

# **Implementing active play standards: A qualitative study with licensed childcare providers in British Columbia, Canada**

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#### **Abstract**

15 With an increasing number of children attending regular early childhood education and  
16 care (ECEC), this setting presents an opportunity to develop physical activity habits and  
17 movement skills of children. These behaviours play an important role in the development and  
18 well-being of children. In 2017, an Active Play Standard was introduced in British Columbia,  
19 Canada, to mandate practices related to physical activity, screen time and movement skill  
20 development in licensed ECEC. A capacity building initiative including training and online  
21 resources was released alongside these guidelines to support implementation. The purpose of this  
22 study was to qualitatively examine the barriers and facilitators ECEC practitioners faced in  
23 implementing the standard, and to explore the role of the capacity building initiative. Data were

1 collected via semi-structured telephone interviews with educators (n=23). Data were coded using  
2 thematic analysis and sorted into three major themes influencing provision of physical activity  
3 opportunities: attributes and impact of the Active Play standard and capacity building workshop,  
4 characteristics of providers, and characteristics of ECEC settings. Future studies should consider  
5 targeting factors including organizational culture and climate, and provider capacity to provide  
6 physical activity and fundamental movement skill programming, and support for facility level  
7 policies and collaborative planning processes that create a positive physical activity culture.

8

9 Keywords: Canada, childcare, activity

## Introduction

The early years, particularly ages 3-5, are an important time for physical activity participation. Physical activity, particularly when coupled with fundamental movement skill (FMS) development, plays a role in promoting positive development in all aspects of a child's life including the physical, cognitive, psychological, and social (Timmons et al., 2012). FMSs are the foundational skills needed to participate in physical activity and sports, and can be subdivided into locomotor skills (e.g. running and hopping), object control skills (e.g. catching and kicking), and balance and stability (Gallahue et al., 2012; Pangrazi and Beighle, 2013). FMS competency is also an important modifiable predictor of participation in physical activity in later childhood and adolescence (Barnett et al., 2009; Lubans et al. 2010; Robinson et al., 2015).

Physical activity guidelines recommend at least 180 minutes of physical activity per day at any intensity for children aged 3-4 years, with a progression towards 60 minutes of "energetic play" or moderate to vigorous physical activity (MVPA; Tremblay et al., 2017). At age 5, the recommendation is 60 minutes of MVPA daily (Tremblay et al., 2016). Early childhood education and care (ECEC) presents a unique opportunity to promote physical activity, reduce screen time, and develop FMS. Over 50% of Canadian children aged 4 years and younger are currently enrolled in ECEC, and of those 70% are in full-time care ( $\geq 30$  hours per week) and similar numbers are found in other developed nations including the United States, Sweden and France (Morgan, 2005; Sinha, 2014). There is also an upward trend in the number of licensed ECEC spaces in Canada (Friendly et al., 2015).

While ECEC settings may be important for activity behaviours, there is evidence to suggest children have low proficiency in FMS and participate in insufficient physical activity in these settings (LeGear et al., 2012; Temple et al., 2009; Vanderloo et al., 2014b). Two Canadian

1 studies have found low levels of MVPA (1.54 and 1.76 min/hour) during the childcare day, but  
2 higher levels of light physical activity (18.75 min/hour; Temple et al., 2009) or total physical  
3 activity (17.42 min/hour; Vanderloo et al., 2014b). Children in ECEC settings may be achieving  
4 sufficient or near to sufficient activity at any intensity, but not progressing towards achieving the  
5 60 minutes of MVPA by 5 years.

6         The generation of policies to promote physical activity in ECEC has been examined as a  
7 potential mechanism to promote behaviour change. At the state level, implementation of activity  
8 policies was associated with improving fixed play environments and providing training and  
9 education for employees (O'Neill et al., 2017). Studies examining the existence of activity  
10 policies on the physical activity behaviours of children attending ECEC, as well as the frequency  
11 with which educators report offering opportunities for physical activity, have found mixed  
12 results (Bower et al., 2008; Erinoshio et al., 2016). These studies shared the conclusion that  
13 policy existence without training to support the translation of policy into practice may mean that  
14 well-intentioned policies exist only in writing (Erinoshio et al., 2016; Wolfenden et al., 2011).  
15 While educators are being asked to implement these activities, current educator training  
16 programs do not prioritize physical activity or FMS; therefore, educators may not have the  
17 practical skills or confidence to implement activity related policies (Buckler and Bredin, 2018;  
18 Martinyuk and Tucker, 2014).

