Physical Activity Opportunities for Secondary School Students: International Best Practices for Whole-of-School Physical Activity Programs

Abstract

The World Health Organization ([WHO], 2018) encourages schools to engage with a multi-component, whole-of-school approach to physical activity promotion. However, little evidence exists describing the practices of schools who successfully promote a physically active school culture. The purpose of this study was to explore and describe the best practices of "active" secondary schools. Three schools, each in a different country (i.e. the United States, Finland and Ireland), were identified as sites for investigation based on the presence of nationally established whole-of-school physical activity initiatives. Data were collected in one secondary school in each country and were generated from several sources including semi-structured interviews with stakeholders, field notes, three days of on-site observation, and artifact collection. Inductive analysis using open and axial coding was conducted (Corbin & Strauss, 2008). Three common themes related to best practices were evident at each site: an established school-based leader, support from the school community, and many available physical activity opportunities. Successful school-based physical activity promotion is possible if there is a motivated physical activity champion and if their promotion efforts are supported. These schools created multiple physical activity opportunities for students and have developed a strong physical activity culture.

Introduction

Increasing the physical activity levels of secondary school students has emerged as a public health priority given highly publicized evidence showing decreases in physical activity participation globally (World Health Organization [WHO], 2018). The school is strategically placed to contribute to the achievement of this recommendation (WHO, 2018). Whole-of-school promotion of physical activity is an internationally accepted strategy that extends physical activity opportunities beyond those typically offered in schools (e.g. physical education, school sport, etc.) (McMullen et al., 2015). The Institute of Medicine (2013) has encouraged schools to engage with a multi-component, whole-of-school approach to physical activity promotion as a means of increasing physical activity levels of school-aged children. Specifically, they recommend that schools take a central role in physical activity promotion in an attempt to ensure that young people attain the daily recommended minutes of physical activity through evidence-informed methods (e.g. physical education, classroom activity breaks, recess, sports programs, active transport, etc.). School-aged children can benefit from health promotion strategies that include multiple opportunities for physical activity participation (Barnett et al., 2009).

In line with this approach is the concept of a Comprehensive School Physical Activity Program (CSPAP) that originated in the United States (Centers of Disease Control [CDC], 2013) and includes five components (i.e. quality physical education, physical activity before and after school, physical activity during school, staff involvement, and family/community engagement). If present, these various opportunities will contribute to the likelihood that young people will be more active at school and approach the recommended 60 minutes of moderate-to-vigorous physical activity per day (WHO, 2011). Many scholars have suggested strategies for increasing physical activity opportunities in schools (e.g. Castelli and Beighle, 2007; Faber, Kulinna and

47 Darst, 2007), and several recently published papers provide an evidence base for the
48 implementation of some components of a CSPAP (i.e. Ní Chróinín and McMullen, 2020;
49 McMullen et al., 2014; Centeio et al., 2014). However, there is little published evidence
50 describing the specific practices of schools who have implemented a variety of components of a
51 whole-of-school physical activity program, especially at the secondary school level. Many
52 secondary schools have been designated as 'active schools' within their country's whole-of-
53 school physical activity promotion structure (McMullen et al., 2015); therefore, it would appear
54 that there are instances that these programs are operating successfully at the secondary level.
55 When considering whole-of-school initiatives, that either wholly or partially align with
56 the concept of a CSPAP, some differences exist when it comes to international initiatives
57 (McMullen et al., 2015); however, they are comparable in their purpose. For example, most
58 initiatives seek to provide opportunities for additional physical activity participation at school,
59 but some do so from more of a bottom-up approach, whereas others have specific requirements
60 placed on schools through the initiative framework. For the purposes of this study three of those
61 initiatives will be highlighted. In the United States, the national initiative *Active Schools*
62 (https://www.activeschoolsus.org/; at the time of the study this program was titled *Let's Move*
63 *Active Schools*) positioned itself as a "solution" which incorporates physical education and
64 physical activity to ensure that young people achieve the recommended 60 minutes of daily
65 physical activity. In Ireland, the *Active School Flag*, an initiative sponsored by the Department of
66 Education and Skills (DES), requires schools to implement changes in the school environment
67 that will benefit students when it comes to physical education and physical activity provision
68 (http://www.activeschoolflag.ie). Lastly, the *Finnish Schools on the Move* program, supported
69 financially by the Ministry of Education and Culture in Finland, allowed schools who had

developed and implemented a plan to increase opportunities for children to be active before, during, and after school to be part of the network and apply for funding in 2010-2018 (https://www.liikkuvakoulu.fi/english) (Blom et al., 2018; Aira and Kämppi, 2017).

