香港教育大學
The Education University of Hong Kong

A Project entitled

The correlation between motivation in Physical Education lessons and their exercise habit among junior secondary school students.

Submitted by

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Declaration

I, Poon Wing Tung , declare that this research report represents my own work under the supervision of Dr. Tse Choi Yeung, Andy, and that it has not been submitted previously for examination to any tertiary institution.

Signed _____

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Content

Abstract:

The purpose of this study was to analyze the relationship between different motivation in Physical Education (PE) and their exercise habit. Base on the results, suggestion on how teachers should do to enhance students' exercise habit would be given. The participants, 207 junior secondary school students (girls = 133; boys = 74) completed a survey with CSMS – II and GPAQ. The results revealed that there was a negative relationship on amotivation (AM) and controlled motivation (CM) towards physical activity, while it showed a positive relationship between autonomous motivation (ATM) and exercise habit. It showed that both higher grade and female students were more likely to have higher amotivation (AM), controlled motivation (CM) and lower autonomous motivation (ATM) than lower grade and male students. It also indicated that female students generally spent less time in doing physical activity than male students. And lower grade students had higher physical activity level than higher grade students. It is suggested that teachers should increase students' autonomous motivation in PE so as to enhance their exercise habit. Further investigation should be conducted on how to enhance students' motivation effectively and with a more comprehensive investigation on factors affecting students' motivation.

1. Introduction:

1.1 Problem:

When children and adolescents participate in physical activities actively, not only their

motor skills can be enhanced but their life skills such as social, cognitive and performance skills can also be developed (Committee on Physical Activity and Physical Education in the School Environment, 2013). Moreover, they may have a fewer mental and general health problems, eating and dietary problems (National Center for Chronic Disease Prevention and Health Promotion, 2011) and enjoy benefits on academic performance and learning (Fedewa & Ahn, 2013). Each individual age between 5 to 17, is recommended to accumulate at least 60 minutes of moderate- to vigorous-intensity physical activity (MVPA) every day (World Health Organization, 2017). However, the Youth Research Center of Hong Kong Federation of Youth Groups interviewed 520 Hong Kong secondary school students in 2006. It is shown that the frequency of moderate- to vigorous-intensity physical activity (MVPA) engagement is approximately 2.2 sessions/ week and each session was lasted less than 30 minutes. More recently, a research conducted in 2012 by the Department of Sports Science and Physical Education of the Chinese University of Hong Kong, showed that 1,200 students, aged 9 to 16 years old, in average only spent less than 40 minutes daily in participating physical activity. Therefore, it is clearly evidenced that physical activity participation of school children in Hong Kong was not up to the WHO's recommendation. As a result, it is important to implement measurement to increase the physical activity participation among the school children's population.

1.2 Hypothesis:

When students have a higher controlled motivation(CM) and autonomous motivation

(ATM) in PE, they tend to do more exercise. In contrast, when they are having higher amotivation (AM) in PE, they tend to do less exercise.

1.3 Definition:

1.3.1 Motivation

According to the Project Management Body of Knowledge Guide (2017), motivation is "Powering people to achieve high levels of performance and overcoming barriers in order to change." Putting motivation into learning, it means the force to encourage students to face all the difficulties and challenged circumstances in learning.

1.3.2 Types of motivation

Motivation are basically classified into three types. First one is amotivation (AM), which mean that person has no motivation and show no instore at all. Second one is the extrinsic motivation, which is a construct that pertains whenever an activity is done in order to attain some separable outcome (Richard, Edward, 2000). It can be further classified into four categories; external regulation, introjected regulation, identified regulation and integrated regulation. The last one is intrinsic motivation, which mean a person is doing an activity for its inherent satisfactions rather than for some separable consequence (Richard, Edward, 2000).

1.3.3 Exercise habit

Base on the research done by Gardner (2015), “habit” had been widely used by people. And common definition is habit is a type of behavior. It is a behavioral pattern that learnt

through context-dependent repetition (Gardner et al., 2011) and become almost involuntary (Nilsen et al., 2008). When people do exercise in a routine behavior that done on a regular basis, it calls an exercise habit.

