from other respondents) and you will not be identified in any way. Once the survey period closes, email addresses will be separated from survey responses.

We will further maintain your confidentiality by working with de-identified data only. That is, we will store, analyze, and interpret your data using a study-specific ID number rather than your name or affiliation. The ID key will be stored in a separate electronic file from the data you provide in the survey. Hard copy data will be entered and saved electronically, and stored in a locked cabinet at Public Health Ontario. At the end of the study, hard copy data will be disposed of by shredding hard copy data. Electronic data will be encrypted and stored in a Public Health Ontario secure server environment, and will be stored securely for 5 years after publication. After this time, data will be disposed of by permanently deleting electronic records. Public Health Ontario intends to share the results with study participants as a 1-2-page summary and possibly as part of a manuscript or presentation at an academic conference.

**Compensation**

There is no compensation for your participation in this study. However, as a small token of our appreciation, your school will have received a copy of the book, *Spark: The Revolutionary New Science of Exercise and the Brain*, by Dr. John J. Ratey. This was included as a part of your invitation to participate, which was mailed to you earlier.
Project Contact

Thank you for taking the time to learn more about this study. If you have any questions regarding the information given or the consent process, please do not hesitate to contact Dr. Ken Allison, Senior Scientist, or Karen Vu-Nguyen, Research Coordinator, at Public Health Ontario. Their contact information is provided below:

Kenneth R. Allison, PhD
Senior Scientist
Health Promotion, Chronic Disease and Injury Prevention
Public Health Ontario
ken.allison@oahpp.ca
647-260-7307

Karen Vu-Nguyen, MPH
Research Coordinator
Health Promotion, Chronic Disease and Injury Prevention
Public Health Ontario
karen.vu-nguyen@oahpp.ca
647-260-7524

Research Ethics Board Contact

If you have any questions about your rights as a participant in this research study, you can contact Public Health Ontario’s Ethics Review Board (ERB) Chair at ethics@oahpp.ca, or call the Research Ethics Officer at 647-260-7505.

Consent Form

The information collected for this project is confidential and protected under the Municipal Freedom of Information and Protection of Privacy Act, 1989.

I have read and understood the request for my participation in the study of DPA implementation in Ontario elementary schools. I understand that no information, including my survey responses, or my decision on whether or not to participate in this project, will be disclosed to the Ontario Ministry of Education or to my school board. I understand that participation in the online survey is voluntary. I may choose not to answer any specific survey questions and can withdraw from the study up until April 3, 2014, by contacting the Research Coordinator at the telephone number and email address provided above.

☐ I consent to participate in this survey.

☐ I do not consent to participate in this survey.
Please respond to this survey based on the current 2013 - 2014 school year.

Survey Selection

What position do you currently hold at your school?

- Principal
- Vice-Principal
Section 1: Awareness of DPA Policy Requirements

The following questions focus on your awareness of the Daily Physical Activity policy requirements.

1.1 Prior to receiving this survey, were you aware of some or all of the Daily Physical Activity (DPA) policy requirements?
   - Yes
   - No

1.2 Does the DPA policy have a requirement to include students with special needs?
   - Yes
   - No
   - I don’t know

1.3 Can there be breaks or stops in activity during DPA?
   - Yes
   - No
   - I don’t know

1.4 For at least how many minutes must DPA last each day?
   - 10 minutes
   - 15 minutes
   - 20 minutes
   - 25 minutes
   - 30 minutes
   - I don’t know
1.5 At what level of intensity must DPA be conducted?
- Light
- Light to moderate
- Moderate
- Moderate to vigorous
- Vigorous
- I don’t know

1.6 In a school week, how many days must students engage in DPA (including physical activity during Health and Physical Education (HPE) classes)?
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- I don’t know

1.7 On a school day, when must DPA be conducted?
- During instructional time
- During recess
- During lunch
- During after-school hours
- Whenever time permits
- Other: _____________
- I don’t know
Section 2: DPA Implementation

The following questions focus on how DPA is currently being implemented within your school. Please keep in mind that the frame of reference is the 2013-2014 school year.

2.1 Is DPA currently being implemented at your school? (If DPA has been implemented at least once at your school during the 2013-2014 school year, please select 'Yes'.)

- Yes (Skip Q2.2 and proceed to Q2.3)
- No
- I don’t know

2.2 Is there another physical activity program or policy that is currently being implemented at your school (in addition to Health and Physical Education classes)?

- Yes (If yes, please describe) ______________________  (Skip the rest of Section 2 and proceed to Section 3)
- No (Skip the rest of Section 2 and proceed to Section 3)
- I don’t know (Skip the rest of Section 2 and proceed to Section 3)

Since DPA is most likely conducted by a teacher, please answer the following questions to the best of your knowledge.

2.3 How do classes participate in DPA?

- All classes engage in DPA at the same time (i.e. school-wide)
- Several classes engage in DPA at the same time
- Each class participates in DPA at separate times
- Type of participation varies throughout the school year
- Other: ______________
- I don’t know

2.4 Generally, who instructs DPA at your school?

- Teacher with Health and Physical Education (HPE) specialization
- Generalist teacher (i.e. no HPE specialization)
- Student
- Other: ______________
- I don’t know
2.5 In your opinion, who should be involved in instructing DPA?

