

# Evidence from APPLE Schools: Creating Supportive Environments to Improve Health Behaviours

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We would like to take this opportunity to acknowledge the traditional territories of the people of the Treaty 7 region in Southern Alberta, which includes the Blackfoot Confederacy (comprising the Siksika, Piikani, and Kainai First Nations), the Tsuut'ina First Nation, and the Stoney Nakoda (including the Chiniki, Bearspaw, and Wesley First Nations). The City of Calgary is also home to Métis Nation of Alberta, Region III.

# Thank You to APPLE Schools Funders

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Distinguished Researcher, Stollery Children's Hospital Foundation  
Member, Women and Children's Health Research Institute

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# Learning Objectives

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- Employ the Comprehensive School Health approach to encourage lifelong healthy behaviours
- Provide practical applications of a Comprehensive School Health approach in a school environment
- Share evidence to support the effectiveness of following a Comprehensive School Health approach

# What is APPLE Schools?

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# What is CSH?

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# Comprehensive School Health in Schools

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SMALL CHANGES

**BIG**

DIFFERENCE



# Activity Clubs

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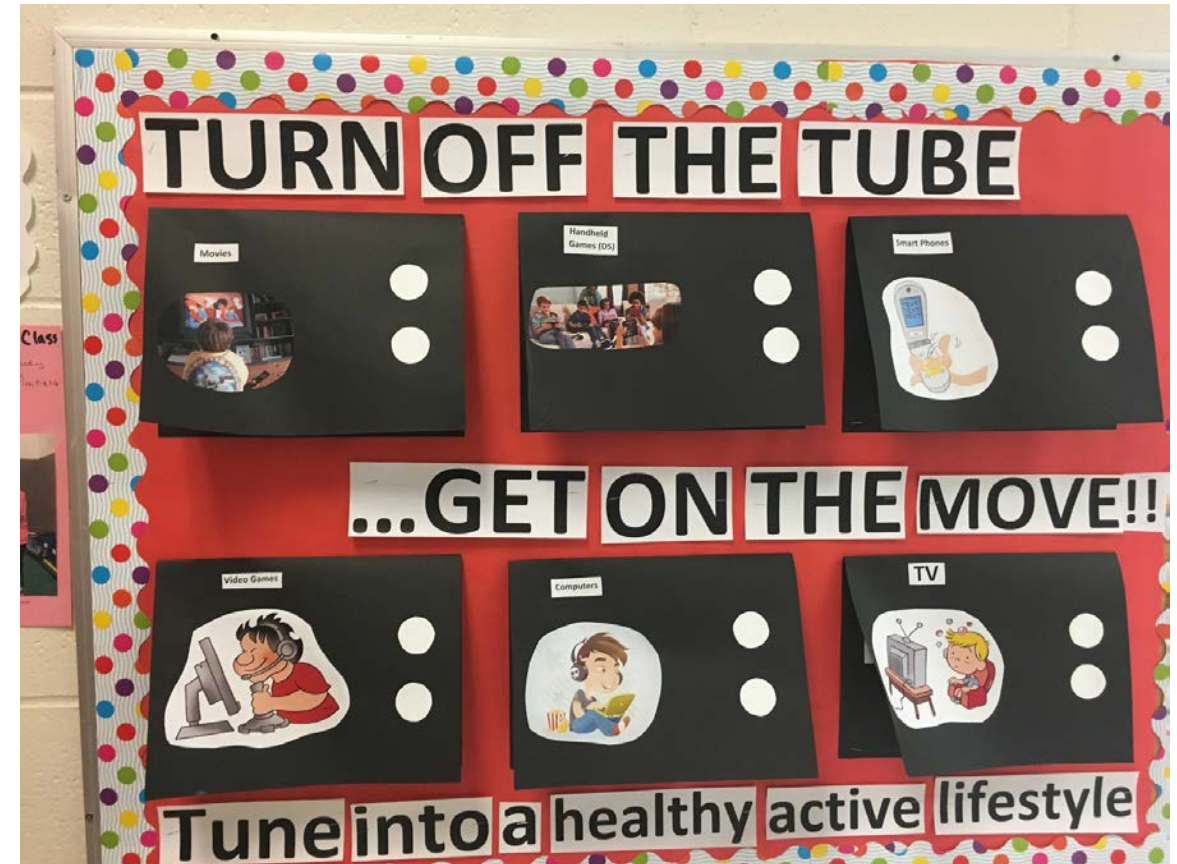
- Student Driven
- Girl Power
- Mega Boys
- Non-traditional Activities