1.3.4 Exercise intensity

Intensity refers to the degree of effort when performing the activity. The World Health Organization (2018) indicated that exercise intensity can be varied between people. Metabolic Equivalents (METs) is the ratio of a person's working metabolic rate relative to their resting metabolic rate. They are commonly used to express the intensity of physical activities (WHO, 2018). A moderate intensity physical activity is around 3 to 6 METs, such as dancing, doing housework and moving loads which is lighter than 20 kg. Vigorous intensity physical activity is approximately over 6 METS, examples are running, fast cycling and aerobics.

1.4 Purpose:

In Hong Kong, PE is the only school class that offers structured setting to ensure all children participate in physical activities. The aim of PE is not for learning skills only, but to teach the concept of lifelong physical activities and promote exercise habit (The Education Bureau, 2002). One possible measurement to increase the participation of Hong Kong students' in physical activity is to enhance their motivation in physical education class. Therefore, this research was aim at finding the relationship between junior secondary school students' motivation in PE lesson and their exercise habit. And

discussed how to enhance students' exercise habit base on the results.

2. Literature Review:

2.1 Introduction:

Until now, there are quite a few researches done to investigate the correlation between students' motivation in PE and their exercise habit. In order to find some suitable literatures to develop my research, several literatures focusing on the correlation of above two items are reviewed.

2.2 Relevant research:

A research was done to investigate the relationships between physical education students, motivational profiles, enjoyment, state anxiety and self-reported physical activity (Yli-Piipari, Watt, Jaakkola, Liukkonen & Nurmi, 2009). 429 6th grade students were recruited in this research. Participants were required to complete Sports Motivation Scale, Sport Enjoyment Scale, Physical Education State Anxiety Scale, and Physical Activity Scale to have a comprehensive data collection. Then students were classified into "High motivation profile", in which the students had relatively high intrinsic and extrinsic motivation, and low level of amotivation (AM), and the "Low motivation profile", in which the students had lower intrinsic and extrinsic motivation, and low level of amotivation. Results showed that students with "High motivation profile" had higher enjoyment in PE and more active lifestyle than the students with "Low motivation profile". Which means when students have a high intrinsic and extrinsic motivation in PE, they are more

physically active.

Shen has conducted a research in 2014 to investigate how outside school physical activity affect students' motivation in PE. 545 participants from grade 9 are recruited in this research. They had to answer a survey about their experience on organized outside-school physical activity and their motivation in PE. Results found that students who participated in organized outside-school physical activity programs showed an overall higher motivation in PE. It is concluded that there is a dynamic relationship between participation in organized outside-school physical activity programs and self-determination process in PE.

Similar research has been done in Norway to investigate the attitudes and motivation toward PE in both middle school and high school (Reidar, Tommy & Marte, 2014). It showed that 43% of participants were not satisfied with that PE lessons. And girls tend to have a lower motivation than boys. The relationship between PE motivation and physical activity outside school was also investigated. Results revelated that students who participated in the organized competitive youth sports outside school were significantly scoring higher on attitude and motivation to PE.

Another research targeting on the motivation of college students had been done (James, Jesse, Tanis, Kathryn & Kathryn, 2016). 175 college students were recruited in this research and they were required to complete a comprehensive questionnaire. Results showed that teachers and coaches had a high and important effect on students' physical

activity, physical fitness and exercise-related motivation. Also, there is a positive relationship between students' motivation and their participation in physical activity.

The above three researches indicated that when students have a higher motivation in PE, they tend to do more physical activities outside school and on the other way around. However, Yli-Piipari (2011) has done a research with a different conclusion. This research was a 3.5 years longitudinal study across students from grades 6 to 9. A total of 812 students aged 11 to 13 was recruited. Results showed that even though students' intrinsic and extrinsic motivation toward physical education has increased moderately from Grades 6 to 9, their amount of physical activity was declined.

2.3 Summary and Conclusion:

To conclude, different literatures showed that there was a positive correlation between students' motivation in PE and their participation in physical activity. And one of them showed the influence of teacher in students' motivation. However, a literature showed a different result from its study. As there was contradiction about the correlation for adolescents, it was hard to conclude whether having high motivation in PE was related to their exercise habit or not. Moreover, none of the above researches were done in Hong Kong. Culture was one of the factors to give different results in different country. In order to understand the situation in Hong Kong, this research was targeted on the Hong Kong junior secondary school students. And I have developed my research topic as below.