19         In response to stakeholder demands for physical activity policies and capacity-building to  
20 facilitate ECEC providers adopting and implementing physical activity supportive environments,  
21 policies and practices, the provincial government in British Columbia developed the Active Play  
22 (AP) standard (Government of BC, 2016) and funded the development of a capacity building  
23 intervention: Appetite to Play ([www.appetitetoplay.com](http://www.appetitetoplay.com)). In July 2017, the AP standard was

1 fully enacted and enforced by licensing officers, who determine if ECEC providers are meeting  
2 provincial standards. The AP standard, requires ECEC facilities to enact active play and screen-  
3 use policies and ECEC providers must: provide 60 minutes of active outdoor play per day, limit  
4 screen time to  $\leq 30$  minutes/day, incorporate FMS development into daily activities, break up  
5 sitting time so that children are not sitting for  $\geq 60$  minutes at a time, and model active  
6 behaviours in daily routines. Additionally, they should provide 120 minutes of indoor and  
7 outdoor active play.

8           In tandem with the enactment of these standards, Appetite to Play, a capacity-building  
9 initiative, was launched and consisted of an online resource incorporating tools and supports (e.g.  
10 self-audits, video clips, ideas for action, newsletters), and in-person, e-learning or virtual  
11 workshop training focusing on healthy eating and physical activity and incorporating better  
12 practice recommendations that reflect and extend the AP standard. The Appetite to Play  
13 workshop and materials focused on playful activities that developed FMSs appropriate for the  
14 stage of development (Hassani et al., 2020).

15           The purpose of this study was to qualitatively examine the barriers and facilitators ECEC  
16 practitioners faced in implementing the AP standard, and to explore the role of the capacity  
17 building initiative (Appetite to Play). This study was one component of the “A Good Start  
18 Matters” study which used an evaluation framework informed by implementation science and  
19 behaviour and organizational change theories (Bandura, 1986; Bandura 2001; Damschroeder et  
20 al., 2009; Durlak and Dupre, 2008; Hassani et al., 2020; Lau, Wandersman and Pate, 2016;  
21 Rogers, 2003; Goodman, Stuckler and Kegler, 1997). The framework included measures of  
22 implementation, characteristics of the childcare centers, provider characteristics, attributes of the  
23 innovation (AP Standard and Appetite to Play), and implementation facilitators and barriers as

1 key contributors to change. The focus of this study was the implementation issues, facilitators  
2 and barriers which are important to generate strategies to increase policy and practice uptake  
3 (McKay et al., 2019).

## 4 **Methods**

### 5 **Study design**

6 This study is a nested qualitative study, within “A Good Start Matters” a three-year  
7 prospective mixed methods study of the AP Standard and Appetite to Play capacity-building  
8 initiative, assessing their impact on the environments, policies, and practices in ECEC settings  
9 (implementation) and identifying the hierarchy of factors that influence implementation. The  
10 qualitative data was collected to complement quantitative survey-based provincial data collection  
11 (McConnell-Nzunga et al., 2020). We collected data from February to October 2018. The study  
12 received ethical approval from the University of Victoria and University of British Columbia  
13 Harmonized Research Ethics Review Board (BC16-128 and H18-01434).

### 14 **Participants**

15 Eligibility criteria were that participants had attended an in-person Appetite to Play  
16 workshop, spoke English, and consented to be contacted for a follow-up telephone interview. A  
17 research assistant contacted participants via telephone or email to schedule an interview.  
18 Attempts were made to contact 106 individuals, and 23 interviews were scheduled and  
19 completed.

### 20 **Procedure**

21 A member of the research team (EJB or JMN) contacted participants at the time of the  
22 scheduled interview. Data were collected via semi-structured telephone interviews. Telephone  
23 interviews allowed engagement of participants from all five provincial health authorities.

1 Telephone interviews provide comparable responses to face-to-face interviews and may permit  
2 participants to express controversial feelings and increase response rate, as there is no need to  
3 travel (Novick, 2008; Sturges and Hanrahan 2004; Sweet, 2002). A semi-structured interview  
4 guide informed by the evaluation framework (available on request) facilitated the conversation  
5 and addressed implementation issues as well facilitators and barriers to implementation. Example  
6 questions included “how is addressing the recommended practices going?” and “what factors  
7 within your facility have made it easy or difficult to adopt and implement the AP Standard?” Interviews  
8 were audio recorded and transcribed by professional transcribers and interviewers took notes.  
9 Participants were asked preliminary questions to determine their work role and what, if any, type  
10 of ECEC facility they worked at (e.g. licensed, parent participation), and the age of children  
11 attending the ECEC. Interview questions were broken down into two sections: first, questions  
12 focused on the capacity building intervention, and second, on implementation of the AP  
13 standard. Questions regarding the AP standard were for licensed ECEC providers only.  
14 However, two participants worked in fields related to ECEC training or implementation and  
15 requested to answer these questions.