# Monthly Campaigns

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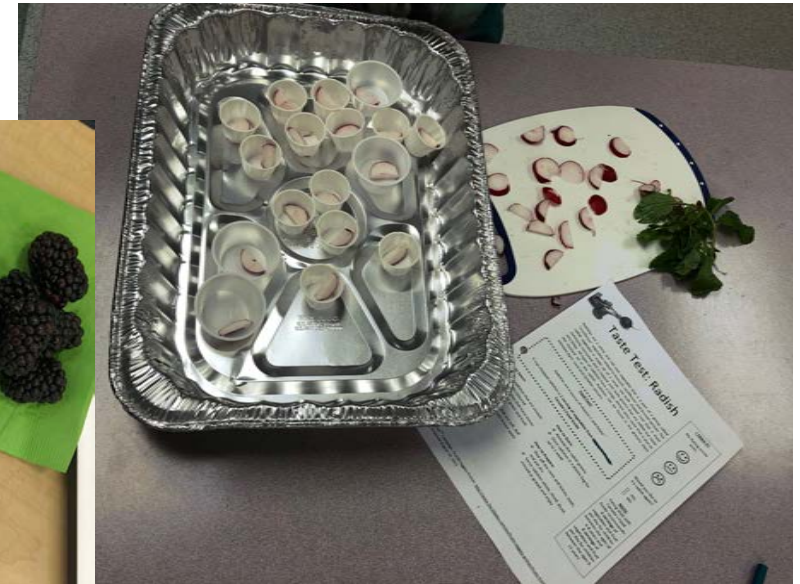
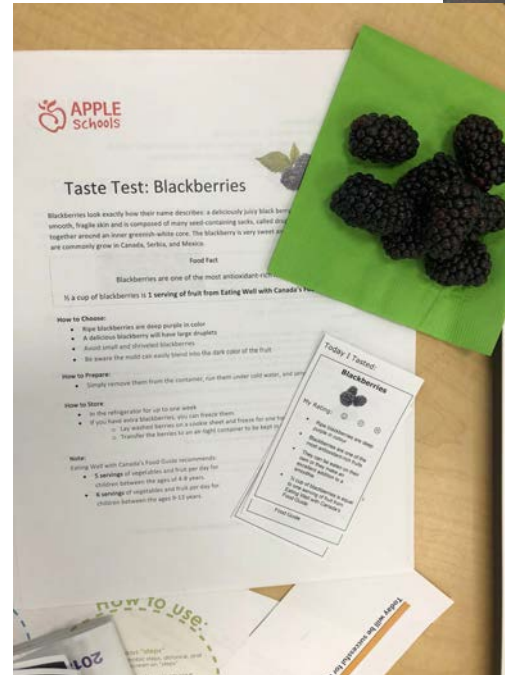
- Build awareness around healthy eating, physical activity and mental health habits



# Taste Testing

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- Increase fruit and vegetable preference and intake



# Who is *Not* There?

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# Evidence

- *“...when I meet with parents and staff here and there, they’re like, ‘Well do you have evidence? Do you have proof?’ Yeah. I do...cause then you’re going to get so much more buy-in.”*
- *“We analyze the data, we say...What’s the data telling us? How is that going to inform our planning for next year?”*



## Principals' Leadership in Comprehensive School Health

Principals have the ability to influence a school culture. In order for Comprehensive School Health (CSH) to positively impact a school community, the role of the school principal is vital.<sup>1,2</sup> Twenty-nine interviews with APPLE Schools principals led to the emergence of five stages of principal support.<sup>3</sup> The principals with the greatest success in transitioning between the stages of principal support sufficiently understood APPLE Schools, and understood the school context, had confidence in their leadership abilities, and had pre-established trusting relationships in the school.

