

Parents' and Pupils' Perceptions towards the Implementation of Physical Education Homework in a Hong Kong Primary School

探討家長與學生對小學推行體育家課的反應

NG Siu Kuen Robert

*Physical Education Unit, Faculty of Education,
The Chinese University of Hong Kong, HONG KONG*

SUM Kim Wai Raymond

*Department of Sports Science and Physical Education, Faculty of Education,
The Chinese University of Hong Kong, HONG KONG*

NG Ching Kong HO Shui Cheung

LAM Wai TANG Wai Man

Stewards Pooi Kei Primary School, HONG KONG

吳兆權

香港中文大學體育部

沈劍威

香港中文大學體育運動科學系

黃清江 何瑞祥 林威 鄧偉文

培基小學



Abstract

The implementation of Physical Education homework (PEHW) is new in Hong Kong. We examined the perception differences between a) parents and students; b) boys and girls towards PEHW in a primary school. Ninety students and 56 parents responded to a questionnaire after the completion of 1-week structured or unstructured compulsory PEHW daily which included aerobic, muscular and flexibility workout. T-test results showed that the students stated significantly lower levels of agreement than their parents regarding enjoyment of doing PEHW and the further organization of different PEHWs in school. No significant perception differences were reported between boys and girls towards the PEHW ($p>0.05$). Lack of time is the most frequently reason reported by the students and their parents as their intrapersonal barrier to participate in PEHW. Some incentives were suggested to promote the participation of PEHW. The present study suggests implementing PEHW with a reward scheme in Hong Kong.

Keywords: Physical Education homework, parents, school children, Hong Kong

摘要

小學四至六年級的學生完成一週強制性體育家課後，九十名學生和五十六名家長交回問卷回收率分別達94.2%和51.9%。T形檢驗結果顯示家長較學生贊成學校繼續組織及推行不同類型的體育家課。男女學童對體育家課的接受程度和各方面的反應是無明顯分別的。在開放式問題中，時間不足是最對學生參與體育家課的最大個人障礙。最後有多於三分之一的學生完成了餘下三週非強制性的體育家課。提議體育家課與獎勵計劃一起推行。

關鍵字：體育家課、小學生、家長、香港

Introduction

Physical activity (PA) is defined as any physical movement resulting from skeletal muscle contraction (Goran, 1998). Regular PA provides children with important physical, mental, and social health benefits that are well-documented (Department of Health, 2004). It improves gross and fine motor skill development that are necessary for improved academic performance such as writing, self-perceived academic and athletic competence as well as increasing socio-emotional adjustment and self-esteem (Emck, Bosscher, Beek, & Doreleijers, 2009). PA in groups and games also have social health benefits as they offer children opportunities to learn new skills (Bailey, 2005) while developing friendships (Hansen, Larson, & Dworkin, 2003). Despite these benefits, a territory-wide community fitness survey in Hong Kong reported that the majority of school children do not have the recommended 60 minutes per day of PA (Census and Statistics Department, CSD, 2013a). The survey results revealed that only 9.5% of boys and 7.0% of girls in the 7 to 12 age group were classified as physically active according to the classification of PA participation by age group in the "2008 Physical Activity Guidelines for Americans" Note 1. The situation will worsen as screen-based, sedentary activity choices continue to increase and dominate their leisure time (CSD, 2013a).

The influence of family appeared to be one of the important factors determining the participation in PA in children (Alderman, Benham-Deal, & Jenkins, 2010; Davison, 2009; Gustafson & Rhodes, 2006; Hsu, 2011). Researches had identified several essential family determinants, such as parental support (Belanger-Gravel & Godin, 2010; Martin & Dubbert, 1982), parental education (Sunnegardh, Bratteby, & Sjolín, 1985), parents' PA level (CSD, 2013b; Gottlieb & Chen, 1985; Moore et al., 1991) and parents' exercise perceptions (CSD, 2013b; Godin & Shephard, 1984; Welk, Wood, & Morss, 2003). A meta-analytic review reported that the likelihood of a child or adolescent to be active was nearly 2 times greater with supportive parents than without supportive parents (Pugliese & Tinsley, 2007). Nevertheless, there were barriers that hindered parental support for children's participation in PA. The top barriers were children's academic performance, time constraints, insufficient facilities and safety concerns (Daskapan, Handan, & Eker, 2006; Davison, 2009). It was reported that the greater the barriers experienced, the lower the parental support for PA.