Research Topic:

The correlation between motivation in Physical Education lessons and their exercise habit among junior secondary school students.

3. Methodology:

3.1 Participants:

In this research, a total of 207 junior secondary school students, with 133 girls and 74 boys were recruited. All participants were recruited from the SALEM-Immanuel Lutheran College. The participants were all randomly selected from Secondary 1 to 3 who were 11 to 15 years old, with mean age 12.9 years old and standard deviation of 0.98 years. There were 60 form 1 students, 73 form 2 students and 74 form 3 students. All participants were required to have good physical condition that enable them to participate in physical education class regularly and be able to read Chinese.

3.2 Instrument and measurement:

To measure students' exercise habit and their motivation in PE class, a quantitative method, questionnaire, had been set up. It included two parts, a Chinese version of Global Physical Activity Questionnaire and a Chinese version of the Sports Motivation Scale – II.

3.2.1 Exercise habit

The Chinese version of Global Physical Activity Questionnaire(CGPAQ) was used to measure students' exercise habit. In order to fit the situation of students, the first part of

the questionnaire was changed from work related into PE class related. And the questionnaire was divided into four parts; activities in PE lesson, physical activity when they were commuting, recreational activity and Sedentary behavior. The definition of 'vigorous physical activity' and 'moderate physical activity' were provided in this questionnaire. Students were required to complete the questionnaire base on their habit within a year.

3.2.2 Motivation in PE

In this research, Chinese version of the Sports Motivation Scale – II (CSMS-II) were used to measure student's motivation in PE. This scale was translated from the Sports Motivation Scale – II (SMS-II). As the CSMS-II scale was only measuring the motivation in sports but not specifically for PE, items had been slightly changed to fit the situation. Also, two items were added into the scale to have a better understanding of the motivation in PE. This scale included a total of 20 questions that measured six subscales of motivation including amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation. It is a 7-point Likert scale ranging from 1 (not true at all) to 7 (completely true). Students are required to rate according to their experience in normal PE class.

3.2.3 Validity and reliability of the questionnaire

The above two tests were widely used in the world. As a result, the validity and reliability had been tested by different scholars. Fiona, Tahlia and Timothy (2009) had done a

research on the validity and reliability of GPAQ. They recruited 2657 participants among nine countries and the result indicated that this questionnaire is a suitable and acceptable instrument. On the other hand, validity and reliability of CSMS-II were supported by a research done with 267 university athletes (Li, Kawabata & Zhang, 2016).

3.2.4 Internal reliability of the questionnaire

The internal reliability of CSMS-II was also being tested through spss. The internal reliability of three types of motivation, amotivation (AM), controlled motivation(CM) and autonomous motivation (ATM), were found to be 0.966, 0.858 and 0.953 respectively. It indicated that there was strong internal reliability within different groups of motivation.

3.3 Procedures:

Before starting the questionnaire, consent form had been sent to school to seek for the approval of the information collection. The purpose of this project was included in the consent form. Participants were randomly selected from form 1 to 3 classes. Before the test started, they had to declare that they were in good physical condition that enable them to participate in physical education class regularly and be able to read Chinese. As all participants were below 18 years old, parents' or guidance's approval had to be completed before participating in this research. Participants were required to fill in the questionnaire at the beginning of their PE lesson. They were assigned into a quiet classroom, then researcher explained the purpose of this questionnaire and the direction of filling in the questionnaire and informed them that there was no 'right' or 'wrong'

answers. When they were filling in the questionnaire, they were not allowed to discuss. After they filled in the whole questionnaire, those answers were entered to the computer system. Then result and analysis were done through the computer system. All data were only use for statistical analysis in this research. All personal information was stored in a secured computer with password lock.

3.4 Design and analysis:

In this research, quantitative research method was used. In order to find out the correlation between motivation in PE and students' exercise habit, Pearson Product-moment Correlation was used to analyze. It was a statistical technique to express the relationship between two ratio scores of a group. For the correlation between participants' characteristics and their moderate- to vigorous-intensity physical activity (MVPA) and the correlation between participants' characteristics and their motivation, Spearman Rank-Difference Correlation was used to analyze. It was a statistical technique to express the relationship between a nominal and a ratio score of a group. After inputted all the data into the SPSS system, it generated the degree of significant. If the significant was smaller than 0.001, it meant it had a significant correlation. It also generated a correlation coefficient (r). The value of r will range from -1.00 to +1.00; negative means they are indirectly related and positive means they are directly related. When the absolute value of r is around 0.10, there is a small relationship, when it is 0.30 and 0.50, it shows that there is a medium and large relationship respectively (Cohen, 1988).