Stages of Principal Support	Quotes From Principals
1. Priming cultural change	<i>“...it’s a huge role because you really set the vision...everybody is watching you for the leadership so you have to choose carefully the direction that you want to head”</i>
2. Advocating for cultural change	<i>“I think it’s reminding everyone about the philosophy of the school...being relentless in talking about who we are”</i>
3. Negotiating, motivating and collaborating	<i>“...you have diametrically opposed views and you need to know how to acknowledge everybody’s views but ...still keep the message clear”</i>
4. Monitoring and enabling others	<i>“...if you want people onboard...you need to approach it from a bottom up direction...you need to empower the people”</i>
5. Supporting and sustaining	<i>“... staff understand that this is not something that we can play with...we want to see [this]...in this building ten years from now.”</i>

# Evidence

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Healthy  
kids learn  
better.

## RESEARCH

## Open Access



# The combined impact of diet, physical activity, sleep and screen time on academic achievement: a prospective study of elementary school students in Nova Scotia, Canada

Erin L. Faught<sup>1</sup>, John P. Ekwaru<sup>1</sup>, Douglas Gleddie<sup>2</sup>, Kate E. Storey<sup>1</sup>, Mark Asbridge<sup>3</sup> and Paul J. Veuglers<sup>1\*</sup>

### Abstract

**Background:** Few studies have investigated the independent associations of lifestyle behaviors (diet, physical activity, sleep, and screen time) and body weight status with academic achievement. Even fewer have investigated the combined effect of these behaviors on academic achievement. We hypothesize that the combined effect of these behaviors will have a higher impact on academic achievement than any behavior alone, or that of body weight status.

**Methods:** In 2011, 4253 grade 5 (10–11 years old) students and their parents were surveyed about the child's diet, physical activity, screen time and sleep. Students' heights and weights were measured by research assistants. Academic achievement was measured using provincial standardized exams in mathematics, reading and writing, and was expressed as 'meeting' or 'not meeting' expectations as per standardized criterion. Exams were written 1 year following the measurement of lifestyle behaviors. Lifestyle behaviors were measured with self- and parental proxy reports and expressed as meeting recommendations (yes/no) for each behavior. Mixed effects logistic regression models adjusting for demographic confounders and caloric intake were used to determine the independent and combined associations.

**Results:** Meeting dietary recommendations was associated with increased likelihood of meeting academic expectations for each of math, reading and writing. Meeting recommendations for screen time and sleep was associated with meeting expectations for writing. For all three subjects, meeting additional lifestyle behavior recommendations was associated with higher likelihood of meeting expectations. Children who met 7–9 lifestyle behavior recommendations had greater than three-times the odds of meeting expectations for reading compared to those who met 0–3 recommendations (OR: 3.07, 95% CI: 2.09, 4.51), and 1.47 and 2.77 times the odds of meeting expectations in mathematics and writing, respectively. Body weight status was not associated with academic achievement.

**Conclusions:** We found that lifestyle behaviors, not body weight status, are strongly associated with student academic performance. Promoting compliance with established healthy lifestyle recommendations could improve both the health and educational outcomes of school-aged children. School-based health promotion initiatives that target multiple lifestyle behaviors may have a greater effect on academic achievement than those that focus on a single behavior.