A conceptual framework for research and practice aligned with CSPAP has recently been suggested (Carson et al., 2014a). Based on social ecological theory (Bronfenbrenner, 1992), the CSPAP conceptual framework guides the research process by specifying elements of a CSPAP that correspond with four levels of influence (i.e. components, facilitators, leaders, and culture). When considering the operations of the conceptual framework, the macro-level represents the CSPAP culture that is present in and around a school (i.e. policy, normative behaviors, beliefs), the exo-level addresses CSPAP leaders (i.e. CSPAP champion, CSPAP committee, supportive administration), the meso-level includes CSPAP facilitators (i.e. skills, knowledge, resources, disposition, safety), and the micro-level illustrates the individual whole-of-school physical activity program components mentioned earlier (Carson et al., 2014a).

Therefore, operating within this conceptual framework, the purpose of this study was to explore and describe the best practices of "active" secondary schools. For transparency, "best practices" will refer to practices that take place in the school that contribute to the physical activity culture as it relates to a CSPAP or whole-of-school physical activity program and which has been identified in existing literature as a best practice. The results of this study have the potential to inform research and practice in an attempt to encourage more schools to adopt an active school culture.

Methods

Three countries were identified as sites for investigation based on the presence of nationally established whole-of-school physical activity initiatives: the United States (*Active*

93 *Schools*), Finland (*Finnish Schools on the Move*), and Ireland (*Active School Flag*). Data were
94 collected in one secondary school in each country and were generated from several sources
95 including semi-structured focus group interviews with stakeholders, field notes, three days of on-
96 site observation, and artifact collection. Collecting data from a variety of sources avoids
97 problems associated with evidentiary inadequacy (Erickson, 1986) and allows triangulation
98 between data sources to support findings and assertions (Glesne, 1999). The CSPAP conceptual
99 framework (Carson et al., 2014a) provides context for the nature of the data collected.
100 Appropriate university-provided ethical approval was obtained by the first author prior to data
101 collection.

102 ***Participants***

103 Schools were identified based on their existing designation as an active school as it
104 relates to the nationally established initiative within their country. In Ireland, the school had been
105 awarded an *Active School Flag* through an established process that includes inspections. In
106 Finland, the school had participated in the initial pilot program of their national initiative and
107 was deemed to be a *Finnish School on the Move*. The school in the United States had subscribed
108 to the *Let's Move Active Schools* program, but that program did not have a formal inspection
109 process. The first author initiated access to the schools in the United States and Ireland as a result
110 of existing relationships with school personnel and a familiarity with the physical activity
111 offerings at the schools, and the school in Finland was identified by the third author given their
112 involvement with the initiative's pilot program. In Ireland and the United States the previously
113 mentioned initiatives can be developed in all levels of compulsory education; however, in
114 Finland the initiative has been designed for their comprehensive schools which include grades 1-

9. Therefore, for the purposes of this study each school has students who were 12 years of age or older.

The school in the United States was a high school (grades 9-12, students aged ~14-18) and had a student population of 2094. The school was located in an upper-middle class neighborhood in a town located within a large metropolitan city in the Southwest United States. The post-primary school in Ireland had a student population of 600 (grades 1st-6th year; aged (~13-19 years old) and was located in the West of Ireland. The school was a fee charging school that had both day and boarding students. In Finland, the lower secondary school had 580 students (grades 7-9; aged ~13-16 years old) and was located in Central Finland. In Finland education is free at all levels including compulsory basic education (grades 1-9).

Several stakeholders within each school community were recruited to participate and included students (N=26), teachers (N=15), school principals (N=3) and family/community members (N=9). All adult participants agreed to participate by providing consent and the student participants were provided consent to participate by their parents, and also indicated their willingness to be involved prior to the interviews. Teachers in this study were classified as classroom teachers, and did not include any of the schools' physical education teachers. Physical education teachers were intentionally not included because of their inherent bias towards the concept of an active school and the likely perceived success of their specific school-based initiative. The family/community members in Finland and the United States were members of the school's parent association and in Ireland they had various roles within the school and community. Specifically, in the United States there were 12 students, five teachers, one school principal, and three parents/community members. In Ireland the participants included eight students, five teachers, one school principal, and three parents/community members. Lastly, in

Finland data were collected from six students, five teachers, one school principal, and three parents/community members. All participants are identified in the data with researcher-provided pseudonyms.

Data Collection

In order to effectively address the purpose of the study the lead author spent three typical school days from approximately 30 minutes before the school day started, until approximately 30 minutes after the school day ended, in each school collecting data. Several sources of data were collected including interviews, field notes from observations, and artifacts.