4. Results:

In order to analyze the data, motivation had been reclassified into 3 types. The first one was amotivation (AM), which means there is no motivation at all. Second type of motivation was controlled motivation (CM), which included the external regulation and introjected regulation. The last type of motivation was the autonomous motivation (ATM), which included identified regulation, integrated regulation and intrinsic motivation. The 7-point Likert scale were converted into score (i.e. 1 to 7). Then the mean score of each type of motivation was calculated and underwent different descriptive and correlation analysis. The results were shown in the below graphs.

	Mean score		
	All participants	Male	Female
Amotivation (AM)	2.67	1.59	3.35
Controlled Motivation(CM)	2.94	2.60	3.15
Autonomous Motivation (ATM)	4.36	5.25	3.82
Vigorous to Moderate intensity physical activity (mins per week)	255.05	435.00	146.24

Table 1. Mean score of different motivations and MVPA among different sex

This table showed the descriptive data, mean scores of three types of motivation on all participants, male and female respectively. It reported that male generally had a high autonomous motivation (ATM) while relatively low amotivation (AM) and controlled motivation (CM). Female were having a similar score among different types of motivation. However, it is cleared to observe that male was generally spending around three times more time than female.

	Mean score		
	Form 1	Form 2	Form 3
Amotivation (AM)	1.36	2.49	3.96
Controlled Motivation(CM)	2.31	2.97	3.42
Autonomous Motivation (ATM)	5.42	4.61	3.26
Vigorous to Moderate intensity physical activity (mins per week)	522.42	255.62	67.3

Table 2. Mean score of different motivations and MVPA among different sex

The above table stated the mean score of three types of motivation among different grades. It showed that, higher grade students were generally having higher score in amotivation (AM) and controlled motivation (CM) than the lower grade students. In contrast, lower form students had a higher autonomous motivation (ATM) than the higher form students. Moreover, form 1 students were generally spending twice as much time as form 2 students and over seven times as much as form 3 students in doing exercise in their spare time.

	MVPA (per week)	
	Pearson Correlation	Sig.
Amotivation (AM)	-0.668	0.0001
Controlled Motivation(CM)	-0.462	0.0001
Autonomous Motivation (ATM)	0.689	0.0001

Table 3. Correlations between MVPA and 3 types of motivation

This table showed the correlation between students' motivation and their moderate- to vigorous-intensity physical activity (MVPA) per week. As the significant were all smaller than 0.001, they were all significantly correlated. The Pearson analysis revealed a strong negatively correlation in the amotivation (AM) towards moderate- to vigorous-intensity

physical activity (MVPA), while there were a moderate negatively correlation between controlled motivation (CM) and students' MVPA. It also showed a strong positively correlation between autonomous motivation (ATM) and moderate- to vigorous-intensity physical activity (MVPA).

	Spearman Correlation			
	AM	CM	ATM	Sig.
Gender	0.439	0.235	-0.408	0.0001
Grade	0.557	0.392	-0.539	0.0001

Table 4. Correlations between participants' characteristics and 3 types of motivation

The second table showed the correlation between participants' characteristics and three different types of motivation. All significant were at 0.0001 level. The Spearman analysis revealed a strong positively correlation between grade and amotivation (AM). And the correlation between gender and amotivation (AM) were medium positive. Also, the correlation between grade and controlled motivation (CM) were observed to be medium positive. The gender and controlled motivation (CM) correlation was positively small. There was a medium negatively correlation on gender towards autonomous motivation (ATM), while the correlation of grade and autonomous motivation (ATM) were strongly negative.

	MVPA (per week)	
	Spearman Correlation	Sig.
Gender	-0.553	0.0001
Grade	-0.716	0.0001

Table 5. Correlations between participants' characteristics and MVPA

This table showed the correlation between participants' characteristics and their

moderate- to vigorous-intensity physical activity (MVPA). A strong negatively correlation on both gender and grade towards moderate- to vigorous-intensity physical activity (MVPA) were observed from the data analysis of Spearman correlation.