## 16 **Data Analysis**

17 This study adopted a constructivist relativist approach: the understanding that multiple  
18 realities exist through each individual’s interpretation of their experience, as each ECEC  
19 providers’ experience differed (Tamminen and Poucher, 2020). Data analysis was conducted in  
20 NVivo 12 (QSR International, Australia). Coding of interviews used an inductive approach using  
21 thematic analysis to identify ECEC providers perceived facilitators and barriers to implementing  
22 the AP standard and their overall perceptions of the capacity building initiative. This process  
23 followed Braun and Clarke’s (2006) six steps of thematic analysis to identify, label, and analyze

1 data by codes. Following free coding of the interviews into themes, we sorted the themes under  
 2 category headings common to the implementation science frameworks and theories that guided  
 3 the interpretation (Damschroeder et al., 2009; Durlak and Dupre, 2008; Hassani et al., 2020; Lau,  
 4 Wandersman and Pate, 2016). These categories were impact and attributes of the standard and  
 5 intervention, characteristics of providers, and characteristics of the childcare settings.  
 6 Throughout data collection, analysis, and writing of the manuscript co-authors also acted as  
 7 ‘critical reviewers’ (Smith and Sparkes, 2016) to encourage deep exploration and alternative  
 8 interpretations of the data and as a step recommended to overcome recognized limitations of  
 9 member checking, inter-rater reliability and universal criteria for enhancing trustworthiness  
 10 (Smith and McGannon, 2018). To provide an illustration of the breadth of citations across  
 11 interview participants, percentages were calculated (Maxwell, 2010).

## 12 **Results**

13 Participants (n=23) were from five regional health districts in British Columbia and the  
 14 majority (n=14, 61%) were employed in a licensed ECEC. All participants were women,  
 15 reflective of the gendered nature of ECEC. Table 1 provides detailed participant demographics.  
 16 Sixteen participants responded to questions regarding both the capacity building workshop and  
 17 the AP standard, and seven only to questions regarding the workshop as they worked in non-  
 18 licensed ECEC settings and are not required to adhere to the AP standard.

19 Table 1  
 20 *Participant employment characteristics*

<b>Participant characteristics</b>	<b>n (%)</b>
Type of employment:	
<i>Licensed childcare</i>	14 (60.9)
<i>Group licensed childcare</i>	9 (39.1)
<i>Preschool</i>	2 (8.7)
<i>Family licensed childcare</i>	3 (13.1)
<i>Parent participation programming</i>	5 (21.7)
<i>Training and implementation</i>	2 (8.7)

<i>Other</i>	2 (8.7)
Health region employed in	
<i>Fraser Health</i>	3 (13.0)
<i>Interior Health</i>	2 (8.7)
<i>Northern Health</i>	6 (26.1)
<i>Vancouver Coastal Health</i>	5 (21.7)
<i>Island Health</i>	7 (30.4)
Has a PA policy? (Licensed providers only)	
<i>Yes</i>	10 (71.4)
<i>No</i>	4 (28.6)
Used Appetite to Play resources	
<i>Yes</i>	21 (91.3)
<i>No</i>	2 (8.7)
Used Appetite to Play website	
<i>Yes</i>	14 (60.9)
<i>No</i>	9 (39.1)
Last licensing visit (Licensed providers only n=14)	
<i>≤ 6 months</i>	7 (50)
<i>&gt; 6 months &lt;12 months</i>	3 (21.4)
<i>≥ 12 months</i>	2 (14.3)
<i>Unknown</i>	2 (14.3)

1

2           Four themes related to the attributes and impact of the AP standard and capacity building

3 initiative were identified. In addition four themes were identified that aligned with characteristics

4 of providers and another four could be categorized as characteristics of the ECEC setting. Figure

5 1 provides an overview of these the categories and themes and relationships identified as part of

6 the analysis. All three evaluation categories influenced participant practice in promoting physical

7 activity. Changes in provider practices often depended on alignment between the childcare