Interviews. All participants participated in semi-structured interviews at each school; each stakeholder, except for the principal at each site, engaged in focus-group interviews (n = 7 total student interviews; n = 3 total teacher interviews; and n = 3 total parent/community member interviews). The principals were interviewed individually because of their unique position within a school building and so that the power dynamic would not affect the responses of other school personnel. The focus groups included peer-stakeholders (i.e. students with other students, teachers with other teachers, etc.) and ranged in size from three to five participants per interview. The interview guide was the same for all stakeholders but included slight variations based on the stakeholder's relationship to the school (e.g. "your school" for students, "the school" for community member). Interview questions provided participants opportunities to describe school-based physical activity opportunities within the context of a CSPAP (i.e. physical education, physical activity before, during and after school, staff involvement, and family/community engagement). For example, "Would you say that promotion of physical activity is important in your school? Tell me more about this" and, "Are there opportunities for students to contribute their ideas relative to the physical activity provision in the school? Tell me more about this." All

interviews lasted between 43-62 minutes and were conducted by the first author in English except for one of the student focus groups in Finland which was conducted by the second author because the students were more comfortable responding in Finnish. This interview was transcribed and translated into English prior to analysis.

Observations with field notes. During observations, the lead author (and the second author in Finland) walked around the school building(s) and the grounds taking field notes on a tablet. Field notes included observations of the school environment (before, during, and after school) and physical activity opportunities and behaviours. Specifically, the frequency and duration of physical activity opportunities were recorded and who had access to each session (i.e. school sports were only accessible to those students who are talented enough to make the team, versus an open gym at lunch that was available for all students in the school). Where appropriate, observations were explored further during interviews to determine if assertions made by the researchers were appropriate with respect to, for example, access and opportunity. Additionally, if there was someone from the school present, questions about what was being observed were asked and responses were included in the field notes.

Artifacts. Where appropriate, artifacts providing evidence of physical activity promotion were also reviewed, collected, and/or photographed. During observations the researcher(s) used an iPad to take photos of relevant artifacts and/or collected hard copies of documents. These included school newsletters, websites, policy documents, schedules, posters on the school walls, and physical activity spaces. In total 149 photos across the sites were taken, and several documents and other artifacts were collected.

Data analysis

Inductive analysis using open and axial coding (Corbin and Strauss, 2008) was conducted by the first author to determine specific best practices and contextual factors that were in place to support CSPAP implementation across the schools in the study. Several initial readings of the data in its entirety, which included reviewing all interview transcripts, field notes and artefacts was completed prior to the identification of codes. Descriptive codes were assigned to chunks of text from transcripts, or field notes, and to individual artefacts. All codes were independently verified by a second member of the research team. Next, codes were combined or renamed to designate categories or patterns related to events, phrases and behaviors that occurred repeatedly in the data (LeCompte and Schensul, 1999). Themes were developed based on interpretations of the data associated with the patterns that were evident across the codes and are representative of findings across data sources. Analytic induction was used to determine disconfirming cases and where appropriate these cases are identified in the results.

Trustworthiness (Glesne, 1999) of the data was established by using several techniques. The same protocol was maintained across each research site, with variations only being made as a result of contextual differences (e.g. different length of school day). A researcher journal was kept to record instances where researcher bias occurred, initial ideas about potential themes, and to make notes of events that needed further investigation. Additionally, interpretations of the data were made based on triangulation of the data from all sources and only in the presence of a pattern across all sites (LeCompte and Schensul, 1999).

Results

Three common themes related to best practices were evident at each site: an established school-based leader, support from the school community, and many available physical activity opportunities. Themes will be discussed in turn highlighting data from each country.

206 ***Theme 1: An established school-based leader***

207 Each school that was visited had an established school-based physical activity leader. In
208 each case this was a physical education teacher who had dedicated a significant amount of
209 energy to promoting physical activity, not only within their physical education program, but also
210 throughout the school day. Tyler (School Counsellor, United States) described the physical
211 education teacher as the impetus for a positive culture around physical activity in his school,
212 saying:

213 [Geoff] He's the chair [of the PE department] and very passionate about what he does and
214 sometimes you get a bad seed in the PE department, they just roll balls out and read
215 newspapers. That's not this PE and they take pride in that…our PE department is just, it's
216 night and day difference and it all starts with him. It all just trickles down. I would say
217 Geoff Holmes would be the guy.

218 The students at this school also responded in chorus that Coach Holmes was the person who
219 most obviously promoted physical activity there. They explained further in this exchange after
220 that question was asked:

221 Collin (Student, United States): If he has extra time he'll be walking around campus, just
222 talking to people that he sees. People will be like, I'm not doing anything, and he's like
223 you could come to this [physical activity opportunity].