5. Discussion

5.1 Students' motivation VS MVPA

The primary goal of this research is to find out the relationship between students' motivation in PE and their exercise habit. According to the result tables, all three types of motivation were having significant correlation with amount of exercise. First of all, students who do not have motivation in PE are having low moderate- to vigorous-intensity physical activity (MVPA). This has the same result from the research of Rachel and Christopher (2013) and Kathryn et al. (2015). Students lacking interests in doing physical activity and thus, both PE motivation and the spare time spent for exercise are low. Rachel and Christopher (2016) found that there are many reasons leading to amotivation (AM) such as inadequate support from teacher, bullying from classmates, a lack of encouragement and so on. But all these factors lead to the decline in both PE motivation and physical activity.

Secondly, even students have motivation in PE, if it is a controlled motivation, their moderate- to vigorous-intensity physical activity (MVPA) are still low. Which means it does not help them to build an active lifestyle. It is slightly different from the hypothesis that

set up before. Michoua, Matsagouras and Lens (2014) stated that controlled motivation is developed when students have a high fear of failure but he or she cannot avoid in this situation. In the case of PE, it is compulsory in school curriculum. If students were not taking part in PE lesson, they may fail in continuing their study in school. As a result, they are more likely to participant in PE class with a strong extrinsic motivation. For the physical activity in leisure time, there is no more extrinsic factors to force them to engage. Therefore, they will not spend time in doing moderate- to vigorous-intensity physical activity (MVPA).

Lastly, students with higher autonomous motivation are having more moderate- to vigorous-intensity physical activity (MVPA). Some scholars also support the view that students having high intrinsic motivation are more likely to have a higher desire to participate in physical activities (Reidar et al., 2014; Sproule et al., 2007; Ntoumanis, 2005). When basic psychological needs, autonomy, competence and relatedness, are supported, this help people to internalize their motivation and become more autonomous forms of self-regulation (Ryan, Williams, Patrick, & Deci, 2009). Then they are attending PE class and physical activity with a strong intrinsic motivation. Moreover, when students are participating physical activity with intrinsic motivation, it has a higher chance to increase the likelihood of a regular and long-term physical activity engagement. Ryan and Deci (2002) supported that when people are motivated autonomously, it is the most effective and persistent way for them to pursue a healthy life style.

The data supports the hypothesis of the influences of autonomous motivation (ATM) and amotivation (AM) on moderate- to vigorous-intensity physical activity (MVPA). However, it rejected the hypothesis of controlled motivation (CM) as it has a negative impact on the exercise habit of students.

5.2 Students' characteristics VS their motivation

Except the fundamental goal that set at the beginning, other relationship has been found between students' characteristics and their motivation in PE. For the gender factor, girls are tending to have higher amotivation (AM) and controlled motivation (CM), while tending to have lower autonomous motivation (ATM) than boys. Reidar et al. (2014) and Antonio et al. (2014) revealed the same results from their studies. Deaner, Balish and Lombardo (2016) supported that male and female are generally having different motivation. Female are usually motivated by extrinsic factors like appearance and weight management, while male by intrinsic factors such as strength and competition (Egli et al., 2011). These might be the reasons of sex differences on PE motivation.

For the age factor, lower grade students tend to have a higher autonomous motivation (ATM) and lower amotivation (AM) and controlled motivation (CM) than higher grade students. Which supports the view of Antonio and Antonio (2015), when students get older, their intrinsic motivation decreases and both extrinsic motivation and amotivation increases. When students are getting older, they have to think about which subject they want to study in senior secondary school and even think about their open exam in Hong

Kong. The academic pressure from school and parents increase and this may lead to the decline of autonomous in PE. As they would rather spend time on studying and taking a rest then having PE class. So there is a situation of increasing controlled motivation and amotivation on higher grade students.

5.3 Students' characteristics VS MVPA

In this research, we also found that students' characteristics can influence their exercise habit as well. From the result we can see that boys tend to do more exercise in their spare time than girls. Similar to a research done in U.S. (Deaner et al., 2012), there is still a large sex differences in exercise participation. As different gender has different goal of participating sports, boys tend to enjoy competition and learning skills from sports while girls tend to engage physical activity due to appearance. This may affect the amount of moderate- to vigorous-intensity physical activity (MVPA) on them.