Schools can provide a significant source of PA for youth by: allotting more Physical Education (PE) periods; increasing amount of moderate to vigorous PA in PE lessons; providing fitness breaks during recess time; integrating PA throughout the school day; and providing PA opportunities before and after school (Cox et al., 2011; Institute of Medicine of the National Academies, 2004; Pate et al., 2006). The introduction of PE homework (HW) assignments may also help school children to be active outside of school. The major objectives of introducing PEHW assignments to school children are to 1) increase their PA level; 2) promote their PA participation outside of the PE class; 3) promote PA participation with their family member(s); 4) develop physically active lifestyles with engagement in regular PA. However, when the PEHW is inappropriately assigned in terms of quality and quantity, it may be perceived as a kind of punishment or as busy-work and it will result in a negative effect.

Note 1 "2008 Physical Activity Guidelines for Americans": "Active" children are defined as those who have an accumulation of at least 60 minutes of physical activities of moderate or above intensity per day for 7 days a week.

The literature on PEHW began in the late 1950s (Daughtrey, 1959), was addressed in the 1970s (Thompson, 1972), the 1990s (Docheff, 1990) and the 2000s (Gabbei & Hamrick, 2001; Hart, 2001; Jorgenson, George, Blakemore, & Chamberlain, 2001; Kulinna & Krause, 2001; Mitchell, Barton, & Stanne, 2000; Mitchell, Stanne, & Barton, 2000; Smith & Claxton, 2003). The United States Center for Disease Control and Prevention (CDCP, 1997) sought to 'promote participation in PA at home by assigning HW that students can do on their own or with family members' (p.15). Studies reported that parents and students expressed two distinct views towards PEHW, some studies found support from both parents and students for incorporating PEHW (Smith & Claxton, 2003; Smith, Cluphf, & O'Connor, 2001, Smith et al., 2007), while others reported that more than 70% of the parents did not support implementing PEHW in school (Tannehill, Romar, & O'Sullivan, 1994). A recent research by Pantanowitz, Lidor, Nemet and Eliakim (2011) investigated the attitude and compliance towards HW assignments in PE among 95 Israeli grade 11 and 12 high school students and their parents. They found that more than half of the students and the majority of their

parents supported the idea of assigning HW assignments in PE. In Hong Kong, there is no tradition for the use of PEHW assignments. To the author's knowledge, no research has investigated the response to possible implementation of HW assignments in PE among students and their parents in Hong Kong.

Understanding the perception of students and their parents after participation in 1-week compulsory HW assignments in PE provides useful information for developing appropriate interventions aiming at implementing PEHW in Hong Kong. The purpose of this study is to examine 1) the perception difference between a) students and their parents; b) boys and girls towards PEHW after the implementation of 1-week compulsory PEHW in a primary school; 2) the desire to and subsequent actual participation in a following 3-week optional PEHW; 3) the factors affecting their intention to participate the following 3-week optional PEHW.

Method

Procedure

The study was conducted between April and May 2013 in an aided, coeducation, Christianity-based primary school located in an urban area. It consisted of 1-week compulsory followed by 3-week optional PEHW. One out of four classes was randomly selected from primary 4 to 6. The consent forms along with a letter explaining the study were signed by the parents of all participating children. A PE logbook was designed based on the following considerations: 1) It consists of activity that helps to enhance and maintain aerobic capacity, muscular strength, flexibility and bone health; 2) it is in line with the recommendations of Community Sports Committee to engage in PA of moderate or vigorous intensity for an accumulation of 30 minutes a day for at least three days a week (CSD, 2013a); 3) it makes PEHW assignments fun; 4) the PEHW assignments are unstructured and allow students to choose their own activities; 5) the PEHW provides different, appropriate levels of difficulty for students so that they can be challenged; 6) no specific equipment is needed; 7) students complete the assignment within 30 minutes. Finally, each student was provided the PE logbook, which included 1) the safety concerns; 2) the procedure for the PEHW assignment; 3) space to record the completed activities; and 4) requests for signature by their parents to verify completion.

The completed logbooks were collected at the end of the 3-week optional PEHW to record the degree of completion.