224 Jake (Student, United States): He gives people opportunities to get out and do stuff.

225 Collin (Student, United States): Yeah, he's always trying to get people to get out and do
226 things and be active.

227 In Ireland, a student responded to the question asking who did most of the physical
228 activity promotion in their school by describing her physical education teacher:

> Ms. Dillon has done so much since she came here, she was at college last year, she just came from teaching practice when you're like a college student. She came back here to work full-time and she does like everything. - Lis (Student, Ireland)

The classroom teachers also acknowledged the work of this first-year physical education teacher in their interviews, indicating how much work she had done to achieve the Active School Flag and her ongoing commitment to making the school a more active place to be.

While more than one person was acknowledged in Finland by some of the teachers, which can be attributed to their established *Finnish Schools on the Move* committee, one physical education teacher was regularly identified by each stakeholder group. For example, Ansa (Parent/Community Member, Finland) said:

> Jukka [the physical education teacher] is also participating in our parents' meetings [parent advisory group] and I think he has done a lot to make it possible for children, that they should exercise more and so on. I think this school has good effort for that, especially this teacher.

Similarly, when asked who was most responsible for promoting physical activity in the schools, the principal in Finland replied, "It's mainly Jukka." This was also supported by the students in the school who identified Jukka and one other teacher in the school as those who were most visibly promoting physical activity in and around the school.

Field notes also support these assertions related to the role of one of the physical education teachers in each school as the physical activity leader. For example, in Finland the physical education teacher was observed encouraging students to be active inside the school building and outside on the playground during multiple break times (Field Notes). The physical education teacher in Ireland, referenced by the students as the physical activity leader, was

supervising the astro-turf pitch during one lunchtime break and was seen participating in a rather intense soccer match with students (Field Notes). Additionally, the lunchtime program in the United States which was advertised widely in the school (see Theme 2), and referenced by many stakeholders, resulted from a relationship between the physical education teacher and the local university (Field Notes). Each of these physical activity leaders had a strong presence and seemed to be held in high regard in each school.

Theme 2: Support from the school community

Having support within a school is important, and in each of the schools there was wide-ranging support for physical activity programs and participation. As the leader of a school, having the support of the principal is arguably the most important. In Finland, the principal, Patrik, spoke very highly of physical activity in general, and of their involvement in the *Finnish Schools on the Move* program. While the level of "energy" he has invested has changed, he voiced his continued support in the program saying:

> Liikkuva Koulu (*Finnish Schools on the Move*) was a project. I said that, *'I am with you if you are with me forever,'* because for two or three years, we got money from the Ministry of Education. Nowadays we don't, yet still we are doing it. Not so well as we would like to, but we are going to do it forever. I said, '*I will do my best, if you will continue after the project.'* We have to have it just normal life forever kind of.

In the United States, where extracurricular sport is extremely popular, it is not surprising that this is what parents think about when asked to consider physical activity in the school. For example, Susan (Parent/Community Member, United States) provided support for the school programs when she said:

> I think [the school] has good programs, good athletic programs. I think a lot of kids are involved. From cross country, I had a daughter in cross country, which is a marvelous team and all the way up. [My son] did wrestling one year and football and I think [the school] has great support. I think the parents are a great support in this area and want their kids to be involved in a lot of school sports. That is my take.

School sport in the United States (and Ireland) often requires tryouts, and not all students may feel they are accessible if they are not highly skilled (Interviews), even though, as Susan stated, there are a variety of sports for students to choose to pursue at this school if they have an interest in organized sport. While the parents at the school in the United States highly supported the sports programs, they unfortunately had little knowledge of physical activity offerings outside of organized sport. This was not unique to the United States context with parents and community members in Ireland and Finland also not being aware of the variety of school-based physical activity offerings (Interviews).