**Keywords:** Diet, Physical activity, Sedentary behavior, Sleep, Children, School health, Epidemiology, Childhood obesity

# Evidence

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## References:

Fung, C., Kuhle, S., Lu, C., Purcell, M., Schwartz, M., Storey, K., & Veugelers, P. J. (2012). From "best practice" to "next practice": The effectiveness of a school-based health promotion in improving healthy eating and physical activity and preventing childhood obesity. *International Journal of Behavioral Nutrition and Physical Activity*, 9:27.

Tran, B. X., Ohinmaa, A., Kuhle, S., Johnson, J. A., & Veugelers, P. J. (2014). Life course impact of school-based promotion of healthy eating and active living to prevent childhood obesity. *PLOS ONE*, 9(7), 1-8.

# Evidence

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**For every \$1 spent on APPLE Schools,  
at least \$13 in future healthcare costs are avoided.**





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# ESSENTIAL CONDITIONS FOR THE IMPLEMENTATION OF COMPREHENSIVE SCHOOL HEALTH

**Core Conditions** are the conditions necessary for CSH to be successfully implemented. **Contextual Conditions** have a great degree of influence on the ability for the core conditions to be obtained.

## THE CORE CONDITIONS

### STUDENTS AS CHANGE AGENTS

Students are the heart of any CSH project and their voices, leadership, and enthusiasm creates increased engagement. Students serve as change agents through peer to peer interactions. In the home environment, students are the drivers of change and help engage parents through their buy-in.



### SCHOOL-SPECIFIC AUTONOMY

Interventions need to be customized to meet the needs of the school. Interventions should be flexible, build on the school's strengths and assets, be tailored based on school-specific evidence, and provide a sense of school ownership. Cultural considerations and diverse needs (geographical, historical and sociocultural) should be integrated.

### DEMONSTRATED ADMINISTRATIVE LEADERSHIP

School principals are seen to play an invaluable role throughout CSH implementation process and are a key stakeholder in facilitating a culture shift within a school community. The key is that principals are actively engaged, rather than merely supporters of school health champions and offering passive buy-in.

### HIGHER-LEVEL SUPPORT

Leadership and support at district and/or provincial/territorial levels sets the tone in order to prioritize CSH on the school agenda and provides opportunities for resources (time/funding) to be allocated.



### DEDICATED CHAMPION(S) TO ENGAGE SCHOOL COMMUNITY

School health champions are imperative from a leadership perspective and for getting projects up and running and on-going integration of CSH in schools. However, school health champions can sometimes become a barrier as buy-in from all school staff is crucial for sustainability.

### COMMUNITY SUPPORT

Establishing strong internal and external relationships and building partnerships with the community play a key role in the success of CSH, especially before and during implementation. Community connections (including parents/families) can help strengthen the type of programs schools are able to offer.

### QUALITY AND USE OF EVIDENCE

Evidence in the form of school-based process and outcome data, individualized school reports, and research findings are essential for planning, refining, and supporting implementation of CSH.



### PROFESSIONAL DEVELOPMENT

Professional development and training prior to implementation is key for understanding the project and building self-efficacy. Ongoing PD is essential for strengthening knowledge and skills needed to support the success of CSH.

## THE CONTEXTUAL CONDITIONS

### TIME



Enough time needs to be dedicated for implementation and success. Allotting time allows for CSH to be viewed as an embedded part of the school's culture.

### READINESS AND UNDERSTANDING

A clear understanding of CSH and why it's important can support readiness which creates a willingness for implementation.

### PRIOR COMMUNITY CONNECTIVITY

Trusting relationships help stakeholders build competency, enthusiasm, and ownership, which can lead to a more natural implementation.

### FUNDING AND PROJECT SUPPORT

Sustainable funding and support from CSH project staff greatly contribute to the facilitation of implementation.