2.6 How often does DPA last a minimum of 20 minutes?

- Never
- Rarely
- Sometimes
- Often
- Always
- I don’t know

2.7 On a typical day when DPA is held, how many minutes do students engage in DPA?

- Minutes: _________________
- I don’t know

2.8 How often are students engaged in moderate to vigorous physical activity during DPA?

Please note:

<table>
<thead>
<tr>
<th><strong>Moderate Physical Activity</strong></th>
<th><strong>Vigorous Physical Activity</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities will cause some increase in breathing and/or heart rate. Individual is still able to carry on a conversation comfortably during activity. <strong>Examples:</strong> brisk walking, recreational dancing</td>
<td>Activities will increase breathing and heart rates. Depending on the individual’s fitness level, may cause puffing so that talking is possible but the ability to carry on a conversation is limited. <strong>Examples:</strong> jogging, aerobic dancing, swimming</td>
</tr>
</tbody>
</table>

- Never
- Rarely
- Sometimes
- Often
- Always
- I don’t know
2.9 Typically, how many minutes are students engaged in moderate to vigorous physical activity during DPA?
   - Minutes: ________________
   - I don’t know

2.10 How often are students engaged in sustained physical activity for the entire duration of DPA (i.e., no stops or breaks in activity)?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Always
   - I don’t know

2.11 In a typical school week, how many days do students engage in DPA (including physical activity during Health and Physical Education (HPE) classes)?
   - 1 day
   - 2 days
   - 3 days
   - 4 days
   - 5 days
   - I don’t know

2.12 How often is DPA conducted during instructional time only (i.e. not during recess, lunchtime, before/after school hours)?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Always
   - I don’t know
2.13 Typically, how many minutes are generally allotted for each of the following activities during DPA? (Please provide a response for each activity.)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Minutes</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction:</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>Warm-up:</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>Sustained physical activity:</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>Cool-down:</td>
<td></td>
<td>O</td>
</tr>
</tbody>
</table>

2.14 How often is DPA planned and/or adapted to ensure that all students (including students with special needs) can participate?

- Never
- Rarely
- Sometimes
- Often
- Always
- I don't know
Section 3: Perception of DPA Policy

The following questions focus on your thoughts on the DPA policy.

*The DPA policy states that “...school boards must ensure that all elementary students, including students with special needs, have a minimum of twenty minutes of sustained moderate to vigorous physical activity each school day during instructional time.”*

3.1 What are your perceptions of the DPA policy? (Please select a response option for each of the following statements regarding the DPA policy.)

The DPA policy is...

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>I don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>clear and easy to understand</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>realistic/achievable</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>equally important as other school curriculum requirements</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

3.2 In your opinion, what type of impact does DPA have on the following aspects of student well-being? (Please select a response option for each statement.)

<table>
<thead>
<tr>
<th></th>
<th>Very negative</th>
<th>Somewhat negative</th>
<th>Neither positive nor negative</th>
<th>Somewhat positive</th>
<th>Very positive</th>
<th>I don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students’ physical well-being</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Students’ emotional well-being (e.g. mood, anxiety levels)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Students’ academic outcomes</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Student conduct (e.g. attention in class)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Students’ social well-being (e.g. peer interactions, connectedness)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The development of physical activity habits</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Section 4: Planning and Monitoring DPA

The following questions focus on how DPA is planned and monitored at your school.

4.1 Does your school have an action plan for DPA implementation?
- Yes
- No
- I don’t know

4.2 Does your school have a DPA implementation committee or team to support the planning, organizing, implementing, and/or monitoring of DPA?
- Yes
- No
- I don’t know

4.3 Is DPA scheduled in teachers' classroom timetables?
- Yes
- No
- I don’t know

4.4 Is there a procedure for monitoring DPA in your school?
- Yes
- No
- I don’t know
Section 5: DPA Facilitators

The following questions focus on the facilitators for planning, implementing and/or monitoring DPA.

5.1 DPA supports are defined as individuals and/or organizations that can assist with planning, implementing and monitoring DPA (e.g. School Board DPA Committee, School DPA Implementation Committee, public health units, health and physical education organizations, physical activity consultants).

How often do you use the supports available to help school administrators plan, implement and/or monitor DPA?

- Never use
- Rarely use
- Occasionally use
- Often use
- Always use

5.2 Does your school board have a DPA and/or Health and Physical Education (HPE) consultant?

- Yes
- No [Skip Q5.3 and proceed to Q5.4]
- I don’t know [Skip Q5.3 and proceed to Q5.4]

5.3 How often does your school communicate with your school board’s DPA and/or HPE consultant regarding DPA?

- Never
- Rarely
- Occasionally
- Often
- Always
5.4 How often does your school communicate with your region’s public health unit regarding DPA?
- Never
- Rarely
- Occasionally
- Often
- Always

5.5 DPA resources are defined as learning tools that can assist with planning, implementing and monitoring DPA. For example: Daily Physical Activity In Schools: Guide for School Principals, DPA eWorkshop, Ophea workshops, websites.

How often do you use the resources available to help school administrators plan, implement and/or monitor DPA?
- Never use
- Rarely use
- Occasionally use
- Often use
- Always use

5.6 Please indicate whether or not the following types of spaces are available at your school for conducting DPA.

<table>
<thead>
<tr>
<th>Space</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>School gymnasium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-purpose rooms (e.g. cafeteria, auditorium)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Hallways</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classrooms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playground</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Courtyard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Status of Daily Physical Activity (DPA) in Ontario elementary schools

<table>
<thead>
<tr>
<th>Facility</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pavement</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Courts</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Pool</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Track</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Baseball diamond</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 5.7 For this current school-year, was a portion of the school budget allocated for DPA-related expenses?
- Yes
- No [Skip Q5.8 and proceed to Section 6]
- I don’t know [Skip Q5.8 and proceed to Section 6]

#### 5.8 What was the percentage of the budget allocated for DPA?
- 0%
- 1-10%
- 11-20%
- 21-30%
- More than 30%
- I don’t know
**Section 6: Perceptions of Barriers**

The following questions focus on your perception of the barriers to implementing DPA.