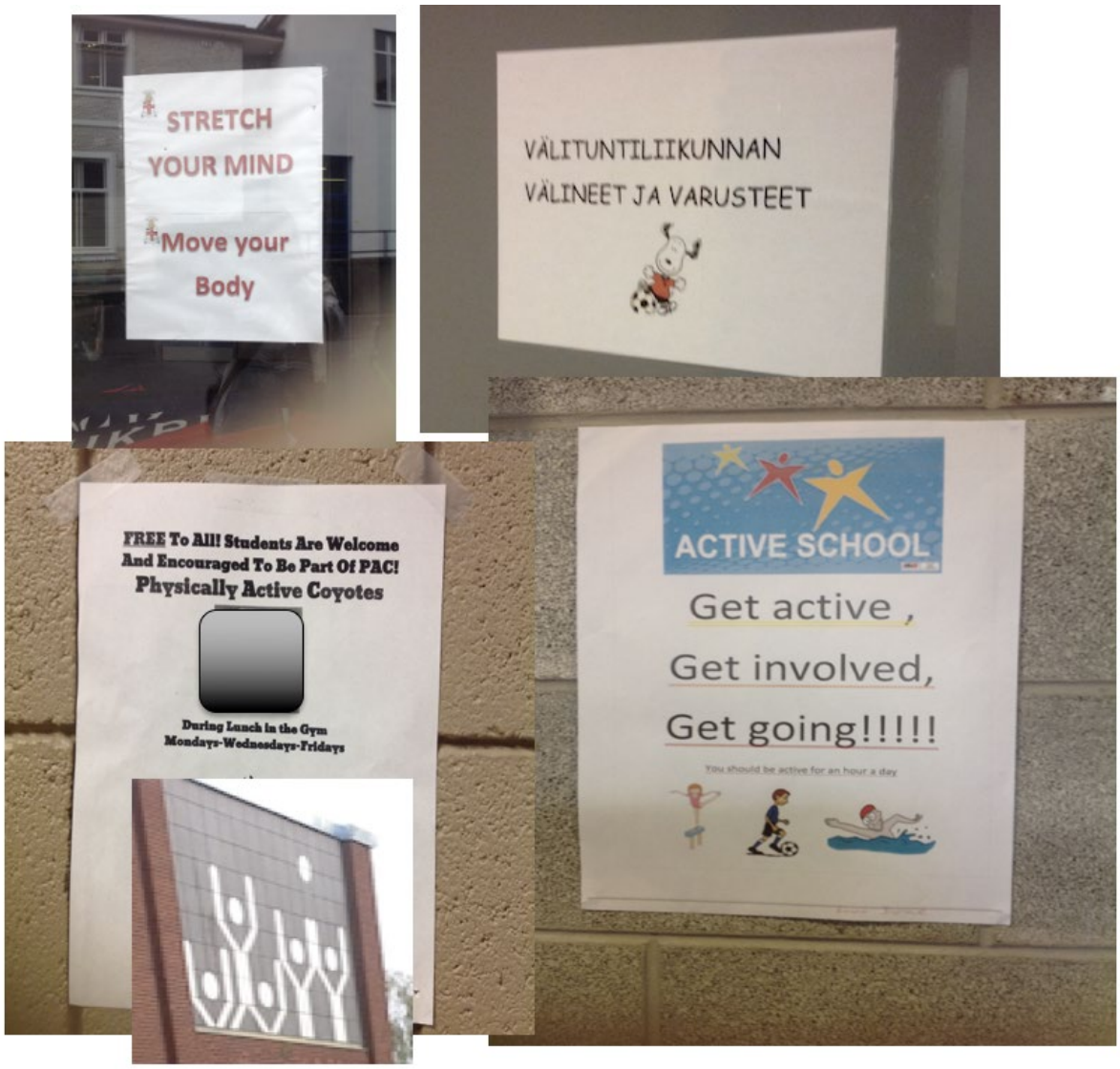
In Ireland, the school had recently succeeded in achieving the *Active School Flag*, a program that requires various steps and a rigorous evaluation process. Undertaking this initiative required support from the administration and the wider school community because of the need to establish of a committee of stakeholders who were named on the school website (Artifacts). Specifically, in this school they had established an elective class for students to be involved in the pursuit of the flag. Louise (Student, Ireland) explained:

> For TY [transition year], you can pick what you want to, like enterprise and stuff like that. There's a small group of us who did *Active School Flag*, and we kind of were there to kind of improve the school's physical activity and we set up sports days and walks and stuff.

297 The inclusion of this course offering for students, which is dedicated to physical activity
298 promotion in the school, is a significant sign of support from the administration and the teachers
299 who approved the curriculum. Students enrolled in this course not only organized physical
300 activity opportunities for their peers, but they also created posters (see Figure 1) promoting
301 physical activity that were displayed all over the school campus (Field Notes, Interviews).
302 Student involvement was also evident in Finland where the students helped design the physical
303 activity spaces in the schoolyard and indoors. This included adding a mini-stadium, swings and
304 other apparatus to the previously bare outdoor spaces, and requesting that ping-pong tables be
305 placed in open indoor spaces inside the school (Field Notes, Artifacts, Interviews).
306 Each school had several visible artifacts throughout the school encouraging physical
307 activity and advertising various opportunities. In Ireland, many of the posters that were pictured
308 were described as student-created, demonstrating the involvement of young people in the *Active*
309 *School Flag* committee/course. One opportunity at the high school in the United States, a
310 lunchtime physical activity program, was mentioned by several stakeholders and was observed
311 by the researcher (Field Notes, Interviews). This opportunity was described as a partnership
312 between the local university and the school and the university preservice physical education
313 teachers designed and led the program at the school (Field Notes, Interviews). The program was
314 well-supported by the principal and all stakeholders in this school (Interviews); however, one
315 female student described the program as something that appealed more to younger students
316 (Interviews). The flyer for this program, along with other artifacts promoting physical activity in
317 each school can be seen in Figure 1. These include two student-created posters from Ireland, a
318 sign from Finland advertising where to get equipment for recess activities, art on the side of the