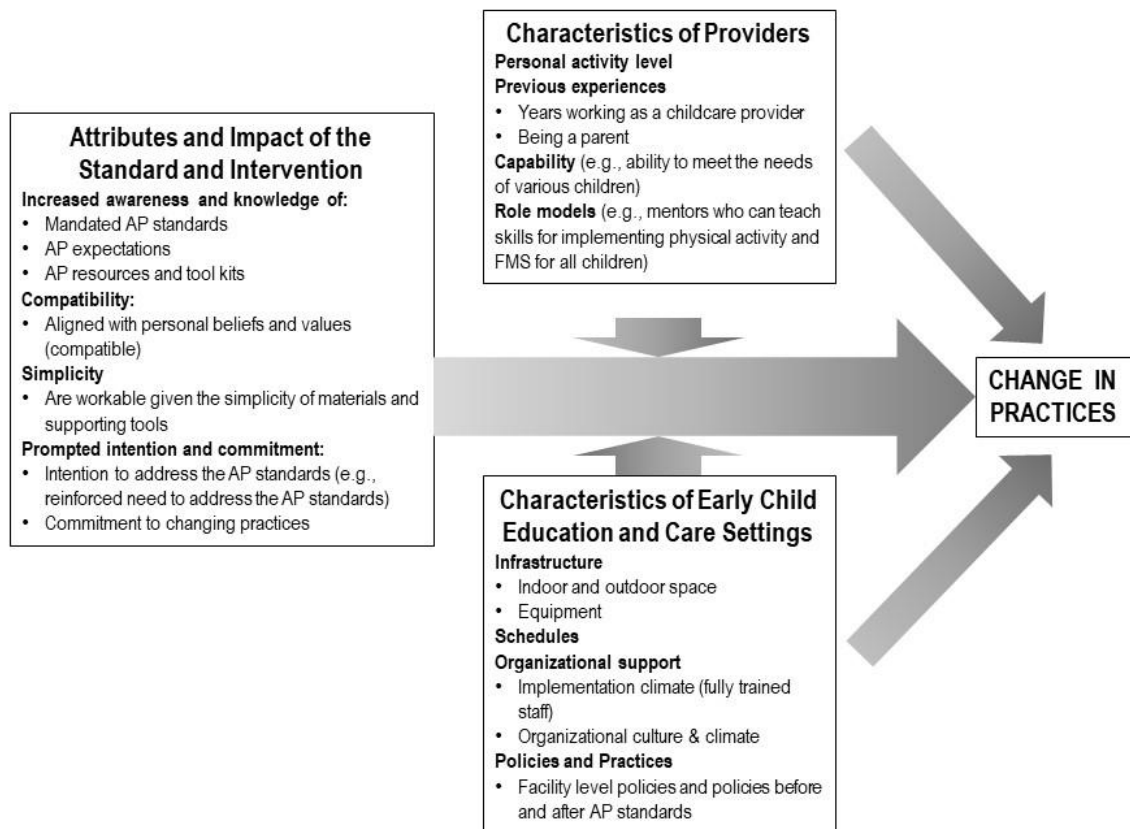
8 setting and/or childcare providers with the AP standard and capacity building workshop.

9 Notably, very few participants spoke to FMSs in their ECEC practice despite the fact that they

10 were a specific focus within the Appetite to Play initiative. Responses to screen time policies and

11 practices differed greatly to responses about physical activity. Therefore, these data are reported

12 separately.



1

2 **Evaluation Category: Attributes and Impact of the Standard and Intervention**

3 Overall, the capacity building initiative and related materials were well received by  
 4 participants with nearly all participants indicating that they had used the workshop materials, and  
 5 60% of participants indicating they had used the website. Many participants (83%) mentioned  
 6 the workshop, materials, or website, when asked about what supported implementation of the AP  
 7 standards. Of the four themes that addressed AP standard and the capacity-building initiative,  
 8 two themes related to their impact: awareness and knowledge, and intention and commitment,  
 9 and two addressed attributes: simplicity and compatibility.

10 Awareness and knowledge

1           Some participants (30%) spoke at length that the workshop was not providing new  
2 information about the need for physical activity and improving FMS in children but it included a  
3 review and reminder of important knowledge. Many participants indicated that the workshop  
4 increased their awareness of the AP standard and its associated expectations. This was  
5 particularly salient for participants, as they were aware of the need to be meeting the physical  
6 activity component of the new AP standard, but it reinforced their need to address the standard in  
7 their practices. This participant quote highlighted this aspect:

8 *I think it was another addition to what I already knew, ... it's a nice refresher, okay this is what*  
9 *the field's about, this is what we're supposed to do with the new mandate coming in. Here are*  
10 *some of the policies we need to follow. So it was a nice ... it's a nice reminder. –Participant 15*

11  
12 In addition, 60% of the participants noted that the capacity building initiative empowered the  
13 participants in implementing the AP standard as they were provided with additional activities  
14 (i.e., instructions and modeling of behaviours and resources) to add to their physical activity  
15 tool-kit.

#### 16 Prompted intention and commitment

17  
18 Many participants (87%) highlighted that the capacity building initiative prompted participants  
19 to intentionally address physical activity in their practices. In addition, many noted that it helped  
20 them commit to changing their practices. This participant quote highlights this aspect:

21 *This has spearheaded a lot of stuff for me, this Appetite to Play has kind of got me in the groove*  
22 *of.... lets do more physical activity things. Not that I – like I said, I've been like that way*  
23 *anyways, cause I'm a very active person myself. But it's just kind of given me a nice practical*  
24 *avenue to get excited about it actually. –Participant 19*

#### 25 26 Compatibility

27           Participants were already committed to practices and philosophies surrounding promoting  
28 physical activity in their workplaces prior to the release of the AP standard and participation in

1 the capacity building workshop. In particular, 93% participants indicated that the workshop was  
2 in line with their own values. For example,

3 *Without the specific guidelines per se, it was stuff we were doing anyways. ... there was no big*  
4 *aha oh yeah we'd better do this and oh we can't do that. It really did align with my philosophy,*  
5 *... so it was pretty much what I was doing, but now I'm more specific. –Participant 18*

### 6 Simplicity

8 Participants praised the workshop for the simplicity and ease with which they could  
9 implement the activities they learned. For example, one participant said:

10 *I certainly got a lot of ideas ... like real easy simple things that could be done with zero prep... it*  
11 *was just packed with great fast ideas. And then the website too, that's a fantastic resource.*  
12 *-Participant 14*

13 Another participant highlighted how useable the workshop resources were:

14 *I think the – the planning and the systems that are there are – are 100 percent workable. You*  
15 *know if people are having a problem with it, they need to relook at their, how they're*  
16 *approaching it because it's so workable. –Participant 13*

### 17 **Evaluation Category: Characteristics of Providers**

18 The majority of participants (68%) noted personal experience as a facilitator for  
19 implementing the AP standard. Key components of personal experience were long service as  
20 educators (e.g. 20-30+ years), experience raising their own children, having a positive role model  
21 (at work or in their personal lives), and general personal philosophies that physical activity  
22 should be an integral part of the day. Four themes were categorized as characteristics of  
23 providers: personal activity level, previous experience, capability, and role models.

### 24 Personal Activity Levels

25 Participants discussed their own high level of engagement in physical activity and  
26 movement skills during the ECEC day. For example:

27 *I still do cartwheels in the gym with my kids. –Participant 19*

1 Previous Experience

2 Participants indicated that long service as ECEC providers was influential in meeting the  
3 AP standard.

4 *My degree is in Child Development, I mean I've been doing this for 20, 30 years, so I mean as  
5 far as the rationale why I do stuff, I mean its pretty clear to me. –Participant 19*

6  
7 Participants also highlighted how their own experiences as parents reinforced the importance of  
8 physical activity to them.

9 *When I got into this field, I sort of used that ... as my foundation of how I wanted to be a  
10 caregiver because it was how I wanted to be a parent. And outdoor play I figured out is just, is  
11 just so essential. –Participant 1*

12  
13 Capability

14  
15 Having the skills or the behavioural capability to provide certain activities was sometimes  
16 highlighted as being difficult depending on the providers capability to adapt to the needs of the  
17 children. This is highlighted in this quote:

18 *I think it depends on the person that is looking after the children, how willing are they to deal  
19 with different issues, while they're playing a game. So some are okay with it, and some are not  
20 okay, so sometimes we just oh, I don't think our group can manage this so let's not even bother  
21 playing that –Participant 12*

22  
23 Role Models

24 Several participants (30%) highlighted that former coworkers or mentors played a role in  
25 developing their attitudes around implementing physical activity, which helped in implementing  
26 the AP Standards. For one participant, role models and her previous work were some of the  
27 pieces she found supportive in implementing the AP standard:

28 *And I had good role models myself, teaching me ... how to deal with children and so problem  
29 solve; and the importance of learning through play. And so the – so my work, the people I  
30 worked with and the education I had. –Participant 12*

31  
32 **Evaluation Category: Characteristics of ECEC Settings**

1 Four implementation themes related to the characteristics of the ECEC Settings; infrastructure,  
2 schedules, organizational support and policies and practices. Infrastructure had two sub-themes;  
3 outdoor and indoor space, and equipment.

#### 4 Infrastructure

##### 5 *Outdoor and Indoor Space*

6 The physical spaces that educators had available to them came up frequently (63%  
7 of the participants cited this) as a barrier or facilitator to meeting the AP standards. The  
8 availability of equipment was frequently cited (47%) as a facilitator to meeting the AP standard.  
9 Participants with large outdoor areas, or access to gym space noted the importance of these areas  
10 when providing opportunity for physical activity experiences. Access to quality indoor and  
11 outdoor space facilitated AP standard implementation.

12 Participants frequently cited high quality space as a facilitator to meeting the AP standard  
13 with participants referencing both indoor and outdoor spaces.

14 *We have not just great outside space, but we also have a recreation room and a gym. So I find*  
15 *that, especially for the active play portion, I find those things make it really easy to implement*  
16 *what we learned about in the training -Participant 17*

17  
18 Participants working in home-based ECEC often described the quality of their outdoor area in  
19 reference to nearby parks and playgrounds.

20 *I'm in a pretty neat location in that there is like four or five parks right within walking distance*  
21 *of me ... There's also the big backyard. -Participant 18*

22  
23 One of the training and implementation participants highlighted how she witnessed the  
24 importance of space from a broad perspective: programs with a higher emphasis on outdoor time,  
25 or with higher quality indoor space, were better able to demonstrate the AP standard.

26 *Well there's some programs that are really embracing outdoor play, and particularly ... outdoor*  
27 *based programs where the kids are outside the majority of the day. Those kids are getting a lot*  
28 *more active play than programs that are more indoor based. And those programs that have*

1 *decent indoor activity space that exceed the minimum standard within the regulation, and have*  
2 *gross motor rooms. Those children tend to be much more active, as well. –Participant 21*  
3

4 The majority of participants identified safe, spacious, indoor and outdoor play areas as important  
5 for meeting the AP Standard.