**6.1** To what extent do you agree or disagree that each of the following factors act as barriers to implementing DPA at your school? (Please select a response option for each factor.)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of time</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of school board support</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of teacher readiness</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of resources (e.g. guidelines, workshops, websites)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of equipment (e.g. balls, nets, mats)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of space (e.g. hallways, multipurpose rooms, gymnasium)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of amenities (e.g. water fountain, showers, change rooms)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Bad weather</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Competing curriculum priorities</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Students’ reluctance to participate</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of parent/ guardian support</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

**6.2** Please list any other factors that act as barriers to implementing DPA at your school.
Section 7: Student Involvement

The following question focuses on students’ involvement in planning and/or leading the DPA program.

7.1 Are there opportunities for students to be involved in the planning and/or leading of DPA activities?

○ Yes
○ No
○ I don’t know
Section 8: Self-Efficacy

The following question focuses on your confidence level towards carrying out DPA responsibilities.

8.1 How confident are you in your ability to...

<table>
<thead>
<tr>
<th></th>
<th>Not at all confident</th>
<th>Slightly confident</th>
<th>Moderately confident</th>
<th>Quite confident</th>
<th>Completely confident</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>successfully plan DPA</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>successfully implement DPA</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Section 9: Personal Characteristics

The following questions ask you to provide some additional information about yourself.

9.1 Please indicate your gender:
- Male
- Female

9.2 How many years have you worked as a school administrator?
- Less than 1 year
- 1-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- 21 or more years

9.3 How many years have you been working at your current school?
- Less than 1 year
- 1-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- 21 or more years

9.4 What is the highest level of formal training that you have received in Health and Physical Education (HPE)?
- None
- 1 or more courses in physical education, but no post-secondary degree, certificate or diploma in HPE
- Non-university certificate or diploma in HPE
- University certificate or minor in HPE at bachelor level
- University major or degree in HPE at bachelor level or higher
- Other training: ______________________
9.5 To what extent is physical activity a priority in your own personal daily life?

- Low priority
- Somewhat low priority
- Moderate priority
- Somewhat high priority
- High priority
End of Survey

Thank you for participating in our study. Your feedback is extremely valuable to helping us understand the current status of DPA implementation across Ontario.

Please enter any additional comments you may have about the survey topics and/or DPA in general below.
Appendix D: Teacher survey

Status of DPA in Ontario Elementary Schools / L’état de l’APQ dans les écoles élémentaires de l’Ontario

4-digit unique code / Code personnel à 4 chiffres:

Please enter your unique 4-digit code that was provided on your information letter / Veuillez entrer votre code personnel à 4 chiffres que vous trouverez dans votre lettre d’information.

[Blank field]

Language selection / Choix de la langue:

Please select your language preference / Veuillez choisir la langue dans laquelle vous souhaitez répondre au questionnaire:

- English / Anglais (English version selected here)
- French / français
Please note: The Survey Introduction, below, was included as a document in the information package that was recently mailed to you. If you have read this information, please scroll down to the Consent Form at the bottom of the page to continue with the survey.

Survey Introduction

You are being asked to participate in a research study. This study is being conducted by Dr. Ken Allison, Senior Scientist, Health Promotion, Chronic Disease & Injury Prevention (HPCDIP), Public Health Ontario. Before you agree to participate in this study, it is important that you understand what it is about. Please read this information carefully and contact us if you have any questions (contact information below).

Title of Research Project: Status of Daily Physical Activity (DPA) in Ontario Elementary Schools

Principal Investigator: Dr. Kenneth R. Allison, Senior Scientist, HPCDIP, Public Health Ontario

Additional Project Team Members:

- Dr. Erin Hobin, Scientist, HPCDIP, Public Health Ontario
- Dr. John J. M. Dwyer, Associate Professor, Applied Human Nutrition, University of Guelph
- Dr. Steve Manske, Senior Scientist, Propel Centre for Population Health Impact
- Dr. Heather Manson, Chief, HPCDIP, Public Health Ontario
- Dr. Jennifer Robertson, Manager, Knowledge Synthesis and Evaluation Services, Infection Prevention and Control, Public Health Ontario
- Dr. Nour Schoueri-Mychasiw, Research Coordinator (on maternity leave), HPCDIP, Public Health Ontario
- Karen Vu-Nguyen, Research Coordinator, HPDCIP, Public Health Ontario
- Bessie Ng, Research Assistant, HPCDIP, Public Health Ontario
- Sonam Shah, Research Assistant, HPCDIP, Public Health Ontario

Sponsor: This study is being funded by Public Health Ontario

Introduction

In response to physical inactivity among children, the Ontario Ministry of Education implemented a Daily Physical Activity (DPA) policy in schools in October 2005. To improve our understanding of DPA implementation in Ontario elementary schools, Public Health Ontario is conducting online surveys with school administrators (i.e., principals or vice-principals) and teachers to identify the extent to which DPA is being implemented in schools and classrooms across Ontario, and the various factors associated with DPA implementation.

Purpose and Use of the Research

We are interested in understanding the extent to which DPA is being implemented in schools and classrooms across Ontario, as well as the various factors that are associated with DPA implementation. To address these objectives, we are inviting school administrators and teachers
from a random sample of schools across Ontario to participate in a 15-minute online survey. Please note that this study is not meant to evaluate DPA implementation specifically in your school or classroom. Rather, a summary of findings from across the province will be used to assess the current status of DPA implementation, along with recommendations to the Ministry of Education as to how this policy can be strengthened. The Ministry of Education is very interested in this study and has provided representatives on our Study Advisory Committee. However, this study is not an Ontario Ministry of Education initiative and no information, including your survey responses, or your decision on whether or not to participate in this project, will be disclosed to the Ministry or to your school board and principal. Public Health Ontario intends to share the results with study participants as a 1-2-page summary and possibly as part of a manuscript or presentation at an academic conference.