Instrumentation

Two questionnaires in Chinese (one for students and one for their parents) were designed specifically for the purpose of this study. Some questions and variables were adapted or taken from pre-existing questionnaires while others were created by the research team. Parent characteristics were collected such as their gender, marital status, monthly household income, level of education, parental PA behaviours and attitudes, number of children studying in primary and secondary school and employment of any domestic helpers working at their home. The average time spent on the HW assignments in PE and other subjects, and who the PEHW assignment was completed with was also reported. Both the students and their parents were asked to indicate the level of agreement from 1 (strongly disagree) to 6 (strongly agree) such as 1) parental support to participate PA; 2) the HW assignment in PE is benefit to our health in long term; 3) school should organize different kinds of PEHW to us; 4) I (My child) felt enjoyable when doing the PEHW; 5) PEHW did not affect the completion of other HW; 6) PEHW did not affect the revision of other subjects; 7) it is worth it to continue the implementation of PEHW in school; 8) I intend to complete the following 3-week optional PEHW; 9) my (my child's) interest in participating in PA increased; 10) I did not feel antipathy towards PEHW; 11) I actively participate in PA; 12) I did not think doing PEHW is waste of time; 13) PEHW should not be further implement in school; 14) there is benefit to do PEHW. Three open ended questions were asked 1) their perceived main barriers to complete the PEHW; 2) how to motivate the completion of the following 3-week optional PEHW; 3) other comments. Five boys and four girls from primary 4 to 6 with mean age (SD) of 10.78 years (0.97) were selected randomly to assess the reliability of the questionnaire for students. They were asked to complete the questionnaire twice, with a week gap between each testing, after the completion of the one-week PEHW assignment. The 1-week test-retest reliability coefficient of the questionnaire for student ranged from 0.67 to 0.91.

Participants

A total of 104 students from primary 4 to 6 participated in the PEHW. Data collection involved child survey completed during class-time and parent survey completed unsupervised at home. Ninety-eight students and 59 parents returned the questionnaire after the completion of 1-week compulsory PEHW, representing 94.2% and 56.9% response rate respectively. Any implausible responses were checked and excluded in the condition that the differences between the responses of question number 7 and the recoded question number 13 was more than one. Finally, data from 90 students [44 boys (mean age = 10.5 ± 1.1 years old; BMI = 19.6 ± 6.6 kg/m²) and 46 girls (mean age = 10.6 ± 0.8 years old; BMI = 16.7 ± 2.7 kg/m²)] and 57 parents (14 men and 43 women; BMI = 22.0 ± 3.1 kg/m²) were used for further analysis.

Data Analysis

All statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS Version 20.0). A series of independent samples t-tests were carried out to examine any significant perception differences on the PEHW assignment 1) between students and their parents; 2) between boys and girls; 3) between students who desired and did not desire to complete the 3-week optional PEHW. Chi Square analyses were conducted to test their intention to complete the 3-week optional PEHW relative to 1) their gender; 2) any accompanies when doing PEHW; 3) their parents' educational level. Significance of the analysis was set at an alpha of p < 0.05.

Results

The results showed (in Table 1) the majority of students (81.2%) spent less than 2 hours on completing the HW of other subjects. The vast majority of students (85.6%) took less than 30 minutes to complete the PEHW. More than half of the students (56.7%) completed the PE assignments with partner(s).

Table 1. The Situation of Students Completing the 1-week Compulsory PEHW (n = 90).

The average time per day spent on other HW	Percentage
< 1 hour	45.6%
1 hour to < 2 hours	35.6%
2 hours to < 3 hours	14.4%
More than 3 hours	4.4%
The average time per day spent on the implementation of PEHW	
< 10 minutes	17.8%
10 minutes to < 20 minutes	42.2%
20 minutes to < 30 minutes	25.6%
30 minutes to < 40 minutes	7.8%
≥ 40 minutes	6.6%
Who the PEHW assignment was completed with?	
Mother	15.6%
Father	10.0%
Father and mother	10.0%
Other family members (brothers, sisters, grand ma or grand pa)	11.1%
All family members	5.6%
Friend(s)	3.3%
Domestic helper	1.1%
No other person	43.3%

Table 2 displays that about three-quarters of the parents (75.4%) responding to the questionnaires were women. More than three-quarters (77.2%) of the families had monthly income above HK\$30,000 which is more than the median monthly domestic household income for 2012 (\$20,700) as stated in the report (CSD, 2013b). Twenty-six respondents (45.7%) reported that they

had completed secondary school education. About half of the parents (49.1%) had two children studying in school. More than two-fifths of the families (42.1%) had domestic helper working at home. Most of the students (87.7%) reported that they currently engaged in some form of PA. More than two-fifths of mothers (43.4%) did not engage in any PA currently (see Table 3).

Table 2. The Demographic Information of the Parents and Family.

Parent's gender		
	male	24.6%; n = 14
	female	75.4%; n = 43
Age group		
	35 - < 40	17.6%; n = 10
	40 - < 45	36.8%; n = 21
	45 - < 50	35.1%; n = 20
	50 - < 55	10.5%; n = 6
BMI	mean ± SD	21.0 ± 3.1 kg/m ²
No. of child(ren) studying in school		
	1	47.4%; n = 27
	2	49.1%; n = 28
	3	3.5%; n = 2
Marital Status		
	married	98.2%; n = 55
Education level		
	Secondary school	45.7%; n = 26
	Post-secondary	26.3%; n = 15
	University	14.0%; n = 8
	Post-graduate	14.0%; n = 8
Hired domestic helper		
	Yes	42.1%; n = 24
	No	57.9%; n = 32
Monthly household income		
	HK\$10,000 - < HK\$30,000	22.8%; n = 13
	HK\$30,000 - < HK\$100,000	63.2%; n = 36
	≥ HK\$100,000	14.0%; n = 8

Table 3. The Past and Present PA Participation Behaviour of Students and their Parents.