6 Participants with lower quality outdoor space highlighted this as a major barrier for  
7 meeting the minimum outdoor time mandated by the AP Standard. This was particularly salient  
8 when safety was a concern, as described by one participant:

9 *We have a big beautiful field, but there are still spots, like at the other end of the field – there’s*  
10 *no gate . . . I need to have a safer outdoor place, right now is what I’m working towards, but I do*  
11 *the best with what I can. –Participant 19*  
12

13 This was echoed by a training and implementation participant, who highlighted that while the AP  
14 standard mandates outdoor active play time, adjacent outdoor space is not a requirement.

15 *For other programs that are standalone in a church that don’t have, you know as I was saying at*  
16 *the beginning, don’t have access to an adjacent outdoor play space; they have [space] that meets*  
17 *minimum requirements; it’s going to be much more challenging for them – Participant 21*  
18

19 Participants with low quality space had greater difficulty meeting the AP Standard for outdoor  
20 play.

## 21 *Equipment*

22 Equipment was cited less frequently than space, but almost half of all participants  
23 referred to equipment.

24 *I’ve got climbers and I have basketball hoops, and riding toys ... and a huge backyard that they*  
25 *can run around –Participant 5*  
26

27 Participants discussed the importance of having and providing equipment, but allowing the  
28 children to play freely with the equipment.

29 *I would make a tent out of tables and put the tarp over it, bring some wood in, and then the*  
30 *children just expand, you know, from there. –Participant 12*  
31

1 No participant indicated that they had a lack of equipment, only that the equipment available to  
2 them was helpful in engaging the children in activity.

### 3 Schedules

4 Participants highlighted how scheduling could be a hindrance to meeting the AP  
5 Standard. One participant particularly highlighted meeting the physical activity guidelines was a  
6 struggle, although she used the Canadian daily recommendation (180 min) instead of the AP  
7 Standard (120 min).

8 *Just the active – the 180 minutes a day, cause we have naps and buses, and lunch and food, and*  
9 *... we do struggle some days with it, very much. –Participant 8.*

10

### 11 Organizational Support

12 The support of other staff in implementing the AP standard and workshop materials was  
13 influential for 64% of the participants. Participants indicated the benefit of the entire staff  
14 attending the workshop:

15 *The fact that all the staff were there right, so ... we all know about it so we're all on the same*  
16 *page, so it makes it easier to implement it into our schedule, than if our boss or just one other*  
17 *person had went ... to the workshop and comes back. Oh my gosh, like this, you know we need to*  
18 *try some of this ... so definitely doing it with the whole childcare facility, so that everyone's on*  
19 *the same page, has definitely made it easier. -Participant 16*

20

21 Another participant indicated that staff she worked with were happy to engage in physical  
22 activities with the children.

23 *Right, so they make it easy for us to just, you know do whatever we need to do. None of the staff*  
24 *here are afraid to get down on the floor, look silly or, you know basically follow a child's lead. –*  
25 *Participant 3*

26

### 27 Policies and practices

28 Institutionalization of facility level policies was noted as important by 83% of the  
29 participants and important to ensure that providers implement the AP standards. In some cases,

1 policies could have influenced how practices were already aligned before the implementation of  
2 the AP standard and in other instances it was discussed as supporting institutionalization as  
3 highlighted by one participant:

4 *I have worked in some centers that were unaware of some of the things I learned in the training.*  
5 *I been fortunate enough to work in a lot of centers that had a lot of policies in place around the*  
6 *things we learned in the training, so but not everybody does, so it definitely is very important for*  
7 *others to learn –Participant 17*  
8

### 9 **Screen Time**

10 All of the participants indicated that screen time was not a regular part of their ECEC  
11 day. All participants working in licensed childcare noted that there was no screen time at their  
12 facilities. Educators only used screens for safety or educational purposes, or for a “special  
13 occasion”. Participants noted that while absence of screen time was in practice prior to the new  
14 standards, they, or their supervisors, had generated a written screen time policy since the release  
15 of the AP standard. Participants highlighted that they did not believe screen time was necessary  
16 for young children. For example, one educator commented that

17 *The screen time is written down now, but I mean I’ve never not had that in my mind ever, so you*  
18 *know like I don’t have screen time, we don’t have video games; we don’t have that stuff here. We*  
19 *don’t even have computers, so that’s just my philosophy, I don’t think the kids need all that, at*  
20 *the moment. So we just don’t have it period. So I had no problem following the new guidelines*  
21 *for that at all, it didn’t exist in the first place. –Participant 13*  
22

23 Another echoed a similar sentiment:

24  
25 *I don’t do screen time. The only time I use a screen is ... I have to do fire drills with my kids*  
26 *once a month ... so I simulate a fire drill sound on my iPad. I’ve shown the kids a video on the*  
27 *Cuttlefish. So I have only used it like for science type things ... I don’t believe in screens under*  
28 *12. –Participant 19*  
29

30 All participants indicated that screens were not a necessary part of childcare, and most noted that  
31 screen time in childcare was not a part of their personal philosophies. The use of screens was rare  
32 and typically educational; however, some educators mentioned occasionally using screen time as

1 a “treat”.