# Evidence – Students as Change Agents

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*“Sometimes people hate stuff that they never tried, and then once they try it they like it, so sometimes they pack it for lunch ‘cause they like it. Which I did, ‘cause I used to hate bananas...We had a banana snack at school and I didn’t really like it but I just tried it and then I just liked it.”*

# Evidence – Students as Change Agents

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(Figure to be presented)

# Evidence – School-Specific Autonomy

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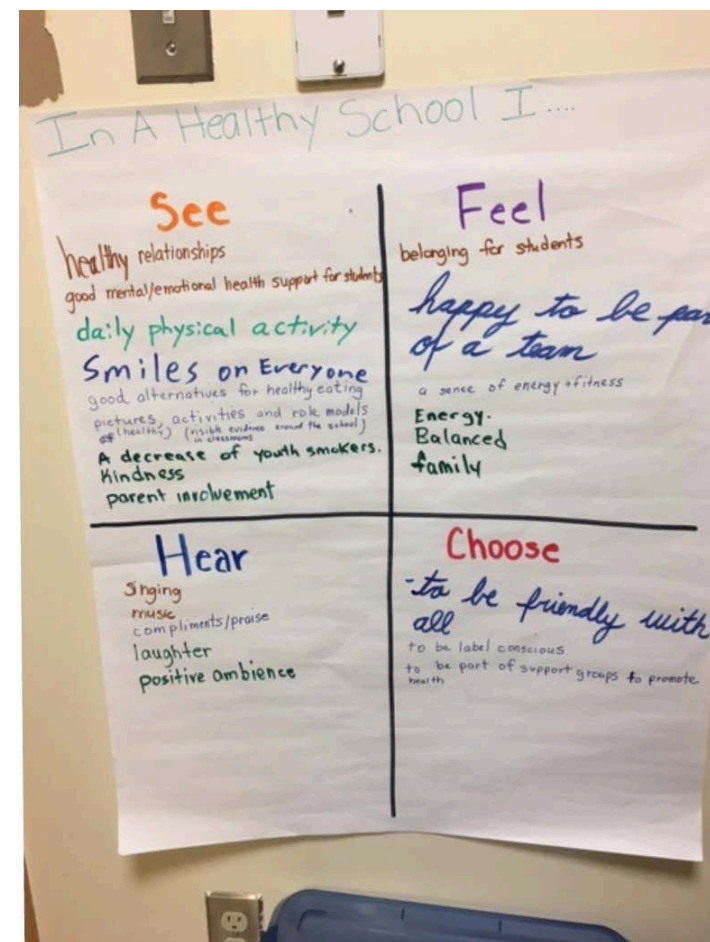
Binders,  
binders,  
binders...

Resist the binder!  
Autonomy is necessary!