The PA situation	Do not practice now nor have practiced in the past	Do not practice now but practiced in the past	Practice now, but did not practice in the past	Practice now and practiced in the past	Not Applicable
Boys	1.1%	2.2%	5.5%	38.9%	0%
Girls	3.3%	4.5%	8.9%	35.2%	0%
Father	13.3%	14.4%	13.3%	52.2%	6.8%
Mother	25.6%	17.8%	18.8%	30.0%	7.8%

A series of independent samples t-tests were conducted to examine any perception differences in the level of agreement between students and their parents concerning the HW assignment in PE. Results show that there were significant perception differences between students and their parents regarding 1) whether schools should organize different kinds of PEHW, $t(144) = -3.66$, $p < 0.01$; 2) whether the respondent enjoyed doing the PEHW, $t(144) = -2.56$, $p < 0.05$; 3) whether it is worth it to continue implementation of PEHW in school, $t(144) = -3.18$, $p < 0.01$; 4) whether the respondent felt antipathy towards HW assignment in PE, $t(143) = 2.64$, $p < 0.01$.

On a scale of 1 to 6, parents reported the highest and the lowest level of agreement towards PEHW (mean \pm SD) with “I did not feel antipathy towards HW assignment in PE (5.16 ± 1.12)” and “PEHW did not affect the completion of other HW (4.18 ± 1.43)” respectively. While students expressed the highest and the lowest level of agreement towards PEHW (mean \pm SD) with “PEHW is benefit to our health in long term (4.72 ± 1.51)” and “It is worth it to continue the implementation of PEHW in school (3.54 ± 1.73)” respectively (see Table 4).

Table 4. The Responses of Parents and Students towards PEHW (level of agreement; 1 = the least; 6 = the most).

	General feelings about HW assignments in PE	Mean \pm SD
Parents	I support my child to participate PA.	4.48 \pm 1.28
Students	Parental support to participate PA.	4.33 \pm 1.40
Parents	PEHW is benefit to our health in long term.	5.05 \pm 1.05
Students	PEHW is benefit to our health in long term.	4.72 \pm 1.51
Parents	School should organize different kinds of PEHW.	4.63 \pm 1.14
Students	School should organize different kinds of PEHW.	3.60 \pm 1.90**
Parents	When doing the PEHW, my child felt enjoyable.	4.27 \pm 1.18
Students	When doing the PEHW, I felt enjoyable.	3.60 \pm 1.71*
Parents	PEHW did not affect the completion of other HW.	4.18 \pm 1.43
Students	PEHW did not affect the completion of other HW.	4.26 \pm 1.65
Parents	PEHW did not affect the revision of other subjects.	4.45 \pm 1.36
Students	PEHW did not affect the revision of other subjects.	4.46 \pm 1.51
	After completed the 1-week PEHW,	
Parents	it is worth to continue the implementation of PEHW in school.	4.39 \pm 1.26
Students	it is worth to continue the implementation of PEHW in school.	3.54 \pm 1.73**
Parents	I support my child to complete the following 3-week optional PEHW.	4.16 \pm 1.28
Students	I intended to complete the following 3-week optional PEHW.	3.88 \pm 1.68
Parents	my child increased the interest to participate the PA.	4.25 \pm 1.31
Students	my interest to participate the PA was increased.	4.20 \pm 1.74
Parents	My child actively participate PA.	4.48 \pm 1.38
Students	I actively participate PA .	4.57 \pm 1.59
Parents	I did not feel antipathy towards HW assignment in PE.	5.16 \pm 1.12
Students	I did not feel antipathy towards HW assignment in PE.	4.50 \pm 1.64**
Parents	I did not think doing HW assignment in PE is waste of time.	4.95 \pm 1.24
Students	I did not think doing HW assignment in PE is waste of time.	4.48 \pm 1.62
Parents	there is benefit to do HW assignment in PE.	4.75 \pm 1.32
Students	there is benefit to do HW assignment in PE.	4.70 \pm 1.50