school building in Finland depicting people playing a ball game, and a sign advertising the lunchtime physical activity program in the United States.

Figure 1 – Artifacts Observed on Walls of the School Buildings



Note: The sign in Finnish translates to: "Equipment for Recess Sports Activities"

Theme 3: Many available physical activity opportunities

There were diverse and frequent opportunities for students to be physically active before, during and after school in all three schools. Matthew (History teacher, United States) explained

the benefits of the lunchtime physical activity program available to students at his school. He said:

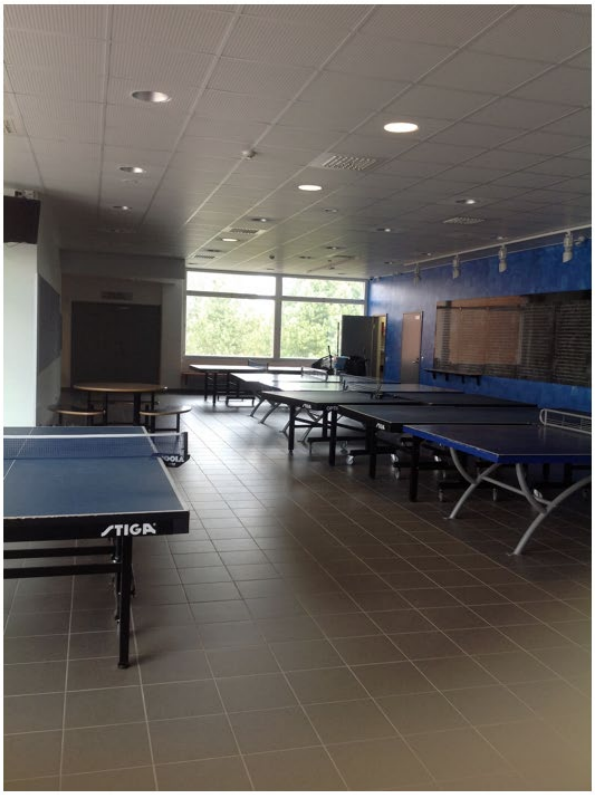
> I like the lunchtime thing. Anytime you see kids off doing something rather than sitting around and doing nothing. I mean that gym, I've been there many times when it's packed…I would agree with [my colleague] that it's pretty awesome, the level of which our kids are bouncing around, moving. It's pretty awesome.

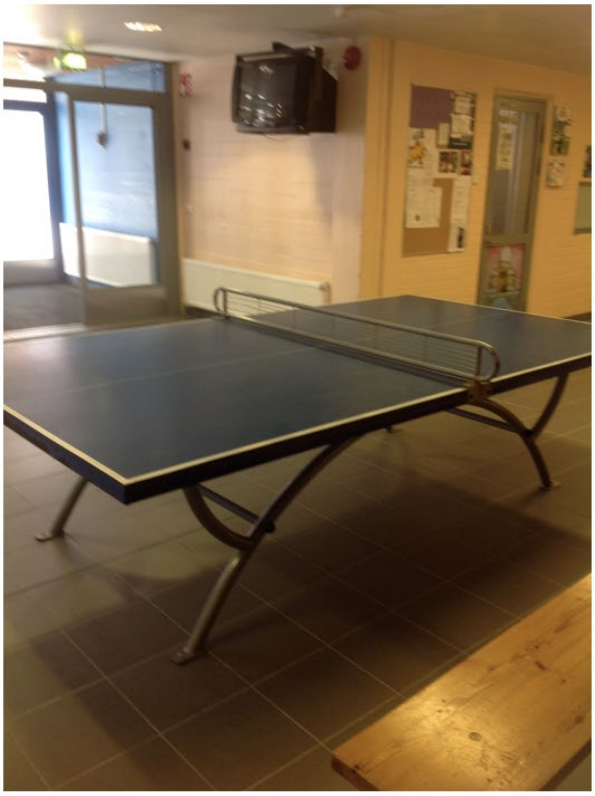
Students in Finland mentioned the way that the school day was scheduled when discussing opportunities to be active during school. The following exchange occurred between three students:

> Leena (Student, Finland): Well, we have this long recess, when we can go to the gym. It's good, something extra, that you can go exercise.
>
> Jenna (Student, Finland): Yes, during the exercise-recess you can go to the weight-room or gym or play ping-pong and use the air-track.
>
> Pekka (Student, Finland): It's good that we have the ping-pong-tables.