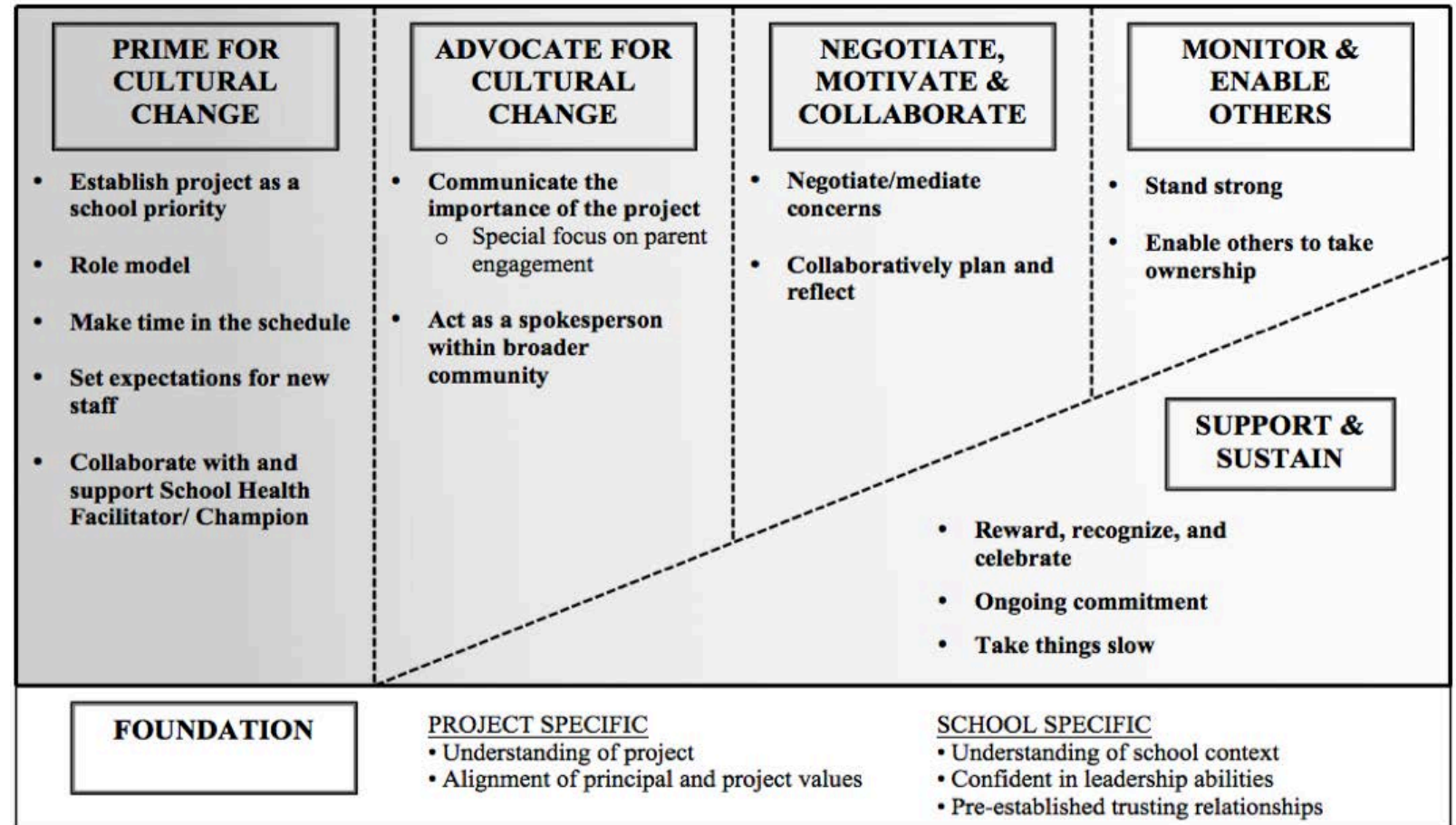
# Evidence – School-Specific Autonomy

*“Not every school is going to have the same way of doing things [or have] the same issues and needs...so if you can be flexible enough and respond to the things that are happening in the school, you’re in. I think the project is more beneficial that way.”*



