The Implementation of Active Homework Assignment in a Hong Kong Elementary School – A Pilot Study

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Abstract:

The introduction of Physical Education homework assignment (PEHA) may help school children to be active outside of school. PURPOSE: This study examined the responses to the implementation of 1-week PEHA among students and parents in elementary school. METHODS: Students (aged 9 to 12) completed either structured or unstructured PEHA daily for a week which included aerobic, muscular and flexibility training. Their parents verified the completion of the activities in their logbook. 90 students (44 boys: mean age = 10.5 ± 1.1 years, BMI = 19.6 ± 6.6 kg/m²; 46 girls: mean age = 10.6 ± 0.8 years, BMI = 16.7 ± 2.7 kg/m²) and 56 parents (14 men and 42 women) returned the questionnaire after the completion of 1-week

PEHA representing 94.2% and 51.9% response rate respectively. RESULTS: 42.9% and 76.8% of families had maid working at their home and had household income >HK\$30,000 respectively. 85.6% and 56.7% of students completed the PEHA using <30min and with partner respectively. The majority of students (79.6%) and parents (89.7%) agreed that PEHA is benefit to their health in long term. 79.3% of parents supported their child to participate physical activity (PA). 65.3% and 59.2% of students agreed that their interest to participate PA was increased and intended to complete the coming 3-week PEHA respectively. 43.4% of mothers did not engage

in any PA currently. T-test results showed that parents stated significantly

higher degree of agreement than students regarding (1) school should organize different kinds of PEHA, t(144) = -3.66, p < .01; (2) felt fun when doing PEHA, t(144) = -2.56, p < .05; (3) it is worth to continue the implementation of PEHA in school, t(144) = -3.18, p < .01; (4) did not feel antipathy towards PEHA, t(143) = 2.64, p < .01. No significant perception differences were found between boys and girls towards the PEHA. Results of chi square showed that no significant association of (1) gender of students ($X^2 = .36$, df = 1, p = 0.55), (2) completed PEHA with any partners ($X^2 = .99$, df = 1, p = 0.32), (3) any maids employed ($X^2 = 5.68$, df = 5, p = 0.34), and (4) household income ($X^2 = 4.73$, df = 10, p = 0.94) with their desires to complete the coming 3-week PEHA. **CONCLUSIONS**: It has a potential to implement PEHA in Hong Kong based on the positive responses from parents. A launch of reward scheme can be considered to increase the participation of students.

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Introduction

Physical activity (PA) is defined as any physical movement resulting from skeletal muscle contraction (Goran, 1998). Regular PA provides adolescents with important physical, mental, and social health benefits are well-documented (Department of Health, 2004). It improves gross and fine motor skill development necessary for 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 in that they offer children opportunities to learn new skills (Bailey, 2005) while developing friendships (Hansen, Larson, & Dworkin, 2003). Despite these benefits, the majority of youth do not participate in the recommended 60 minutes per day of physical activity (Eaton et al., 2006; Epstein, 2001). The situation will be worse as screen-based, sedentary activity choices continue to increase and dominate their leisure time.

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

In Hong Kong, it recommends that for children aged 5-17, without any health contraindications, should accumulate at least 60 minutes of moderate to vigorous level of PA every day. The activity plan should help to enhance and maintain muscular strength, flexibility, and bone health, at least 3 times per week (Department of Health, 2011).

Schools can provide a significant source of PA for youth by, allotting more Physical Education (PE) periods, increasing moderate to vigorous physical activity in PE, 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 may help school children to be active outside of school. The major objectives of introducing homework in PE to school children are to 1) increase their PA level; 2) promote

their PA participation outside of the PE class; 3) promote the PA participation with their family member(s); 4) develop physically active lifestyles when they engaged in regular PA. However, when the PE homework is inappropriately assigned in terms of quality and quantity, it may be perceived as a kind of punishment or as busy-work and as a result of a negative effect.

The literature on active homework began in the late 1950s (Daughtrey, 1959), was addressed in the 1970s (Thompson, 1972), the 1990s (Docheff, 1990) and the 2000s (Gabbei & Hamrick, 2001; Jorgenson et al., 2001; Kulinna & Krause, 2001; Mitchell, Barton, & Stanne, 2000; Mitchell, Stanne, & Barton, 2000; Smith & Claxton, 2003). The Centers for Disease Control and Prevention (CDC, 1997) suggested to "promote participation in physical activity at home by assigning homework that students can do on their own or with family members" (p. 15). After 2000s, the active homework concept received less attention. In Hong Kong, the introduction of PE homework is a new concept. To my knowledge, no research investigated the responses to the implementation of PE homework among students and parents in Hong Kong.