The school in Finland was unique in that they had placed several ping-pong tables in hallways and open spaces in the school and students were able to access equipment to play during their various breaks (see Figure 2).

Figure 2 – Photos of Ping-Pong Tables Located in the Finland School





It should be noted that contextual nuances led to specific differences in the available and popular physical activity opportunities at each of the schools. For example, in Finland, where active transport is well-established, there was an exponentially higher number of bicycles ridden to school each day (Field Notes, Artifacts). Location of the school near a busy freeway (United States), and frequent inclement weather (Ireland) were cited by students as barriers for active transport (Interviews). Figure 3 provides a clear visual representation of these differences. It should be noted that the photo of the bicycles in Finland is of just one parking area, and that there were two other such areas on campus that included as many or more bicycles (Field Notes, Artifacts). Field notes reflect that in the United States, where extracurricular sport is popular, there were more sport offerings after school for students in relation to Finland which does not offer organized sport at school (it is offered in the community in a club structure), and Ireland

357 which offers only a select few sports as compared to opportunities available in the community
358 outside of the school environment.
359 Figure 3 – Bicycle Parking at each School

360
361 *Note: Country from top to bottom; United States, Ireland and Finland*
362 Another pattern associated with the availability of physical activity opportunities
363 observed across each site was the school day schedule, specifically in relation to breaks. Breaks
364 were structured differently at each school. The school day in Ireland was the shortest at six hours

and 20 minutes, with 55 minutes of break time; the United States had the longest school day at seven hours and 25 minutes; and Finland had the most break time with one hour and 45 minutes out of a seven-hour school day (Artifacts). Noteworthy are the longer breaks available in the United States (lunchtime) and Finland (all but the last break) that provide sufficient time for physical activity participation (see Table 1). Further, the school schedule in Finland was purposefully developed with the intent of providing students with the chance to actually engage in physical activity during breaks (Interviews, Field Notes). In Ireland, while breaks throughout the day were not as evident, facilities were accessible for all students (day students and boarding students) before and after school to encourage physical activity engagement. However, as noted in the field notes, most day students arrived at school shortly before the school day started and left as soon as school was over unless they were enrolled in an activity.

Table 1 – Typical School Day Schedules

United States	Ireland	Finland
7:30-8:25	9:10-9:45	8:00-8:45
Break: 5mins	9:45-10:20	**Break: 12mins**
8:30-9:30	10:20-10:55	8:57-9:42
Break: 5mins	**Break: 20mins**	**Break: 28mins**
9:35-10:30	11:15-11:50	10:10-10:55
Break: 5mins	11:50-12:25	Break: 5mins
10:35-11:30	12:25-1:00	11:00-11:40
Break/Lunch: 11:30-12:35	**Break/Lunch: 1:00-1:35**	**Break/Lunch: 11:40-12:15**
12:35-1:30	1:35-2:15	12:15-1:00
Break: 5mins	2:15-2:55	**Break: 15mins**
1:35-2:30	2:55-3:30	1:15-2:00
		Break: 5mins
		2:05-2:50

Discussion

There were several best practices observed across each of the schools that aligned with the CSPAP conceptual framework (Carson et al., 2014a). It should be acknowledged that the

authors are not attempting to generalize the results of this study to other schools within each country, and instead are highlighting examples of best practice as they align with existing literature. Given that whole-school physical activity programs are being promoted internationally (McMullen et al., 2015), it is important that we attempt to learn more about what is actually happening within schools that have successfully adopted an active school culture. While some research has been done on each of the initiatives that the schools in this study have adopted, very little is known about the specific features that could be adopted by other schools who are interested in creating a more physically active environment. For example, we know that celebration is an important feature of the *Active School Flag* (Ní Chróinín and McMullen, 2020) and that some elements of the program are sustainable (McMullen et al., 2021). Further, in Finland, the *Finnish Schools on the Move* program has created new administrative and functional approaches to physical activity promotion and has successfully linked the goals of various collaborators into a shared network (Blom et al., 2018). The results of this study extend what we have learned from previous research, and also provide specific examples of what schools may need when deciding to implement a whole-of-school approach to physical activity promotion.