As a key person who may be involved in DPA implementation, your input in this study will be integral to our understanding of how DPA is currently implemented in schools and classrooms across Ontario, and to informing how the current policy may be strengthened.

Procedure

- This study has been approved by the Public Health Ontario's Ethics Review Board and, where required, your school board.

- Your school was selected to participate in this study from a random sample of elementary schools across Ontario. The school principal (or designated vice-principal) is invited to participate in an on-line survey and up to three teachers from the school representing grades 3, 5, and 7 are being randomly selected and invited to participate in a separate survey.

- You are being asked to participate in this online survey because you may be involved in implementing DPA within your school, and have unique experiences and perspectives on how the DPA policy is currently being carried out.

- The online survey will take approximately 15 minutes to complete and can be completed at any time within a 4-week time frame. Questions will be related to DPA implementation, school characteristics, and personal information (e.g. gender, years of experience).

Voluntary Participation and Withdrawal from Study

Participation is voluntary and you may withdraw your participation up until May 20, 2014. To withdraw from the study, please contact Karen Vu-Nguyen, Research Coordinator, by telephone or email (contact information listed at the end of this form), at which point your survey responses will be destroyed. Following May 20, 2014, your survey responses will be analyzed, and grouped with results of other participants, without your personal or school information. At that point, your responses cannot be removed from any reports. Therefore please be aware that you can withdraw your participation up until May 20, 2014.

Potential Risks and Discomforts

This survey will require approximately 15 minutes of your time and may be completed at any time. Since the survey contains questions about your involvement, experiences and perspectives on DPA implementation in your school or classroom, you may experience some discomfort if your
responses suggest that obligations are not being fulfilled regarding DPA. To minimize this risk, we would like to emphasize that this study is not meant to evaluate DPA implementation specifically in your school and any data gathered during the survey will not be linked to you or the school you represent within reports, manuscripts or presentations. Additionally, your decision to participate will not be shared with the Ontario Ministry of Education or with your school board and principal. Data will be presented as aggregate results (i.e., combined with responses from other respondents across the province).

**Potential Benefits**

While there are no direct benefits to you, you may appreciate the opportunity to share valuable information that you have gained through your unique experiences and perspectives in the implementation of DPA in your school or classroom. In doing so, you will be contributing to a research project that will inform policy, practice and strategies for potentially strengthening the DPA policy in Ontario and other jurisdictions in the future, as well as inform future studies intended to monitor and assess the status of DPA in Ontario schools. As a result, potential changes to the DPA policy made by the Ontario Ministry of Education may support and improve your future involvement and experiences in implementing DPA at the school and classroom levels.

**Access to Information, Confidentiality, and Results Publications**

Before proceeding, we would like to provide you with some additional information about the online survey and how we plan to maintain confidentiality throughout the study. Your answers will not be associated with your name, contact information, or the school that you represent or are affiliated with in any reports, manuscripts, or public presentations. The responses that you provide will only be reported in aggregate form (i.e., combined with responses from other respondents) and you will not be identified in any way. Once the survey period closes, email addresses will be separated from survey responses.

We will further maintain your confidentiality by working with de-identified data only. That is, we will store, analyze, and interpret your data using a study-specific ID number rather than your name or affiliation. The ID key will be stored in a separate electronic file from the data you provide in the survey. Hard copy data will be entered and saved electronically, and stored in a locked cabinet at Public Health Ontario. At the end of the study, hard copy data will be disposed of by shredding hard copy data. Electronic data will be encrypted and stored in a Public Health Ontario secure server environment, and will be stored securely for 5 years after publication. After this time, data will be disposed of by permanently deleting electronic records. Public Health Ontario intends to share the results with study participants as a 1-2-page summary and possibly as part of a manuscript or presentation at an academic conference.

**Compensation**

There is no compensation for your participation in this study. However, as a small token of our appreciation, you will have received a $10 gift card to Indigo for your participation in the study. This was included as a part of your invitation to participate, which was mailed to you earlier.
Project Contact

Thank you for taking the time to learn more about this study. If you have any questions regarding the information given or the consent process, please do not hesitate to contact Dr. Ken Allison, Senior Scientist, or Karen Vu-Nguyen, Research Coordinator, at Public Health Ontario. Their contact information is provided below:

Kenneth R. Allison, PhD
Senior Scientist
Health Promotion, Chronic Disease and Injury Prevention
Public Health Ontario
ken.allison@oahpp.ca
647-260-7307

Karen Vu-Nguyen, MPH
Research Coordinator
Health Promotion, Chronic Disease and Injury Prevention
Public Health Ontario
karen.vu-nguyen@oahpp.ca
647-260-7524

Research Ethics Board Contact

If you have any questions about your rights as a participant in this research study, you can contact Public Health Ontario's Ethics Review Board (ERB) Chair at ethics@oahpp.ca, or call the Research Ethics Officer at 647-260-7505.

Consent Form

The information collected for this project is confidential and protected under the Municipal Freedom of Information and Protection of Privacy Act, 1989. I have read and understood the request for my participation in the study of DPA implementation in Ontario elementary schools. I understand that no information, including my survey responses, or my decision on whether or not to participate in this project, will be disclosed to the Ontario Ministry of Education or to my school board and principal. I understand that participation in the online survey is voluntary. I may choose not to answer any specific survey questions and can withdraw from the study up until May 20, 2014, by contacting the Research Coordinator at the telephone number and email address provided above.

☐ I consent to participate in this survey.

☐ I do not consent to participate in this survey.
Please respond to this survey based on the current 2013 - 2014 school year.