Understanding the perception of students and parents after participated one-week PE homework provides useful information for developing appropriate interventions aims at implementing the PE homework in Hong Kong. The purpose of this study is to examine the responses to the implementation of PE homework among students and parents in Hong Kong primary school.

Method

Procedure

The study is conducted between April and May 2013. The consent forms along with a letter explaining the study to parents of all children. A PE log book is 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 from Hong Kong Department of Health (2011) and other PA guidelines in the United States (Centre of Disease Control and Prevention, 2010), Australia (Australian Government Department of Health and Aging, 2010) and Canada (Public Health Agency of Canada, 2012); (3) it makes homework assignments fun; (4) the homework assignments are unstructured and allow students to choose their own activities; (5) give homework that is at the appropriate level of difficulty for students so that they can be challenged; (6) provide students with safety concern information and resources to do their homework; (7) involve family members whenever possible; (8) no specific equipment is needed; (9) students complete the assignment within 30 minutes. Finally, each student was provided a PE logbook, which included (1) the safety concern; (2) the procedure of doing the homework assignment; (3) record the completed activities; (4) signature by their parents to verify the completion.

Instrumentation

Two questionnaires (one for students and one for 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, household income, level of education, parental PA behaviours and attitudes, number of children staying in primary and secondary school and any domestic helper hired. Any person accompanied with the student to complete the PE homework was also reported. The average time spent on the PE homework and other homework was also mentioned. Both parents and students were asked to indicate the degree of agreement from 1 (strongly disagree) to 6 (strongly agree) regarding (1) the PE homework is benefit to our health in long term; (2) school should organize different kinds of PE homework to us; (3) I feel fun when doing the PE homework; (4) PE homework affected the completion of other homework; (5) PE homework affected my revision of other subjects; (6) it is worth to continue the implementation of PE homework in school; (7) I intended to complete the coming 3-week PE homework; (8) my interests to participate the PA increased; (9) I still felt no interests to PA; (10) I feel antipathy towards PE homework; (11) I think doing PE homework is waste of time; 12) PE homework should not be further implement in school; 13) there is no benefit to do PE homework. Three open ended questions were asked (1) their perceived main barriers to complete the PE homework; (2) how to motivate the completion of the coming 3-week PE homework; (3) other comments.

Participants

A total of 104 students from primary 4 to 6 completed the PE homework. Ninety-eight students [50 boys (mean age = 10.45 ± 1.08 years old; BMI= 19.1 ± 6.3 kg/m²) and 48 girls (mean age = 10.60 ± 0.79 years old; BMI= 16.7 ± 2.6 kg/m²)] and 59 parents completed an online questionnaire after the completion of 1-week PE homework, representing 94.2% and 51.9% response rate respectively.

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 (1) between parents and students; (2) between boys and girls regarding the implementation of PE homework and the intention to complete the coming 3-week PE homework. Significance of the analysis was set at an alpha of p < 0.05.

Results

Table 1 shows that the majority of students (79.8%) spent less than 2 hour s on completing the other subjects' homework. The vast majority of students (85.7%) took less than 30 minutes to complete the PE homework. More than two-fifths (43.9%) of students completed the PE assignments without partner.

Table 1: The situation of students to complete the PE homework (n = 98)

| The average time per day spent on other homework | Percentage |
|--|------------|
| < 1 hour | 42.9% |
| 1 hour to < 2 hours | 36.7% |
| 2 hours to < 3 hours | 16.3% |
| More than 3 hours | 4.1% |

| The average time per day spent on the implementation of PE homework | |
|---|-------|
| < 10 minutes | 19.4% |
| 10 minutes to < 20 minutes | 39.8% |
| 20 minutes to < 30 minutes | 26.5% |
| 30 minutes to < 40 minutes | 7.1% |
| ≥ 40 minutes | 7.1% |
| Who accompany with you to complete the homework? | |
| Father | 10.2% |
| Mother | 15.3% |
| Father and mother | 10.2% |
| Other family members (brothers, sisters, grand ma and grand pa | 11.2% |
| Domestic helper | 1.0% |
| Friend | 3.1% |
| All family member | 5.1% |
| No other person | 43.9% |

Table 2 displays that about three-quarters of the parents responding to the questionnaires were women (74.6%). The majority of parents were married (98.3%). More than two-fifths (63.8%) of the family income level was classified as middle and had monthly income between \$30,000 and \$100,000. Twenty-six parents (44.8%) reported that they had completed secondary school education. Half of the parents (50%) had two children staying in school. More than two-fifths (44.8%) had hired domestic helper at home. About two-fifths (40.8%) of mothers did not engage in any PA currently (see table 3).