On the other hand, higher grade students are more likely to spend less time in doing physical activity than the lower grade students. A research done by Steltenpohl et al. (2016) stated that when people age, their goals shift and people would prioritize their behavior or even habit to meet the goals. For the higher grade students, they might think academic is more important than sports. Similar to the situation on the motivation in higher grade students, students' target shift to other aspects. Therefore, they reduce the time in doing exercise.

6. Suggestions

From this research we can see that, motivation has a close relationship with students' exercise habit. It is suggested that teachers should enhance students' autonomous motivation in PE with different strategies such as refining teaching plans and adopting suitable teaching skills. Also, teachers should focus on the age and sex differences on PE motivation. They should help students to maintain a high autonomous throughout their secondary school life so as to establish a healthy and active lifestyle. On the other hand, teachers should target on the students with high controlled motivation and amotivation. Teachers should try to understand the reasons why students have such behavior like hate participating in PE lesson or work with their classmates. Then try to help them to gain enjoyment, relatedness and competence. Hope that these can build students' autonomous motivation in PE lessons.

7. Conclusion

This research showed that different types of motivation have a clear influence on students' exercise habit. And their personal characteristics (i.e. sex and age) can affect both their motivation in PE and moderate- to vigorous-intensity physical activity (MVPA) in spare time. Teachers should target on enhancing students' autonomous motivation so as to help them to build an active lifestyle.

8. Limitation

Even though this research recruited quite a large number of participants, all of them were

from the same school. External factors from school such as school culture, teachers' teaching style, school team atmosphere and teachers' attitude may be affecting students' exercise habit and motivation towards PE. As a result, this may not be able to truly reflect the situation in Hong Kong. Other than school factors, Jesse (2015) has done a research to support that some factors such as peer relationship, leisure family activities and location of sports facilities are affecting student' PE engagement and physical activity involvement as well. Base on the above literature, further investigations should be done on a more comprehensive correlation between students and their exercise habit. Lastly, methods of how to increase students' motivation effectively should be further investigate so as to enhance their moderate- to vigorous-intensity physical activity (MVPA) level.

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10.1 Appendix 1: Questionnaire of exercise habit and motivation in PE

運動習慣和體育課問卷

第一部分

請回答於下列問題，注意每題只有一個答案，請留意您的書寫。

1. 性別:	男/ 女（刪去不適用）	2. 年齡:	歲
3. 就讀班別:			

第二部分

以下將會詢問閣下通常每星期用多少時間進行各類體力活動。不論你是否經常參與運動，也請回答下列問題。

以下我們將體力活動分為"劇烈"或"中等強度"。

對體力要求甚高，令呼吸和心跳劇烈加速的為劇烈體力活動。

對體力要求一般，令呼吸和心跳稍微加速的為中等強度體力活動。

與上體育課相關的活動

1	你在上體育課時需要連續進行劇烈活動(令呼吸和心跳劇烈加速)十分鐘以上嗎？(例如跑步、足球等)	☐ 需要 ☐ 不需要（跳至 2）
	通常一週內有多少日上體育課時會進行上述劇烈活動？	_____天（1-7）
	在那幾日的上體育課時，你每日通常花幾多時間做上述劇烈活動？	____小時____分鐘
2	你在上體育課時需要連續進行中等強度體力活動(令呼吸和心跳稍微加速)十分鐘以上嗎？(例如游泳、排球等)	☐ 需要 ☐ 不需要（跳至 3）
	通常一週內有多少日上體育課時會進行上述中等強度體力活動？	_____天（1-7）
	在那幾日的上體育課時，你每日通常花幾多時間做上述中等強度體力活動？	____小時____分鐘

與交通往來相關的體力活動

下一步是交通往來的通常方式，例如去上課、購物等，但並不包括已提及的，上體育課時的體力活動。

3	來往不同地方時，你會連續步行或踩單車十分鐘以上嗎？	☐ 會 ☐ 不會（跳至 4）
	來往不同地方時，通常一週內有多少日你會連續步行/踩單車十分鐘以上？	_____天（1-7）
	你每日來往不同地方時通常花幾多時間步行/踩單車？	____小時____分鐘