**Section 1: Awareness of DPA Policy Requirements**

The following questions focus on your awareness of the Daily Physical Activity policy requirements.

**1.1** Prior to receiving this survey, were you aware of some or all of the Daily Physical Activity (DPA) policy requirements?

- Yes
- No

**1.2** Does the DPA policy have a requirement to include students with special needs?

- Yes
- No
- I don’t know

**1.3** Can there be breaks or stops in activity during DPA?

- Yes
- No
- I don’t know

**1.4** For at least how many minutes must DPA last each day?

- 10 minutes
- 15 minutes
- 20 minutes
- 25 minutes
- 30 minutes
- I don’t know
1.5 At what level of intensity must DPA be conducted?

- Light
- Light to moderate
- Moderate
- Moderate to vigorous
- Vigorous
- I don't know

1.6 In a school week, how many days must students engage in DPA (including physical activity during Health and Physical Education (HPE) classes)?

- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- I don't know

1.7 On a school day, when must DPA be conducted?

- During instructional time
- During recess
- During after-school hours
- Whenever time permits
- Other: ________________
- I don't know
Section 2: DPA Implementation

The following questions focus on how DPA is currently being implemented within your classroom. Please keep in mind that the frame of reference is the 2013-2014 school year.

2.1 Is DPA currently being implemented in your classroom? (If DPA has been implemented at least once within your classroom during the 2013-2014 school year, please select 'Yes'.)
   - Yes (Skip Q2.2 and proceed to Q2.3)
   - No
   - I don't know

2.2 Is there another physical activity program or policy that is currently being implemented in your classroom (in addition to Health and Physical Education classes)?
   - Yes (If yes, please describe) ________________ (Skip the rest of Section 2 and proceed to Section 3)
   - No (Skip the rest of Section 2 and proceed to Section 3)
   - I don't know (Skip the rest of Section 2 and proceed to Section 3)

*Since DPA may also be conducted during Health and Physical Education (HPE) classes on some days, and/or may be led by another teacher (e.g. HPE specialist), please answer the following questions to the best of your knowledge.*

2.3 How does your class participate in DPA?
   - At the same time as all other classes in the school (i.e. school-wide)
   - At the same time as several other classes in the school
   - At a separate time from all other classes in the school
   - Type of participation varies throughout the school year
   - Other: ________________
   - I don't know

2.4 Generally, who instructs DPA for your class?
   - Teacher with Health and Physical Education (HPE) specialization (can include yourself)
   - Generalist teacher (can include yourself)
   - Student
   - Other: ________________
2.5 In your opinion, who should be involved in instructing DPA?

- I don’t know

2.6 How often does DPA last a minimum of 20 minutes?

- Never
- Rarely
- Sometimes
- Often
- Always
- I don’t know

2.7 On a typical day when DPA is held, how many minutes do students engage in DPA?

- Minutes: _______________
- I don’t know

2.8 How often are students engaged in moderate to vigorous physical activity during DPA?

Please note:

<table>
<thead>
<tr>
<th>Moderate Physical Activity</th>
<th>Vigorous Physical Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities will cause some increase in breathing and/or heart rate. Individual is still able to carry on a conversation comfortably during activity. <strong>Examples:</strong> brisk walking, recreational dancing</td>
<td>Activities will increase breathing and heart rates. Depending on the individual's fitness level, may cause puffing so that talking is possible but the ability to carry on a conversation is limited. <strong>Examples:</strong> jogging, aerobic dancing, swimming</td>
</tr>
</tbody>
</table>

- Never
- Rarely
- Sometimes
- Often
- Always
- I don’t know
2.9 Typically, how many minutes are students engaged in moderate to vigorous physical activity during DPA?
   - Minutes: _______________
   - I don't know

2.10 How often are students engaged in sustained physical activity for the entire duration of DPA (i.e., no stops or breaks in activity)?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Always
   - I don't know

2.11 In a typical school week, how many days do students engage in DPA (including physical activity during Health and Physical Education (HPE) classes)?
   - 1 day
   - 2 days
   - 3 days
   - 4 days
   - 5 days
   - I don't know

2.12 How often is DPA conducted during instructional time only (i.e. not during recess, lunchtime, before/after school hours)?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Always
   - I don't know
2.13 Typically, how many minutes are generally allotted for each of the following activities during DPA? (Please provide a response for each activity.)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Minutes</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction:</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>Warm-up:</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>Sustained physical activity:</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>Cool-down:</td>
<td></td>
<td>O</td>
</tr>
</tbody>
</table>

2.14 How often is DPA planned and/or adapted to ensure that all students (including students with special needs) can participate?

- Never
- Rarely
- Sometimes
- Often
- Always
- I don’t know
Section 3: Perception of DPA Policy

The following questions focus on your thoughts on the DPA policy.

The DPA policy states that "...school boards must ensure that all elementary students, including students with special needs, have a minimum of twenty minutes of sustained moderate to vigorous physical activity each school day during instructional time."

3.1 What are your perceptions of the DPA policy? (Please select a response option for each of the following statements regarding the DPA policy.)

The DPA policy is...

<table>
<thead>
<tr>
<th>Perception</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>...clear and easy to understand</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>...realistic/achievable</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>...equally important as other school curriculum requirements</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

3.2 In your opinion, what type of impact does DPA have on the following aspects of student well-being? (Please select a response option for each statement.)

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Very negative</th>
<th>Somewhat negative</th>
<th>Neither positive nor negative</th>
<th>Somewhat positive</th>
<th>Very positive</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students’ physical well-being</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Students’ emotional well-being (e.g. mood, anxiety levels)</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Students’ academic outcomes</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Student conduct (e.g. attention in class)</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Students’ social well-being (e.g. peer interactions, connectedness)</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>The development of physical activity habits</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
Section 4: Planning and Monitoring DPA

The following questions focus on how DPA is planned and monitored in your school.