Table 2: The demographic information of the parents and family

| Parent's gender | |
|---------------------------------------|--------------------------------|
| male | 25.4%; n = 15 |
| female | 74.6%; n = 44 |
| Age group | |
| 35 - < 40 | 16.9%; n = 10 |
| 40 - < 45 | 39.0%; n = 23 |
| 45 - < 50 | 33.9%; n = 20 |
| 50 - < 55 | 10.2%; n = 6 |
| BMI mean ± SD | $22.05 \pm 3.1 \text{ kg/m}^2$ |
| No. of child(ren) staying primary and | |
| secondary school | |
| 1 | 46.6%; n = 27 |
| 2 | 50.0%; n = 29 |
| 3 | 3.4%; n = 2 |
| Marital Status | |

| married | 09 20/ · n = 57 |
|------------------------|-----------------|
| married | 98.3%; n = 57 |
| Education level | |
| Secondary school | 44.8%; n = 26 |
| Post-secondary | 25.9%; n = 15 |
| University | 15.5%; n = 9 |
| Post-graduate | 13.8%; n = 8 |
| Hired domestic helper | |
| Yes | 44.8%; n = 26 |
| No | 55.2%; n = 32 |
| Family monthly income | |
| \$10,000 - < \$30,000 | 24.1%; n = 14 |
| \$30,000 - < \$100,000 | 63.8%; n = 37 |
| > \$100,000 | 12.1%; n = 7 |

Table 3: The past and present PA participation behaviour of parents and students

| 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 |
|------------------|--|---|---|---|-------------------|
| Students | 6.9% | 25.9% | 8.6% | 50.0% | 1.0% |
| Father | 5.1% | 7.1% | 13.3% | 73.5% | 8.2% |
| Mother | 24.5% | 16.3% | 19.4% | 30.6% | 9.2% |

When the level of agreement is interpreted as disagree (1-3) and agree (4-6). Table 4 shows that 79.3% of parents encouraged their child to participate PA and 74.5% of students also perceived the parental support. 89.7% of parents and 79.6% of students agreed that PE homework is benefit to their health in long term. 84.5% of parents and 52% of students agreed that school should organize different kinds of PE homework. 75.9% of parents and 56.1% of students agreed that their child/they feel fun when doing the PE homework. 63.8% of parents and 66.3% of students agreed that the PE homework did not affect the completion of other homework. 77.6% of parents and 70.4% of students agreed that the PE homework did not affect the revision of the other subjects.

After completed the 1-week PE homework, 74.1% of parents and 52.0% of students reported that it is worth to continue the implementation of PE homework in school. 70.7% of parents supported their child to complete the coming 3-week PE homework. 59.2% of students (28 boys out of 50; 56.0% and 30 girls out of 48; 62.5%) intended to complete the coming 3-week PE homework. 65.3% of students increased the interests to participate the PA and 74.1% of parents felt their child increased the interests to participate the PA. 74.5% of students were actively participate the PA and 82.8% of parents perceived their child

were actively participate the PA. 24.1% of parents and 15.3% of students did not agree their child/they still felt no interests to participate PA. 12.3% of parents and 22.4% of students feel antipathy towards PE homework. 12.3% of parents and 25.5% of students agreed that doing PE homework is waste of time. 14.0% of parents and 31.6% of students agreed that PE homework should not be further implement in school. 14.0% of parents and 23.5% of students there is no benefit to do PE homework.

A series of independent samples t-tests were conducted to examine any differences in the level of agreement concerning the PE homework. Results show that there were a significant perception differences between parents and students regarding (1) school should organize different kinds of PE homework, t(154) = -3.78, p<.01; (2) feel fun when participating PA, t(154) = -2.57, p<.05; (3) it is worth to continue the implementation of PE homework in school, t(154) = -3.52, p<.01; (4) feeling antipathy towards PE homework, t(153) = 2.21, p<.05; (5) PE homework should not be further implement in school, t(153) = 2.35, p<.05.