Results of independent samples t-test

* $p < 0.05$; ** $p < 0.01$

Results of independent samples t-tests (Table 5) showed that there were no significant perception differences between boys and girls concerning the PEHW ($P > 0.05$). Chi-square analysis indicated that there was no significant association of students' gender ($X^2 = .359$, $df = 1$, $p = 0.549$), whether exercise was performed alone or with a partner/partners ($X^2 = .989$, $df = 1$, $p = 0.320$), educational level of parents ($X^2 = 19.333$, $df = 15$, $p = 0.199$), the employment of a domestic helper ($X^2 = .5680$, $df = 5$,

$p = 0.339$), or the family monthly income ($X^2 = 4.727$, $df = 10$, $p = 0.909$) with their intention to complete the following 3-week optional PEHW. More than two-thirds of students (62.2%; $n = 56$; boys: 59.1%; $n = 26$; girls: 65.2%; $n = 30$) desired to participate the 3-week optional PEHW. After evaluating the completed logbook, more than one-third (37.8%; $n = 34$) of students (boys: 36.4%; $n = 16$; girls: 39.1%; $n = 18$) completed the 3-week optional PEHW.

Table 5. The Responses to PEHW of Different Genders of Students (level of agreement; 1 = the least; 6 = the most).

	Boys (n = 46)	Girls (n = 44)
General feelings about PEHW	Mean ± SD	Mean ± SD
Parental support to participate in PA.	4.45 ± 1.27	4.22 ± 1.50
HW assignment in PE is benefit to our health in long term.	4.84 ± 1.54	4.61 ± 1.48
School should organize different kinds of HW assignment in PE.	3.68 ± 1.85	3.52 ± 1.95
When doing the HW assignment in PE, I felt enjoyable.	3.70 ± 1.73	3.50 ± 1.71
HW assignment in PE did not affect the completion of other HW.	4.23 ± 1.64	4.28 ± 1.67
HW assignment in PE did not affect the revision of other subjects.	4.59 ± 1.47	4.33 ± 1.55
After completed the 1-week HW assignment in PE,		
it is worth it to continue the implementation of PEHW in school.	3.52 ± 1.76	3.57 ± 1.72
I intended to complete the following 3-week optional PEHW.	3.82 ± 1.67	3.93 ± 1.71
I actively participate in PA.	4.82 ± 1.50	4.33 ± 1.65
my interest to participate in PA was increased.	4.41 ± 1.72	4.00 ± 1.75
I did not feel antipathy towards HW assignment in PE.	4.48 ± 1.64	4.52 ± 1.67
I did not think doing PEHW is waste of time.	4.16 ± 1.85	4.78 ± 1.30
PEHW should be further implement in school.	4.18 ± 1.81	4.39 ± 1.56
there is benefit to doing HW assignment in PE.	4.68 ± 1.70	4.72 ± 1.29

Table 6. Barriers for Participating PEHW among Students.

Barriers	Responses
No barrier	34 (36%)
Intrapersonal barriers	
Lack of time	39 (41%)
Lack of energy	7 (7%)
Lack of interest	6 (6%)
Health issue	4 (4%)
Safety concern	3 (3%)
Interpersonal barriers	
Physical barriers - lack of equipment/space	2 (2%)
No partner	1 (1%)

Note: Numbers in parentheses represent the percentage of total responses

Table 7. Suggestions Provided by Students to Motivate PEHW Participation.

Suggestions	Responses
No suggestion	35 (37%)
Rewards (money, gift or encouragement)	21 (22%)
To improve health	9 (10%)
Find a partner	7 (7%)
Provide more choice of exercises	7 (7%)
Provide more challenging exercises	5 (5%)
Less homework in other subjects	5 (5%)
Good time management	3 (3%)
Educate me in the benefits of exercise	2 (2%)
Make it compulsory	2 (2%)

Note: Numbers in parentheses represent the percentage of total responses

Table 8. Comments Suggested by Students.

Other comments
The exercise intensity is too high.
The PEHW does not increase my interest in exercise, it makes me hate PE.
PEHW assignment is beneficial to both active and sedentary students. Doing exercise will become their habit through the implementation of PEHW.
Too many activities involved in PEHW.
This is a very good plan.
The PEHW is too boring! I like doing other activities like riding a bicycle.
PEHW can make me healthy.
I want to have more PEHW.
I hate doing PEHW!
Less PEHW.
Don't be so boring and easy.
Doing exercise is good for our health, but I don't have time to do it. I will be happy if my parents do it with me.

Table 9. Barriers for Participating PEHW among Students Suggested by their Parents.

Barriers	Responses
Intrapersonal - Lack of time	9 (60%)
Intrapersonal - Lack of energy	3 (20%)
Intrapersonal - Lack of interest	3 (20%)

Note: Numbers in parentheses represent the percentage of total responses

Table 10. Suggestions Provided by Parents to Motivate their Child's PEHW Participation.