4.1 Is DPA scheduled in your classroom timetables?
- Yes
- No

4.2 Is there a procedure for monitoring DPA in your school?
- Yes
- No
- I don’t know
**Section 5: DPA Facilitators**

The following questions focus on the facilitators for planning, implementing and/or monitoring DPA.

5.1 *DPA supports are defined as individuals and/or organizations that can assist with planning, implementing and monitoring DPA (e.g. School Board DPA Committee, School DPA Implementation Committee, public health units, health and physical education organizations, physical activity consultants).*

How often do you use the supports available to help teachers plan, implement and/or monitor DPA?

- Never use
- Rarely use
- Occasionally use
- Often use
- Always use

5.2 How often do you communicate with your region’s public health unit regarding DPA?

- Never
- Rarely
- Occasionally
- Often
- Always

5.3 *DPA resources are defined as learning tools that can assist with planning, implementing and monitoring DPA. For example: Daily Physical Activity teacher resource guides (grade-specific), DPA eWorkshop, Ophea workshops, websites.*

How often do you use the resources available to help teachers plan, implement and/or monitor DPA?

- Never use
- Rarely use
- Occasionally use
- Often use
- Always use
Section 6: Perceptions of Barriers

The following questions focus on your perception of the barriers to implementing DPA.

6.1 To what extent do you agree or disagree that each of the following factors act as barriers to implementing DPA in your class? (Please select a response option for each factor.)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>I don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of time</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of school board support</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of teacher readiness</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of resources (e.g. guidelines, workshops, websites)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of equipment (e.g. balls, nets, mats)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of space (e.g. hallways, multipurpose rooms, gymnasium)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of amenities (e.g. water fountain, showers, change rooms)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Bad weather</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Competing curriculum priorities</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Students’ reluctance to participate</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of parent/guardian support</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

6.2 Please list any other factors that act as barriers to implementing DPA in your class.
Section 7: Student Involvement

The following questions focus on students’ involvement in planning and/or leading the DPA program.

7.1 How many students are in your class? (Please enter the total number of students according to gender.)
- Male(s): [ ]
- Female(s): [ ]

7.2 Are there opportunities for students to be involved in the planning and/or leading of DPA activities?
- Yes
- No
- I don’t know
**Section 8: Self-Efficacy**

The following question focuses on your confidence level towards carrying out DPA responsibilities.

**8.1 How confident are you in your ability to...**

<table>
<thead>
<tr>
<th></th>
<th>Not at all confident</th>
<th>Slightly confident</th>
<th>Moderately confident</th>
<th>Quite confident</th>
<th>Completely confident</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>...successfully plan DPA</td>
<td>◉</td>
<td>◉</td>
<td>◉</td>
<td>◉</td>
<td>◉</td>
<td>◉</td>
</tr>
<tr>
<td>...successfully implement DPA</td>
<td>◉</td>
<td>◉</td>
<td>◉</td>
<td>◉</td>
<td>◉</td>
<td>◉</td>
</tr>
</tbody>
</table>
Section 9: Personal Characteristics

The following questions ask you to provide some additional information about yourself.

9.1 Please indicate your gender:
   ○ Male
   ○ Female

9.2 How many years have you worked as a teacher?
   ○ Less than 1 year
   ○ 1-5 years
   ○ 6-10 years
   ○ 11-15 years
   ○ 16-20 years
   ○ 21 or more years

9.3 How many years have you been working at your current school?
   ○ Less than 1 year
   ○ 1-5 years
   ○ 6-10 years
   ○ 11-15 years
   ○ 16-20 years
   ○ 21 or more years

9.4 Which of the following grades do you currently teach? (If you are teaching split grades (e.g. Grades 3 and 4), please select the most applicable response (e.g. Grade 3).)
   ○ 3
   ○ 5
   ○ 7
   ○ Other: ________________
9.5 What is the highest level of formal training that you have received in Health and Physical Education (HPE)?

- None
- 1 or more courses in physical education, but no post-secondary degree, certificate or diploma in HPE
- Non-university certificate or diploma in HPE
- University certificate or minor in HPE at bachelor level
- University major or degree in HPE at bachelor level or higher
- Other training: ______________________

9.6 To what extent is physical activity a priority in your own personal daily life?

- Low priority
- Somewhat low priority
- Moderate priority
- Somewhat high priority
- High priority
Appendix E: Sample size calculation

Sample sizes were calculated using Episheet (spreadsheets for the analysis of epidemiologic data). Both school-level (school administrator respondents) and classroom-level (teacher respondents) sample sizes were calculated using conservative estimated odds ratio effect levels – 95% confidence level, at .80 power.

At the school level, we estimated that we would need an analytic sample of 360 schools. Taking into account a 70% response rate target, we needed to sample 514 schools (360 schools ÷ 0.7 = 514 schools).

At the classroom level, we estimated that we would need an analytic sample of 680 classrooms. Taking into account a targeted 70% response rate and 20% for clustering effects, we needed to sample 1,166 classrooms (680 classrooms ÷ 0.7 x 1.2 = 1,166 classrooms).

Given that we would be collecting data at the school level first, and could invite up to three teachers from each school, we needed to obtain an analytic sample of 389 schools in order to sample 1,166 classrooms (389 schools x three teachers per school = 1,167). That would obtain the analytic sample of 680 classrooms. Therefore, our estimated final sample size was 556 schools (389 schools ÷ 0.7 = 556 schools) instead of 514 schools, as initially calculated.
Appendix F: Detailed recruitment procedures

F.1 School board approvals

In the instances where school boards declined to participate in the study (n=9), we deleted the corresponding schools from our database. We then randomly resampled for schools that matched the characteristics of the affected schools within the remaining school boards in our established (i.e., approved) list.