Table 4: The responses of parents and students towards PE homework

(S = Students; P = Parents; the degree of agreement; 1 = the least; 6 = the most)

| | General feeling about PE homework | (Agreed); Mean ± SD |
|----------|---|-----------------------------|
| Parents | I support my child to participate PA | (79.3%); 4.45 ± 1.27 |
| Students | Parental support to participate PA | $(74.5\%); 4.30 \pm 1.40$ |
| Parents | PE homework is benefit to our health in long term | (89.7%); 5.03 ± 1.04 |
| Students | PE homework is benefit to our health in long term | $(79.6\%); 4.64 \pm 1.58$ |
| Parents | School should organize different kinds of PE homework | (84.5%); 4.57 ± 1.22 |
| Students | School should organize different kinds of PE homework | (52.0%); 3.51 ± 1.92** |
| Parents | When doing the PE homework, my child feel fun | $(75.9\%); 4.26 \pm 1.18$ |
| Students | When doing the PE homework, I feel fun | (56.1%); 3.61 ± 1.69** |
| Parents | PE homework affected the completion of other homework | $(36.2\%); 2.86 \pm 1.47$ |
| Students | PE homework affected the completion of other homework | $(33.7\%); 2.78 \pm 1.62$ |
| Parents | PE homework affected the revision of other subjects | $(22.4\%); 2.57 \pm 1.39$ |
| Students | PE homework affected the revision of other subjects | $(29.6\%); 2.61 \pm 1.50$ |
| | | |
| | After completed the 1-week PE homework, | |
| Parents | It is worth to continue the implementation of PE homework in school | $(74.1\%); 4.38 \pm 1.30$ |
| Students | It is worth to continue the implementation of PE homework in school | $(52.0\%); 3.45 \pm 1.75**$ |
| Parents | I support my child to complete the coming 3-week PE homework | $(70.7\%); 4.16 \pm 1.27$ |
| Students | I intended to complete the coming 3-week PE homework | $(59.2\%); 3.81 \pm 1.70$ |
| Parents | My child increased the interests to participate the PA | $(74.1\%); 4.41 \pm 1.43$ |
| Students | I increased the interests to participate the PA | $(65.3\%); 4.59 \pm 1.56$ |
| Parents | My child actively participate PA | (82.8%); 4.28 ± 1.30 |
| Students | I actively participate PA | $(74.5\%); 4.19 \pm 1.73$ |

| Parents | My child still felt no interests to participate PA | $(24.1\%); 2.52 \pm 1.38$ |
|----------|---|----------------------------|
| Students | I still felt no interests to participate PA | $(15.3\%); 2.06 \pm 1.44$ |
| Parents | I feel antipathy towards PE homework | $(12.3\%); 1.88 \pm 1.18$ |
| Students | I feel antipathy towards PE homework | $(22.4\%); 2.42 \pm 1.61*$ |
| Parents | I think doing PE homework is waste of time | $(12.3\%); 2.05 \pm 1.23$ |
| Students | I think doing PE homework is waste of time | $(25.5\%); 2.52 \pm 1.62$ |
| Parents | PE homework should not be further implement in school | $(14.0\%); 2.07 \pm 1.32$ |
| Students | PE homework should not be further implement in school | $(31.6\%); 2.68 \pm 1.70*$ |
| Parents | There is no benefit to do PE homework | $(14.0\%); 2.25 \pm 1.31$ |
| Students | There is no benefit to do PE homework | $(23.5\%); 2.39 \pm 1.58$ |

Results of independent samples t-test

A series of independent samples t-tests were carried out to investigate any differences in the level of agreement concerning the PE homework with respect to different genders of students. Results show that there were no significant perception differences between boys and girls concerning the PE homework except their perceptions of doing PE homework is waste of time, t(96) = 2.16, p < .05. Girls expressed a greater disagreement of doing PE homework is waste of time. Girls (62.5%) also indicated a greater intention to complete the coming 3-week PE homework than boys (56%).