Suggestions	Responses
Rewards (money, gift, certificate or encouragement)	7 (35%)
Do exercise with him/her	6 (30%)
Reminded by teachers and parents	5 (25%)
More choice of exercises	1 (5%)
Educate students about the benefits of exercise	1 (5%)

Note: Numbers in parentheses represent the percentage of total responses

Table 11. Comments Suggested by Parents.

Thank school for implementing the PEHW
School can implement a variety of activities in PEHW
Don't like PEHW

In the open ended questions, it is noted that lack of time is the most frequently reported intrapersonal barrier by both students and their parents (see Tables 6 and 9). Students and their parents expressed two distinct views towards PEHW in Table 8 and 11. They also suggested some incentives in order to promote the participation of HW assignment in PE after school (see Tables 7 and 10).

Discussion

The present study examined the responses of students and their parents towards PEHW after implementing a 1-week PEHW assignment in a primary school. The vast majority of them agreed or strongly agreed that the implementation of PEHW assignments is beneficial to their health in the long-term. It is encouraging to note that awareness of the importance of physical activity was observed from both students and their parents. When compared with the neutral responses (mean value falls between 3.5 and 3.6) from students, their parents showed a stronger agreement that their children enjoyed doing the HW assignment in PE, and that the school should continue to implement and organize different kinds of PEHW. The majority of parents also expressed positive responses towards PEHW. This finding was in line with the other previous studies that parents supported the provision of PEHW (Pantanowitz, Lidor, Nemet, & Eliakim, 2011; Smith & Claxton, 2003; Smith, Cluphf, & O'Connor, 2001, Smith et al., 2007). In the present study, the majority of families have two working parents or single parents that do not have time to engage in activity with their children, the after-school programming is thus beneficial to the health of their children. We found that there were fewer girls who engaged in PA as compared to boys. This gender difference might be due to differences in motor skill development and freedom to play independently outside the home (Sweeting, 2008). Girls also exhibited more sedentary behaviour than boys. This may be due to the nature and culture of Chinese society, where females are expected to place great emphasis on family functions and household responsibilities.

It is worth noting that the majority of boys and girls reported that they had become more interested in engaging in PA after their participation in the 1-week compulsory PEHW. About three-fifths of students (62.2%) desired to complete the 3-week optional PEHW. However,

only about one-third of students (37.8%) completed the 3-week optional PEHW. It is interesting to find that more girls who expressed an intention to participate in the 3-week optional PEHW subsequently successfully completed it, as compared to boys, although the girls expressed less enjoyment when doing the HW assignment in PE. The reason for this difference is not known, it may be due to the fact that boys did not find the HW challenging enough to motivate them to complete the 3-week optional PEHW. Girls may also be more likely to accept HW when they recognize it as something that is valuable, non-competitive, easily completed and does not take much time. The underlying reasons are worth further investigation. It reflected that being physically active was an intrinsic reward for those who intended to complete the HW without any incentives. The desire to participate in the 3-week optional PWHW was not affected by students' gender, accompanying partner/partners in exercise, parental education or income level, indicating that other factors are influencing their intention to participate in PEHW. The factors affecting their voluntary participation is an area worthy of further exploration.

Children's perceived main barriers to completing the HW assignment in PE were mainly intrapersonal in nature, such as a lack of time and being physically unfit. This finding was in line with the barriers listed in the territory-wide community fitness survey (CSD, 2013a) that Hong Kong children reported being "not interested", "lazy" and having "lack of spare time" as their three major barriers to sports activities participation. It also reflects less self-determination among the school children when considering barriers for exercise from the perspective of self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000). A lack of time implies that school children are externally motivated to participate in exercise (low self-determination). This finding reinforced the suggestions given by the students and their parents in the open-ended questions that they would have greater intention to complete the follow 3-week optional PE assignments if there were extrinsic rewards such as gifts or financial rewards. In contrast with the findings of Ng (1998) discussing the marginal PE status in Hong Kong, in the present study, there is no comment from the students and their parents stating that they emphasized academic goals more than PA engagement in PEHW. Other studies also reported that the top barriers that hindered parental support for children's participation in PA were children's academic performance, time constraints, facility

availabilities and safety concerns (Daskapan, Handan, & Eker, 2006; Davison, 2009).