One particular school board was unable to provide final approval for amendments to the study protocol in time for the beginning of data collection. Therefore, we needed to withdraw that board’s conditional approval to participate in the study. Given that we had already received final approval from all other school boards at this time, we were unable to resample the number of schools affected by this withdrawal. That changed our final sample size at the school level to 532 schools.

We also consulted with another school board that requested minor amendments to the study protocol before providing final approval. This school board wanted to omit survey questions under the Self-efficacy and Personal Characteristics sections for surveys administered to the school administrators and teachers sampled within its jurisdiction. As a result, the analytic sample size available for questions under these sections was smaller than the full analytic sample size.

F.2 School-level (school administrator) recruitment

Once school board approvals were received, we consulted the boards to determine the most effective means of acquiring principal contact information for school level approval. We obtained principal email addresses either from school or school board websites or by calling the schools for that information.

In early February 2014, we emailed the principals from each sampled school (n=532) in the approved school boards with the following information and requests:

- A brief overview of the study, including their school board’s approval of the study, and requested approval to conduct the study within their school.

- A request to approve the study within their school. We informed principals that, upon approval, we would send a letter and invitation to participate in the online School Administrator Survey. If they wished to delegate participation to another administrator in their school (i.e., vice-principal), we asked them to provide that person’s contact information (e.g., name, position, work email) in their response, as well.

- If the study was approved to proceed in the school, a request for the contact information (e.g., name, grade level, work email address) for all teachers in their school. This allowed us to
identify participants at the classroom level (i.e., teacher participants) by randomly sampling one teacher from each of grades 3, 5 and 7, where applicable.

To enhance response rates from school administrators regarding the decision to participate, we used two reminder methods:

1. In March 2014, members of the research team (including the Principal Investigator) called all school principals who had not responded to the notification email.

2. We subsequently mailed a letter to principals whom we could not reach, informing them about the study and that we would be following-up by telephone shortly after about their decision.

Of the 532 sampled schools that we sought approval from, we received a 42.9% approval rate (n=228). Among those school administrators who declined their school’s participation in the study, most did not provide a reason. Among those who did elaborate, the most common responses for declining (from most to least) included:

- too many other school activities/initiatives;
- participating in other studies within the same school year;
- demanding workload/burden imposed on school administrators and teachers;
- staff not interested or comfortable to participate; and
- recent changes within school (e.g., construction/moving, new administrator).

Upon receiving school approvals, we invited those school administrators to participate in the online survey by mailing information to their work address, including an overview of the study, a copy of the consent form (for reference only) and a $10 gift card to Indigo as a token of our appreciation. One week after sending this letter, we emailed an invitation to their work email, which included a link to the online survey.

F.3 Classroom-level (teacher) recruitment

Once school administrators completed a survey, we invited one each of grade 3, 5 and 7 teachers (where applicable) at their schools to participate in the teacher survey.

In cases where principals could not or did not wish to release teachers’ work email addresses (but provided the names and grade levels) to the research team, we used the following method to recruit teachers:

1. We mailed information letters to the randomly selected teachers, at their work address, and provided a general survey link within the letters.
2. We assigned and provided a unique four-digit code to each potential participant in order to track survey completion and to send reminders. Participants were required to enter this code at the beginning of the survey.

In cases where principals could not or did not wish to release any teacher information, we used the following recruitment method:

1. We searched individual school websites for the names and grade levels of teachers.

2. If we found teacher names and grade levels, we used this information to randomly select one teacher from each of grades 3, 5 and 7 within the school (if there was more than one teacher per grade). We then mailed these randomly-selected teachers an information letter that included the general survey link and unique four-digit code, as described above.

3. If we could not access teacher information from the school websites, we addressed the mailed information letter (with the general survey link) to “Grade [3, 5 or 7] Teacher” at each school. If a school had more than one teacher for each requested grade level, we specified that the package be delivered to the teacher whose surname appeared first alphabetically.
Appendix G: Stakeholder engagement strategy

G.1 Development of stakeholder engagement strategy

To develop the strategy, we first identified and compiled a list of relevant stakeholders based on their interest in, influence on, and importance to our study. Examples of key stakeholder groups include the Ontario government, our Study Advisory Committee, school board and school staff, principal and teacher associations, and PHUs. We noted areas of opportunity or concern for each stakeholder to ensure they were considered in the strategies and specific activities developed.

Using this information, stakeholders were organized into a matrix by determining the relative level of engagement needed with these groups, and their potential influence on the study. Activities and target dates were developed for each group, assuming that stakeholders within a particular group shared a similar focus or interest in the study. At the time of strategy development, some activities had already taken place.

G.2 Stakeholder engagement activities

Stakeholder engagement was necessary throughout our study, particularly leading up to, and during our recruitment. The following outlines the activities conducted with our key stakeholders.

Ontario Ministry of Education

As engagement with DPA policy developers was important, we involved the EDU in discussions early on. We regularly updated members of the Healthy Schools and Student Well-Being Unit, Learning Environment Branch, and engaged them in ongoing communication. This was an instrumental support to planning and implementation activities. Specifically, the EDU provided timely access to information for the study, gave feedback and advice for study components, and helped us resolve issues encountered.