2

3

### **Discussion**

4 We set out to explore the attributes of the AP standards and capacity-building and the  
5 characteristics of the setting and provider that ECEC providers perceived were influencing  
6 implementation of the new standards. We also specifically explored the impact of the provincial  
7 capacity-building efforts on implementation. The results of this study provide a better  
8 understanding of the barriers and facilitators to implementing physical activity, sedentary  
9 behavior and FMS standards for ECEC highlighting both structural and social supports within  
10 the setting and provider level and particular attributes of the innovation itself. Comments about  
11 the AP standard highlighted the simplicity of it and its alignment with individual philosophies of  
12 the interviewees; although, specific centre policy content beyond screen use remained  
13 uncommented. The identified implementation barriers were primarily characteristics of the  
14 setting representing factors that individual providers may not be able to modify particularly if  
15 they are staff and not managers (e.g. physical space, equipment, the attitudes and behavior of  
16 other staff). Facilitators included the externally provided capacity-building initiative and  
17 characteristics/attributes of the provider but also included the social environment (role models) in  
18 the setting and the alignment between the standard and the provider philosophy. Limits on screen  
19 time appeared to be more aligned with current values and practices in the early years setting.

20 Categorized under the theme ‘impact of the AP standard and capacity building  
21 workshop’, educators indicated that the workshop enhanced awareness of the AP standard, and  
22 provided actionable ideas to meet the standard. This is in line with quantitative data from  
23 Appetite to Play workshops, where self-reported knowledge and confidence improved in all

1 areas of physical literacy and physical activity post-workshop (Hassani et al., 2020). Previous  
2 research also supports the capacity of similar workshops to improve the physical activity and  
3 FMS related knowledge and confidence of ECEC providers (Brujins et al., 2021; Naylor and  
4 Temple 2013). Participants felt the AP standard and capacity building intervention were  
5 compatible with each other, with the intervention directly aligning with the AP standard.  
6 Participants indicated that the workshop provided simple, easy to use strategies, which addresses  
7 issues of fit, where end-users may have difficulty accessing content due to accessibility of the  
8 material (e.g. due to education, language; Wandersman, Chien and Katz, 2012). Finally, the  
9 workshop was seen as prompting intention and commitment to AP standard adherence.

10 Under the theme ‘characteristics of the providers’, most of the participants highlighted  
11 that personal experience was a major influence in prioritizing physical activity time. This was  
12 demonstrated previously among elementary school teachers whereby teachers who were active  
13 themselves prioritized daily physical activity delivery (Weatherson et al., 2017). Additionally,  
14 self-efficacy to facilitate physical activity was significantly higher when student early educators  
15 met physical activity guidelines themselves (Martyniuk and Tucker, 2014). Pre-service training  
16 or hiring practices that prioritize previous physical activity experiences could be important.

17 Several participants in this study also indicated that role models positively influenced  
18 their physical activity practices. This is a technique that has been used successfully in past school  
19 research, where “champions” were identified and tasked with leading implementation of a  
20 physical activity intervention and supporting others within the school to do the same (Naylor et  
21 al., 2008). Future research should consider employing peer-to-peer support or mentoring within  
22 interventions.

1           Within the large theme ‘characteristics of ECEC settings’, the infrastructure, namely the  
2 physical spaces and equipment available to educators was consistently raised by ECEC providers  
3 as a factor that influenced their capacity to implement the AP standard. Specifically having  
4 access to quality indoor spaces, particularly gymnasium style spaces, and to safe, spacious  
5 outdoor spaces facilitated achieving the physical activity levels in the AP standard. Previous  
6 quantitative research has shown that physical space was associated with activity time, and our  
7 findings support this (Bower et al., 2008; Erinoshio et al., 2016; Gubbels et al., 2012; McConnell-  
8 Nzunga, 2020). In particular, references to large indoor gymnasiums as a facilitator to increased  
9 activity time is supported by quantitative findings. For example, a significant positive correlation  
10 was found between the size of indoor space and children’s physical activity levels (Gubbels et  
11 al., 2012), and survey data indicated sufficient indoor space for running games was associated  
12 with achieving the AP Standard (McConnell-Nzunga et al., 2020). Appetite to Play specifically  
13 targets providing activities in small spaces or with little to no equipment. Participants’ consistent  
14 references to space as a facilitator or barrier, coupled with the current evidence surrounding the  
15 importance of a quality environment on physical behaviours, indicates that there is continued  
16 need to support providers with ideas for small spaces and little equipment.