Table 5: The responses to PE homework of different genders of students (the degree of agreement; 1 = the least; 6 = the most)

| General feeling about PE homework | Boys (n = 50) | Girls (n = 48) |
|---|---------------|-----------------------|
| | Mean ± SD | Mean ± SD |
| | (Agreed) | (Agreed) |
| Parental support to participate PA | 4.40 ± 1.29 | 4.19 ± 1.40 |
| | (80.0%) | (72.9%) |
| PE homework is benefit to our health in long term | 4.76 ± 1.61 | 4.52 ± 1.54 |
| | (80.0%) | (79.2%) |
| School should organize different kinds of PE homework | 3.56 ± 1.91 | 3.46 ± 1.95 |
| | (52.0%) | (52.1%) |
| When doing the PE homework, I feel fun | 3.76 ± 1.67 | 3.46 ± 1.71 |
| | (56.0%) | (56.2%) |
| PE homework affected the completion of other homework | 2.84 ± 1.60 | 2.71 ± 1.66 |
| | (34.0%) | (33.3%) |
| PE homework affected the revision of other subjects | 2.54 ± 1.49 | 2.69 ± 1.53 |
| | (32.0%) | (27.1%) |
| | | |
| After completed the 1-week PE homework, | | |

^{*} p < 0.05; **p < 0.01

| It is worth to continue the implementation of PE homework in | 3.42 ± 1.77 | 3.48 ± 1.74 |
|--|-----------------|-----------------|
| school | (52.0%) | (52.1%) |
| I intended to complete the coming 3-week PE homework | 3.76 ± 1.69 | 3.85 ± 1.73 |
| | (56.0%) | (62.5%) |
| I actively participate PA | 4.86 ± 1.46 | 4.31 ± 1.63 |
| | (80.0%) | (68.7%) |
| I increased the interests to participate the PA | 4.46 ± 1.66 | 3.92 ± 1.77 |
| | (72.0%) | (58.3%) |
| I still felt no interests to participate PA | 2.00 ± 1.50 | 2.13 ± 1.40 |
| | (18.0%) | (12.5%) |
| I feel antipathy towards PE homework | 2.42 ± 1.58 | 2.42 ± 1.66 |
| | (22.0%) | (22.9%) |
| I think doing PE homework is waste of time | 2.86 ± 1.83 | 2.17 ± 1.29* |
| | (36.0%) | (14.6%) |
| PE homework should not be further implement in school | 2.82 ± 1.83 | 2.54 ± 1.56 |
| | (38.0%) | (25.0%) |
| There is no benefit to do PE homework | 2.54 ± 1.82 | 2.23 ± 1.29 |
| | (30.0%) | (16.7%) |

Results of independent sample t-test

Table 6: Barriers for PE homework among students (n = 96)

| 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 | 2 (2%) |
| physical barriers - lack of equipment/space | |
| no partner | 1 (1%) |

Note: Numbers in parentheses represent the percentage of total responses

Table 7: Suggestions provided by students to motivate the PE homework participation (n = 96)

| Suggestions | Responses |
|---------------------------------------|-----------|
| No suggestion | 28 (30%) |
| Reward (money, gift or encouragement) | 21 (22%) |

^{*} p < 0.05

| To improve health | 9 (10%) |
|-------------------------------------|---------|
| Find a partner | 7 (7%) |
| I like doing exercise | 7 (7%) |
| Less homework | 5 (5%) |
| Try my best | 5 (5%) |
| More choice of exercise | 4 (4%) |
| More challenge exercise | 3 (3%) |
| Good time management | 3 (3%) |
| Educate me the benefits of exercise | 2 (2%) |
| Compulsory | 2 (2%) |

Note: Numbers in parentheses represent the percentage of total responses

Table 8: Comments suggested by students

| Other | comments |
|-------|----------|
| Oulei | comments |

每天的運動量要求過高

我認為做體育家課不但不會增加對體育的興趣,還令我討厭體育.

希望學校可以繼續推行這些類型的小家課,讓同學可以有持之以恆的好習慣,亦可以 讓一些平日較少做運動的人多做,平常有適量運動的人也有益無害......這樣也可以增 加同學的自信心和責任感呢!

可以不做那麼多項活動

This is a very good plan

The sports homework is too BORING! I like doing interesting sports like riding bicycle.

If I do more exercise, I will be more healthy.

I want to have more P.E. homework!!!!!!!!!!

HOPE SCHOOL CAN HAVE FOOTBALL TEAM.