Study Advisory Committee

An external Advisory Committee was established at the beginning of the study to provide the Research Team advice and feedback. It included representation from government, education, and public health. The Advisory Committee advised on important planning and implementation issues, including issues around relevance, feasibility, and communication. Discussion meetings were held at key stages of our study, and we provided the committee with study updates and documents for review.
Status of Daily Physical Activity (DPA) in Ontario elementary schools

School Board Directors of Education

The first step of our recruitment process was to obtain approvals from the school boards affiliated with our sampled schools. This was critical; not only did we require approvals to proceed with research, but school board approvals could affect our study sample size. As such, we identified the importance of engaging with the Council of Directors of Education (CODE). This is the advisory and consultative organization representing Directors of Education across Ontario. With facilitation from EDU, we shared the scope and importance of our study with CODE, and gave them an opportunity to ask questions. As a result, CODE received the study positively and sent a letter of support for our study to all Directors of Education. Following this letter, we observed an increased amount of school board approvals.

Health and Physical Education (HPE) Consultants

Certain school boards have HPE consultants whose role is to promote, support, and provide advice to schools with respect to the HPE curriculum. These stakeholders were seen as a potential liaison, between our research team and school board and school leaders, to influence decisions related to study approval. While Ontario has no formal HPE consultant organizations, the Ontario Association for the Support of Physical and Health Educators (OASPHE) represents many HPE consultants. We contacted the Co-President of OASPHE (who also served as a member of our Study Advisory Committee), and sought assistance in sending an introductory email and fact sheet about our study through the organizational list-serve.

Principal Associations

Representatives of school leaders across Ontario – such as the Ontario Principal’s Council (OPC) and Catholic Principals’ Council of Ontario (CPCO) – were considered to be key stakeholders. Their public support of our study was seen to potentially influence decisions regarding study approval at the school level and school administrator participation.

Prior to school administrator recruitment, we sent notification emails to the president (and in some cases, the general secretaries and executive directors) of each association to inform them about our study. Question-and-answer (Q&A) sheets were provided along with the email. The groups generally expressed interest, specifically with respect to our forthcoming study results and the impact of DPA on students.

Once school administrator recruitment began, we followed up with our original notification email. We asked the presidents if they were willing to actively promote our study to members, to increase school study approval rates. Subsequently, OPC sent a message from the president to members, and CPCO included a note of support for the study within their organizational newsletter.

Teacher Associations

As with principal associations, teacher associations were identified as key stakeholders within our recruitment process as their support of the study could potentially influence teachers’ decisions to participate in the study. We identified the Ontario Teachers’ Federation (OTF), Elementary Teachers’,
Federation of Ontario (ETFO), Ontario English Catholic Teachers’ Association (OECTA), and Association des enseignantes et des enseignants franco-ontariens (AEFO). Concurrent with our communication to principal associations, we sent notification emails and Q&A sheets to the presidents, general secretaries and/or executive directors of the teacher associations.

Following our notification, the OTF requested to review our teacher survey to determine if any items were viewed as controversial or concerning for teachers. Recognizing the value of their assurance and input, we provided a confidential copy of our survey to the OTF. Following their review, we received suggestions on, and overall support of, the teacher survey.

Medical Officers of Health (MOHs)

Under the Ontario Public Health Standards, PHUs are mandated to work with school boards and schools to support healthy school policies and environments. As such, we also sent MOHs of health units a short email and fact sheet about our study at the beginning of participant recruitment. It provided them with information in case they receive inquiries from school boards or schools. Notification was also provided to MOHs as DPA Study 2 involved surveys and interviews of PHU staff regarding their role in supporting DPA (Refer to Section 1.2.3). Therefore, we felt that PHUs may be interested in learning about this continuation to the DPA series of studies.
Appendix H: Data cleaning and management

Quantitative data (from closed-ended survey questions) were cleaned using exploratory analyses to examine missing values (i.e., missing and/or “I don’t know” responses), outliers and anomalies. Among the six questions assessing implementation fidelity, approximately 19% of school administrators and 10% of teachers had missing values.

For analyses related to implementation fidelity, our inclusion criteria required participants to have responded to at least three of the six questions related to implementation fidelity (i.e., between one and three missing values only). Therefore, participants with four or more missing values were not included in analyses related to the primary outcome variable (<1% school administrators, <1% teachers).

For participants that had 1-3 missing values, we used the mean method of imputation to replace these missing values. Specifically, we computed the mean value of the remaining valid responses for each participant and assigned this value to their corresponding missing values. As a result, a complete overall implementation fidelity score could be calculated for these participants. In the surveys, 17.7% of the school administrators and 9.8% of the teachers had 1-3 missing values and/or “I don’t know” responses to the six questions assessing implementation fidelity.

Qualitative data (from open-ended survey questions) included responses to “other” categories and additional open-ended questions relating to perspectives on the DPA policy and implementation. For responses to the “other” categories, qualitative data were recoded if they were considered to fit under another existing response category.

We recoded other qualitative and quantitative data into derived variables, where needed, for analysis purposes. For instance, quantitative variables with five categories (e.g., questions containing five-point Likert scale response categories) were collapsed into three categories. So the two similar categories at each end of a scale (e.g., agree and strongly agree, and disagree and strongly disagree) were combined. This increased cell counts among categories with similar polarity.
Appendix I: Response rate calculations

School Board Approvals

40 school boards
Approached

31 school boards
Agreed to participate

9 school boards declined

1 school board unable to provide final approval before data collection

30 school boards
75% final approval rate

532 school administrators invited to participate

School-Level Response Rates

556 schools
Initial school sample size calculated

532 schools
Final school sample size

228 school administrators
Agreed to participate
42.9% approval rate

Classroom-Level Response Rates

1,166 classrooms
Initial classroom sample size calculated

508 classrooms
Final classroom sample size

508 classroom teachers invited from schools where school administrators responded (1 teacher each for grade 3, 5 and 7, where applicable)

209 school administrators
Responded to survey
39.3% final response rate

307 teachers
Responded to survey
60.4% final response rate

532 school administrators
Responded to survey
75% final approval rate