Limitations of this study are the cross-sectional study design, self-reported questionnaire, the briefness of the survey questions to assess parental and child perceptions and child intention, and the small sample size that did not allow for more subtle stratifications by gender. Trusting students to complete their HW assignment in PE honestly is also an issue faced in the present study. There was no mechanism to check for completion of PE assignments except the verification by their parents. Another problem was the inability to make an individualized exercise prescription according to the interests and fitness level of each student. Despite these limitations, this is the first research of its kind performed in Hong Kong. Future research should build on these preliminary findings and explore whether and how the experience of 1-week compulsory PEHW affects the decision to start and complete the 3-week optional PEHW through qualitative exploration and quantitatively in larger sample sizes using a variety of activities. Besides this, an area for further exploration is whether the completion of the optional PEHW voluntarily affects engagement in health-related exercise in the future.

Conclusions

One of the aims of introducing PEHW to students is to lead them to pursue a physically active lifestyle outside of school. The benefits of such HW include increased skill practice, time spent being physically active, and communication with parents, as well as meeting the PA recommendations by the Department of Health (2011). Despite the small sample size and that only one school was tested, the results of the present pilot study show that implementing PEHW in Hong Kong primary schools is beneficial as it can serve as a tool to engage students and their parents in PA. Launching of a reward scheme which provides concrete rewards such as gifts, certificates and/or credit added to the subject grade will also increase their desire to participate in PEHW.

Acknowledgements

I would like to express my great appreciation to students, parents, teachers and principal who participated in the study. Special thanks go to Mr. Nelson Corey Andrew for his comments of the manuscript. This research was supported by Summer School for Physical Education Teachers cum Action Research: An Active Generation (2013-14) (Education Bureau, HKSAR)

References

- Alderman, B.L., Benham-Deal, T.B., & Jenkins, J.M. (2010). Change in parental influence on children's physical activity over time. *Journal of Physical Activity and Health, 7*(1), 60–67.
- Bailey, R. (2005). Evaluating the relationship between physical education, sport and social inclusion. *Educational Review, 57*(1), 71–90.
- Belanger-Gravel, A., & Godin, G. (2010). Key beliefs for targeted interventions to increase physical activity in children: analyzing data from an extended version of the theory of planned behaviour. *International Journal of Pediatrics, 1*-7.
- Census and Statistics Department (2013a). Healthy exercise for all campaign - physical fitness test for the community. *Hong Kong Monthly Digest of Statistics*, Hong Kong Special Administrative Region.
- Census and Statistics Department (2013b). *Hong Kong: The facts*. Retrieved on 7 May 2015 at <http://www.gov.hk/en/about/abouthk/factsheets/docs/population.pdf>
- Center for Disease Control and Prevention (1997). Guidelines for school and community programs to promote lifelong physical activity among young people. *Morbidity and Mortality Weekly Report, 46*, 1–36.
- Cox, L., Berends, V., Sallis, J.F., St. John, J.M., McNeil, B., Gonzalez, M., & Agron, P. (2011). Engaging school governance leaders to influence physical activity policies. *Journal of Physical Activity and Health, 8*(Suppl 1), S40–S48.