17           Organizational processes were largely not discussed by participants as an implementation  
18 facilitator or barrier. Incorporation of these processes, which may include reflecting and  
19 evaluation, goal setting, and conducting a needs assessment, are associated with greater  
20 adherence to a physical activity intervention in an organized setting (Lau et al., 2016). It is  
21 unclear if our participants did not prioritize these processes, or if they were absent in their  
22 workplaces. There is some evidence that organizational processes may play a strong role in

1 adapting the physical activity climate in ECEC settings, and continued work is needed to explore  
2 the most efficacious way to employ these processes (Battista, et al., 2014; Langford et al., 2019).

3         The Appetite to Play workshop and materials defined physical literacy and focused on  
4 playful activities appropriate for the stage of development that developed FMS. However, we did  
5 not ask specific questions regarding provision or qualities of these activities specifically and  
6 participants did not elaborate greatly on this area. However, evidence from pre- and post-  
7 workshop survey data demonstrated significant improvements in participant confidence and  
8 knowledge in physical activity and physical literacy promotion in a childcare setting (Hassani et  
9 al., 2020).

10         All participants were in consensus that screen time should not be a part of ECEC. While  
11 there were references to the use of screens for educational purposes; these were reported to be  
12 short (e.g. 2-3 minutes) and/or infrequent (e.g. once every month or two). Overall, self-report  
13 indicated that participants were adhering to the AP standard of providing no more than 30  
14 minutes of screen time per day, with the exception of a “party” every month or two. This is  
15 contrary to previous Canadian research that has shown that children in childcare spend  
16 significant periods of time in screen behaviours, in some cases over 2 hours per day (Vanderloo,  
17 2014a). This discrepancy may be due to the self-selection of our participants who all placed high  
18 value on physical activity behaviours.

19         The results of this qualitative study highlight the need to address the hierarchies of factors  
20 that influence policy implementation at the individual and organizational level, and are  
21 diagrammed in Figure 1. These factors provide a road map to develop comprehensive capacity  
22 building interventions (otherwise known in the literature as implementation support strategies  
23 (Waltz et al., 2019)) that support ECEC staff and managers in changing their practices. On the

1 individual level, interventions to support or enhance policy implementation should designate  
2 program champions in the target settings to role model the importance of physical activity and  
3 FMS development, and support staff implementation. Additionally, training should include  
4 considerations for the diverse needs of children to ensure ECEC staff can support and manage  
5 behavioural concerns while implementing physical activity and FMS programming. At the  
6 organizational level, all staff should receive free or subsidized training, and managers need to  
7 change facility-level to policies and schedules to facilitate increases in physical activity. Despite  
8 the efforts of Appetite to Play to focus on providing activities that require little to no equipment  
9 and minimal space, participants continued to emphasize these as implementation barriers. This  
10 finding has implications for the outer setting. Policy-makers may need to mandate and  
11 financially support the creation of larger and/or higher quality outdoor and indoor spaces for  
12 physical activity in ECEC settings that facilitates the physical activity and FMS development of  
13 children attending ECEC. The factors that emerged are common to popular implementation  
14 science frameworks like the Consolidated Framework for Implementation Research (CFIR)  
15 (Damschroder et al., 2009). For example, characteristics of individuals within the CFIR aligns  
16 with our theme characteristics of providers, and the intervention aligns with our theme Attributes  
17 and Impact of the AP standard and capacity building workshop (Damschroder et al., 2009).

## 18 **Strengths and Limitations**

19       The findings should be viewed in the light of the strengths and limitations of the methods.  
20 One limitation is the risk of sampling bias; participants needed to self-enroll in the capacity  
21 building intervention training and then agree to be contacted for a follow-up interview. Given the  
22 overwhelmingly positive attitudes towards physical activity in ECEC among the participants, the  
23 individuals who took part in the interview process were likely those who already placed high

1 emphasis and value on physical activity in early childhood. Conversely, the purposive sample  
2 allowed us to dive deeper into the attitudes and opinions of educators regarding the capacity  
3 building intervention training and AP standard, which the quantitative data (Hassani et al., 2020)  
4 could not capture. These rich discussions provide significant insight into the ground-level  
5 experience of educators in promoting physical activity with the guidance of a physical activity  
6 standard and an associated training intervention.

## 7 **Conclusion**

8 We highlight three levels of factors that may influence implementation of physical  
9 activity and FMS development supportive policies and practices in the early childcare setting.  
10 Infrastructure including space and equipment, and organizational culture and climate (e.g. is  
11 physical activity a priority) were important at the setting level. Individual provider characteristics  
12 including their personal activity profile and experience with mentors who prioritized physical  
13 activity were also influential. The role of capacity-building, in particular providing training to  
14 support policy change was also highlighted. Future implementation strategies and research  
15 should focus on addressing the modifiable factors like organizational culture and climate and  
16 provider characteristics through pre-service and in-service training and support for facility level  
17 policies and collaborative planning processes that create a positive physical activity culture.

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1 **Captions:**

2 Table 1: Participant employment characteristics

3 Figure 1: Provider identified factors that influenced implementation of the Active Play Standard