# Evidence – Administrative Leadership

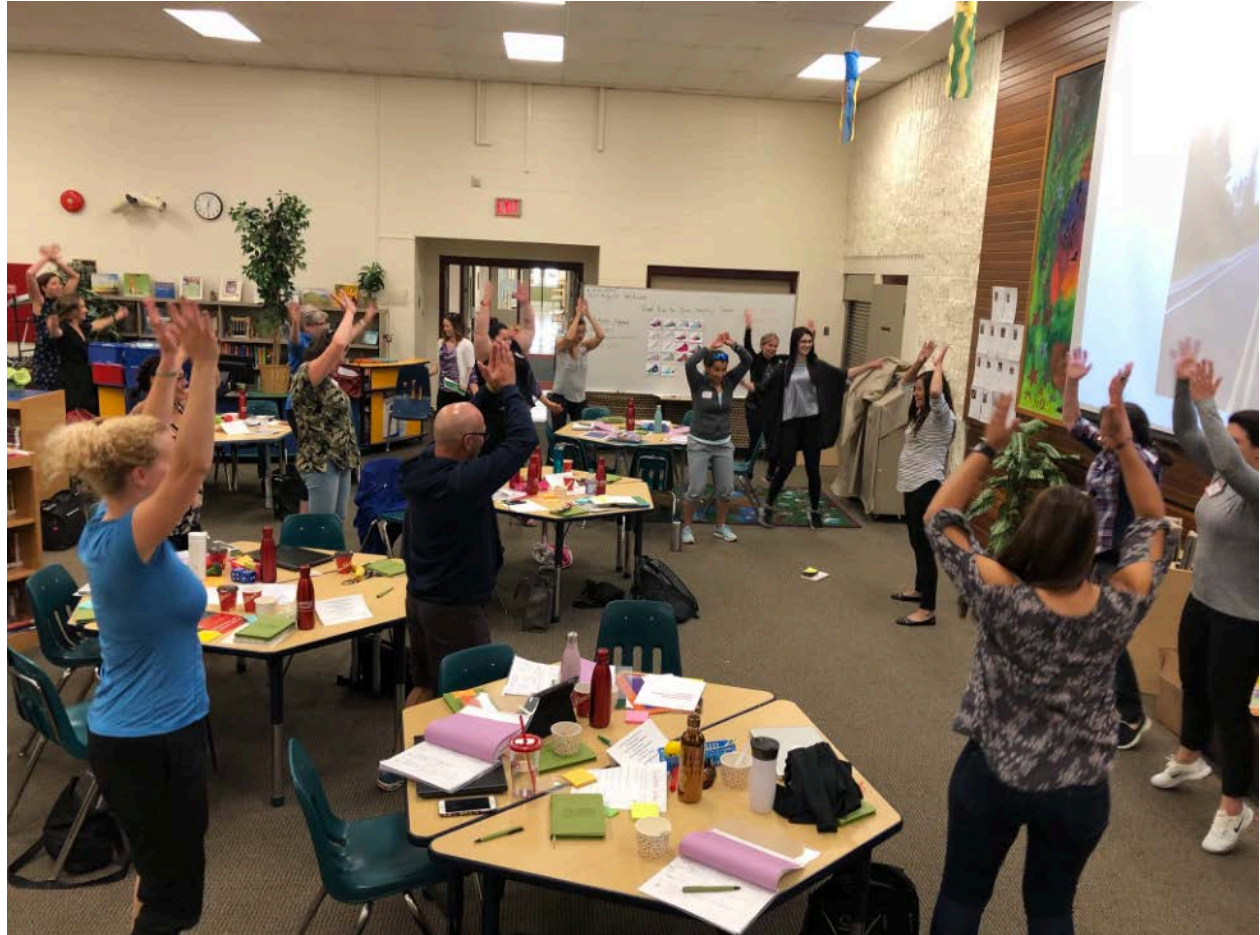
Regardless of the presence of other champions in the school community, the principal is imperative for CSH implementation in order to shift the school culture



# Evidence – Professional Development

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Building confidence was as important as building competence





# Evidence – More! [appleschools.ca/scientificpublications](http://appleschools.ca/scientificpublications)



The screenshot shows the top navigation bar of the APPLE Schools website with the logo on the left and menu items: ABOUT, SCHOOLS, EVIDENCE, NEWS, RESOURCES, FUNDERS, CONTACT. Below the navigation is a large photograph of two young children holding green leafy plants. The main content area features a section titled 'Scientific Research Papers' with a paragraph of text and a list of categories on the right.

**APPLE Schools**

ABOUT SCHOOLS EVIDENCE NEWS RESOURCES FUNDERS CONTACT

**Scientific Research Papers**

APPLE Schools is nationally and internationally recognized as an exemplary school health promotion project. The prestigious National Cancer Institute has listed APPLE Schools on its [Research-Tested Intervention Programs \(RTIP\) database](#) webpage. Inclusion on this website is a result of scientific publications about APPLE Schools written by University of Alberta researchers. Download this list with APA citations [here](#).

- Evidence
- Evaluation
- Knowledge Translation
- Scientific Publications**

# Questions?

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