- Daughtrey, G. (1959). Homework in physical education. *Journal of Health, Physical Education, and Recreation*, 30(7), 23.
- Davison, K.K. (2009). School performance, lack of facilities, and safety concerns: barriers to parents' support of their children's physical activity. *American Journal of Health Promotion*, 23(5), 315-319.
- Deci, E.L., & Ryan, R.M. (1985). *Intrinsic Motivation and Self-determination in Human Behaviour*. New York: Plenum.
- Department of Health, Physical Activity, Health Improvement and Prevention. (2004). *At least 5 a week: evidence on the impact of physical activity and its relationship to health*. A report from the Chief Medical Officer. London: Department of Health.
- Department of Health. (2011). Retrieved on 7 May 2015 at http://www.change4health.gov.hk/en/physical_activity/guidelines/youth/index.html
- Docheff, D. (1990). HW in physical education? *Strategies*, 4(1), 10-11.
- Emck, C., Bosscher, R., Beek, P., & Doreleijers, T. (2009). Gross motor performance and self-perceived motor competence in children with emotional, behavioural, and pervasive developmental disorders: a review. *Developmental Medicine and Child Neurology*, 51(7), 501-517.
- Gabbei, R., & Hamrick, D. (2001). Using physical activity homework to meet the national standards. *Journal of Physical Education, Recreation & Dance*, 72(4), 21-26.
- Godin, G., & Shephard, R.J. (1984). Normative beliefs of school children concerning regular exercise. *Journal of School Health*, 54, 443-445.
- Goran, M.I. (1998). Measurement issues related to studies of childhood obesity: assessment of body composition, body fat distribution, physical activity, and food intake. *Pediatric*, 101(3), 505-518.
- Gustafson S.L., & Rhodes, R.E. (2006). Parental correlates of physical activity in children and early adolescents. *Sports Medicine*, 36(1), 79-97.
- Hansen, D.M., Larson, R.W., & Dworkin, J.B. (2003). What adolescents learn in organized youth activities: a survey of self-reported developmental experiences. *Journal of Research on Adolescence*, 13(1), 25-55.
- Hart, S. (2001). Homework in physical education: strategies for promoting healthy lifestyles through supplementary home tasks. *Strategies: A Journal for Physical and Sport Educators*, 15:1, 30-32.
- Hsu, YW., Chou, C.P., Nguyen-Rodriguez, S.T., McClain, A.D., Belcher, B.R., & Spruijt-Metz, D. (2011). Influences of social support, perceived barriers, and negative meanings of physical activity on physical activity in middle school students. *Journal of Physical Activity and Health*, 8, 210-219.
- Institute of Medicine of the National Academies (2004). *Preventing childhood obesity: health in the balance*. Washington, DC: National Academies Press.
- Jorgenson, S.M., George, J.D., Blakemore, C.L., & Chamberlain, D. (2001). The efficacy of infusing homework assignments into traditional physical education activity classes. *Physical Educator*, 58(1), 14-25.
- Kulinna, P.H., & Krause, J. (2001). Teaching students to achieve and maintain a health-enhancing level of physical fitness. *Journal of Physical Education, Recreation & Dance*, 72(8), 30-33.
- Martin, J.E., & Dubbert, P.M. (1982). Exercise applications and promotion in behavioral medicine: current status and future directions. *Journal of Consulting and Clinical Psychology*, 50(6), 1004-1017.
- Mitchell, M., Barton, G.V., & Stanne, K. (2000). The role of homework in helping students meet physical education goals. *Journal of Physical Education, Recreation & Dance*, 71(5), 30-34.

- Mitchell, M., Stanne, K., & Barton, G. (2000). Attitudes and behaviors of physical educators regarding homework. *Physical Educator*, 57(3), 136–145.
- Ng Siu Kuen, Robert (1998). A profile of job satisfaction among physical education teachers in Hong Kong and their intention to change jobs. *Journal of Physical Education and Recreation (Hong Kong)*, 4(1), 29–41.
- Pantanowitz, M., Lidor, R., Nemet, D., & Eliakim, A. (2011). The use of homework assignments in physical education among high school students. *ICHPER-SD Journal of Research*, 6(1), 48–53.
- Pate, R.R., Davis, M.G., Robinson, T.N., Stone, E.J., McKenzie, T.L., & Young, J.C. (2006). Promoting physical activity in children and youth: a leadership role for schools. *Circulation*, 114, 1214–1224.
- Pugliese, J., & Tinsley, B. (2007). Parental socialization of child and adolescent physical activity: a meta-analysis. *Journal of Family Psychology*, 21(3), 331–343.
- Ryan, R.M. & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 67–78.
- Smith, M.A., & Claxton, D.B. (2003). Using active homework in physical education. *Journal of Physical Education, Recreation & Dance*, 74(5), 28–32.
- Sunnegardh, J., Bratteby, L.E., & Sjolín, S. (1985). A descriptive epidemiology of leisure-time physical activity. *Public Health Reports*, 100(2), 147–158.
- Smith, J., Cluphf, D., & O'Connor, J. (2001). Homework in elementary physical education: a pilot study. *Perceptual and Motor Skills*, 92, 133–136.
- Smith, M.A., Patton, K., Chase, D.L., Madden, M.D., Ronspies, S.M., & Ward, S. (2007). Middle school students' perceptions of active homework. *Research Quarterly for Exercise and Sport*, 78, 73–74.
- Sweeting, H.N. (2008). Gendered dimensions of obesity in childhood and adolescence. *Nutrition Journal*, 7(1), 1.
- Tannehill, D., Romar, J.E., & O'Sullivan, M. (1994). Attitudes toward physical education: their impact on how physical education teachers make sense of their work. *Journal of Teaching in Physical Education*, 13, 406–420.
- Thompson, J.C. (1972). Homework for physical fitness. *Physical Educator*, 29, 58.
- Welk G.J., Wood K., & Morss G. (2003). Parental influences on physical activity in children: an exploration of potential mechanisms. *Pediatric Exercise Science*, 15(1), 19–33.

Correspondence

NG Siu Kuen Robert, PhD

Address: Physical Education Unit,

Faculty of Education,

The Chinese University of Hong Kong,

HKSAR, CHINA

Tel: (852) 39436850

Fax: (852) 26035275

E-mail: robertng@cuhk.edu.hk; sarobert1218@gmail.com