When considering the conceptual framework that guided this work, at the micro-level, each of these schools provided multiple and diverse opportunities for young people to be active at school. Several of the programs identified in these school aligned with effective physical activity intervention practices (Kriemler, 2011). While not specifically evaluated, the existence of these programs in these schools is positive for students. Meso-level components that were evident across all three schools were less obvious when considering input from stakeholders, but observations revealed that all three schools had ample resources for physical activity participation (Carson et al., 2014a). Having access to facilities is a common barrier when it

404 comes to being active at school, and access to facilities and opportunity to be active (e.g.
405 available equipment) are important factors for school-based interventions (Lorenz et al., 2016).
406 At the exo-level, the most significant best practice at each school was the existence of an
407 established physical activity leader (Carson et al., 2014a). Within the context of the model, these
408 leaders/champions were well respected and acknowledged by each stakeholder group. Physical
409 activity leaders are important to the success of a whole-of-school physical activity program
410 because schools with dedicated champions tend to have significantly more physical activity
411 offerings than those who do not (Carson et al., 2014b). Support is another important component
412 at the exo-level (Carson et al., 2014a). While support came in various forms and from a variety
413 of stakeholders, particularly relevant was the support of the principal at each school. Classroom
414 teachers have frequently identified the importance of administrative support when it comes to
415 incorporating physical activity in their classrooms (e.g. McMullen et al., 2014; Stylianou,
416 Kulinna and Naiman, 2016); and it is likely that physical education teachers and other physical
417 activity leaders would also value this support.
418 When considering facilitators, at the macro-level of the CSPAP conceptual framework
419 (Carson et al., 2014a), the practice of planning breaks that are long enough for students to engage
420 in meaningful bouts of physical activity were facilitators, particularly in the United States (at
421 lunchtime) and Finland (throughout the day). Breaks designed specifically for the achievement
422 of moderate-to-vigorous physical activity have the potential to increase overall physical activity
423 accumulation at school (Groffik, 2012), therefore, this strategy is well placed within a whole-of-
424 school physical activity program. The fact that stakeholders in these schools recognized specific
425 times in the school schedule as designated for, or encouraging of, physical activity participation
426 is significant. Taken together, each of these practices that align with the levels of influence

should result in the existence of ample opportunity for students of these schools to be sufficiently active. While physical activity measurement data were not collected in these schools, there is evidence to suggest that programs targeting multiple levels of influence can have positive benefits on physical activity levels of young people (Leggett et al., 2012).

Limitations

While several steps were taken to ensure the trustworthiness of the data collection and analysis process, some limitations do exist. First, the researchers' own bias should be acknowledged because these schools were selected based off pre-existing knowledge of their involvement in physical activity initiatives and their general success within those programs. To overcome this bias the lead author kept a journal to note instances of bias and steps were taken during analysis to ensure the integrity of the results (e.g. independent reader). Next, the three days spent in each school, while considerable, still only provides a snapshot of the school environment as it relates to physical activity opportunities. Different seasons or weather conditions could have altered the results of what was observed. Another potential limitation was the language barrier in Finland; however, having the second author, who is from Finland, with the first author for the duration of the data collection minimized this limitation. Additionally, analysis considered the contextual and cultural nuances of each country. Lastly, access to these stakeholders was facilitated by the school personnel which meant that they could have selected stakeholders who were positive biased towards the topic of physical activity promotion. Further, given the multiple stakeholders and a lack of access to the parent and student contact information we did not have the ability to provide an opportunity for member checking.

Conclusion

The results of this study suggest that successful school-based physical activity promotion is possible if there is an established and motivated physical activity leader and if their promotion efforts are supported. The authors are not suggesting that these results are indicative of all schools in each of these countries. However, these findings suggest that schools that create several physical activity opportunities for all students within the context of a whole-of-school physical activity program may have a better chance of developing a strong physical activity culture. While these findings are not in and of themselves novel with respect to the literature on whole-of-school physical activity promotion, this is the first study of its kind to highlight such practices across multiple international sites using multiple qualitative data sources. McKenzie and van der Mars (2015) recently referred to the concept of "ground-truthing" when it comes to school-based research and while we did not collect objectively measured physical activity data, this study attempts to "ground-truth" by not only seeking stakeholders' perspectives through interviews, but also by observing the school environment and collecting relevant artifacts. Research should continue to explore what schools do well with respect to physical activity promotion in an attempt to support policy efforts that could lead to more active school cultures in schools all over the world.

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