HATE, HATE, HATE and HATE doing P.E. homework!!!!!!!!!!!! /_\

Fewer 體育「家課」

Don't be so boring and easy

Do exercise is good for our health, but I don't have much time to do it, I think I need my parents to do exercise with me and I will do exercise more happily. Although I like doing exercise, I still want they do with me, it may be more safety.

Can do more jogging.

Table 9: Barriers for PE homework among students suggested by parents (n = 54)

| Barriers | Responses |
|--------------------------------|-----------|
| intrapersonal - lack of time | 9 (60%) |
| intrapersonal - lack of energy | 3 (20%) |

Note: Numbers in parentheses represent the percentage of total responses

Table 10: Suggestions provided by parents to motivate their child's PE homework participation

(n = 54)

| Suggestions | Responses |
|---------------------------------------|-----------|
| Reward (money, gift or encouragement) | 6 (30%) |
| Do exercise with him/her | 5 (25%) |
| Reminded by teachers and parents | 4 (20%) |
| He/she likes doing exercise | 3 (15%) |
| More choice of exercise | 1 (5%) |
| Educate me the benefits of exercise | 1 (5%) |

Note: Numbers in parentheses represent the percentage of total responses

Table 11: Comments suggested by parents

| 感謝學校推行此項體育「家課」活動。 |
|---------------------|
| 可做缎練身體不同机能的運動,每週不同. |
| 不要玩體操 |

Frequently reported Intrapersonal barrier was lack of time in the open ended questions (see tables 6 and 9). Students and parents suggested to have some incentives in order to promote the participation of PE homework after school (see tables 7 and 10).

Discussion

The present study found that both parents and students agreed that PE homework is benefit to their health in long term. When compare with the responses from students, their parents showed a stronger agreement that doing PE homework was fun, and school should implement and organize different kinds of PE homework in future.

It is worth to note that both boys and girls reported their interests to participate the PA increased and they actively participated the PA after completing the 1-week PE homework. About three-fifths (59.2%) of students had desire to complete the coming 3-week PE homework. More girls showed an intention to complete the coming 3-week PE homework than boys, although the girls expressed less fun when doing the PE homework. The reasons for this difference is unknown, it may due to the fact that boys found the homework less challenge enough to motivate boys to complete the coming 3-week PE homework. It is an area for further investigation of the underneath reasons. It reflected that being physically active was the intrinsic rewards for those who intended to complete the homework without any incentives.

Their perceived main barriers to complete the PE homework were mainly intrapersonal in nature such as

a lack of time and physically unfit. These barriers reflect less self-determination among the youth when considering barriers for exercise from the perspective of self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000). A lack of time implies that students are externally motivated to participate in exercise (low self-determination). This finding was in line with the suggestions in the open ended questions given by students and parents that they have greater intention to complete the coming 3-week PE assignments if there were extrinsic rewards such as gifts or financial rewards.

Trusting students to complete their PE homework assignments honestly is an issue faced in the present study. There was no mechanism to check their completion of PE assignments except the verification by their parents. Another problem was how to make an individual exercise prescription according to the interests and fitness level of students.

We should bear in mind that when school assign the PE homework, it should encourage youth to participate in PA that are appropriate for their age, are fun and sufficiently diverse to prevent boredom and maintain their interests in PA participation.

Conclusions

One of the aims of introducing PE homework to students is to lead them to pursue a physically active lifestyle outside of school. The benefits of such homework include increased skill practice, activity time, and communication with parents, as well as meet the PA recommendations by Department of Health, (2011). Implementing PE homework in elementary physical education programmes can be an effective practice as long as it 1) is relevant to class content, motivated and understand what has been assigned; 2) supported by parents; 3) enhances practice on skills learned in class; and 4) holds students accountable for accurate reporting of performance. Based on literatures (Black, 1996; Hart, 2001; Smith & Claxton, 2003) and the results of the present study, it is concluded that it has a significant potential to implement PE homework in Hong Kong. A launch of reward scheme will increase their desires to participate the PE homework.

Suggestions for Implementation

PE homework must be planned well and be meaningful for the students in order for it to be successful. The suggestions when assigning homework are: (1) assign students homework that is fun; (2) give homework that is at the appropriate level of difficulty for the students so that they can be challenged without getting confused or frustrated; (3) provide students with the information and resources to do their homework successfully; and (4) determine whether the homework is worth the student's time and effort; (5) hold students accountable for the successful completion of homework; (6) involve parents whenever possible; and (7) allow students to choose their own activities.

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