康樂活動

下一步是康樂活動，例如下課後興趣班、校隊訓練等的時間、但並不包括已提及的，上體育課和交通相關的活動。

4	你會連續做劇烈運動、健身或康樂活動(令呼吸和心跳劇烈加速)十分鐘以上嗎？(例如跑步、足球等)	☐ 會　☐ 不會（跳至 5）
	通常一週內有多少日會進行上述劇烈康樂活動？	_____天（1-7）
	在那幾日，你每日通常花幾多時間做上述劇烈的康樂活動？	____小時____分鐘
5	你會連續做中等強度運動、健身或康樂活動(令呼吸及心跳稍微加速)十分鐘以上嗎？(例如游泳、排球等)	☐ 會　☐ 不會（跳至 6）
	通常一週內有多少日會進行上述中等強度體力康樂活動？	_____天（1-7）
	在那幾日，你每日通常花幾多時間做上述中等強度體力的康樂活動？	____小時____分鐘

靜態行為

最後是關於靜態行為(包括上課時的坐/臥、乘搭私家車/巴士/鐵路/電車來往不同地方、做功課、與朋友一起坐、上網、打機、看電視等)的時間，但不包括睡眠時間。

6	你每天通常坐/臥多久？	____小時____分鐘

第三部分

請結合你平常參與體育課的經歷，回答下列關於你為什麼參加體育課的問題，並在每一個原因後面選出最符合你的情況，圈出相應的數位，請注意每題只能圈選一個答案。

1 完全不符合	2 很不符合	3 有點不符合	4 有些符合	5 比較符合	6 很符合	7 完全符合

1.	因為不參加體育課，我會感到自己很差。	1	2	3	4	5	6	7
2.	我曾經擁有良好的理由參與體育課，但現在我不知道為什麼要繼續參加。	1	2	3	4	5	6	7
3.	因為學習提高運動技能的方法很有趣。	1	2	3	4	5	6	7
4.	因為參與體育課反映了最真實的自己。	1	2	3	4	5	6	7
5.	因為不參加體育課，身邊重要的人會對我發脾氣。	1	2	3	4	5	6	7
6.	因為參加體育課是提高自己所看重的素質的一個好辦法。	1	2	3	4	5	6	7
7.	因為不參加體育課，我會覺得自己的價值感降低。	1	2	3	4	5	6	7
8.	因為不參加體育課，身邊重要的人會對我表示不滿。	1	2	3	4	5	6	7
9.	因為發現提高運動技能的辦法很愉快。	1	2	3	4	5	6	7
10.	因為不參加體育課會受到懲罰。	1	2	3	4	5	6	7
11.	因為做體育課已成為我生命中不可缺少的一部分。	1	2	3	4	5	6	7
12.	因為參加體育課是自我提升的一個好方式。	1	2	3	4	5	6	7
13.	參加體育課的原因已不再清晰，我真不覺得我需要上體育課。	1	2	3	4	5	6	7
14.	因為參與體育課與我的價值觀相符。	1	2	3	4	5	6	7

1 完全不符合	2 很不符合	3 有點不符合	4 有些符合	5 比較符合	6 很符合	7 完全符合

15.	因為參加體育課，身邊重要的人會給我物質獎勵。	1	2	3	4	5	6	7
16.	因為參加體育課，我對自己感覺會好些。	1	2	3	4	5	6	7
17.	因為參加體育課能給我帶來樂趣。	1	2	3	4	5	6	7
18.	因為參加體育課是發展我其他方面能力的一個好途徑。	1	2	3	4	5	6	7
19.	因為不參加體育課會受到老師的責備。	1	2	3	4	5	6	7
20.	我覺得我在自己的體育課上毫無作為，我不知道為何要繼續參加。	1	2	3	4	5	6	7

----------全問卷完----------

10.2 Appendix2: Consent form for school

香港教育大學

<健康與體育學系>

THE EDUCATION UNIVERSITY OF HONG KONG
<Department of Health and Physical Education>

參與研究同意書(學校)

初中生對體育課的學習動機和課餘運動習慣之間的關係

CONSENT TO PARTICIPATE IN RESEARCH (FOR SCHOOL)

The correlation between motivation in Physical Education lessons and exercise habit among junior secondary school students

本校同意參加由謝采揚博士負責監督，潘詠彤負責執行的研究計劃。她/他們是香港教育大學學生/教員。
My school hereby consents to participate in the captioned project supervised by Dr. Andy Tse and conducted by Poon Wing Tung, who are staff / students of the Department of Health and Physical Education in The Education University of Hong Kong.

本人理解此研究所獲得的資料可用於未來的研究和學術發表。然而本人有權保護本校學生/教師的隱私，其個人資料將不能洩漏。
I understand that information obtained from this research may be used in future research and may be published. However, our right to privacy will be retained, i.e., the personal details of my students'/teachers' will not be revealed.

研究者已將所附資料的有關步驟向本人作了充分的解釋。本人理解可能會出現的風險。本人是自願讓本校學生/教師參與這項研究。
The procedure as set out in the **attached** information sheet has been fully explained. I understand the benefits and risks involved. My students'/teachers' participation in the project are voluntary.

本人理解本人及本校學生/教師皆有權在研究過程中提出問題，並在任何時候決定退出研究，更不會因此而對研究工作產生的影響負有任何責任。
I acknowledge that we have the right to question any part of the procedure and can withdraw at any time without negative consequences.

簽署 Signature: _____

校長/ 學校代表*姓名: _____ (教授/博士/先生/女士/小姐*)

Name of Principal/Delegate*: _____ (Prof/Dr/Mr/Mrs/Ms/Miss*)

職位:

Post: _____

學校名稱:

Name of School: _____

日期:

Date: _____

(*請刪去不適用者)

(* please delete as appropriate)

有關資料

INFORMATION SHEET

初中生對體育課的學習動機和課餘運動習慣之間的關係

The correlation between motivation in Physical Education lessons and exercise habit among junior secondary school students

誠邀 貴校參加謝采揚博士負責監督，潘詠彤負責執行的研究計劃，她/他們是香港教育大學健康與體育學系的學生/教員。

Your school is invited to participate in a project supervised by Dr. Andy Tse and conducted by Poon Wing Tung, who are staff / students of the Department of Health and Physical Education in The Education University of Hong Kong.

研究計劃簡介

The introduction of the research

A) 闡述研究計劃的目的

A) What does the research involve?

不同的研究已經證明了運動對人的好處，而世界衛生組織亦為不同年齡的人士訂立了他們的運動量和時間的標準。可是，近年研究發現香港學生的運動量低於世界衛生組織的標準。而體育是唯一一個有系統的學校科目來確保每一個學生都有一定的運動量。這項研究旨在調查初中生對體育課的學習動機和課餘運動習慣之間的關係。並根據調查結果來進一步研究如果提高學生的課餘運動習慣。

The benefits of physical activities have been proved by many researches. To achieve those benefits, the World Health Organization has set a standard on the time and level of exercise among different age groups. However, recent research shown that the exercise amount of Hong Kong students is lower than the WHO standard. Physical Education is the only school class that offers structured setting to ensure all children participate in physical activities. Therefore, this research is aim at finding the relationship between junior secondary school students' motivation in PE lesson and their exercise habit. And discuss how to enhance students' exercise habit base on the results.

說明選擇該組參與者的原因

B) Why were you chosen for this research?

初中學生有較少因素影響他們的課餘運動習慣，例如：學業壓力、學校職責等等。而且，他們有最少六年參與正式體育課的經驗，對體育課的學習動機較小學生穩定。因此選擇初中學生可以幫助我們取得一個較準確的結果。

Junior secondary students may have fewer factors, such as academic pressure, duties in school and so on, in affecting their exercise habit. Also, they have experienced at least six years of formal PE lesson in Primary school. Their motivation in PE is more stable than the primary school students.

Therefore, choosing junior secondary students may help us getting a more accurate result.

研究方法

The methodology of the research

A) 參與人數

A) Describe how many participants you will include in this study

此研究將會招聘約二百五十名參與者。參與者的聯繫將通過學校和參與者獲得。

250 participants will be recruited for the proposed study. The contact of the participants will be obtained through schools and participants.

B) 說明工作及步驟

B) Procedure of the research

由於所有參與者的年齡都少於 18 歲，所以在參與研究前，他們的家長或監護人需要填寫一份同意書。參與者將會在中一至中三的班別中隨機抽選，而他們需要在體育課期間填妥問卷。他們將會被安排到一個有研究員監察的課室中填妥問卷。參與者在該課室內需要保持寧靜，而研究員將會首先向參加者講述本研究的目的。另外會向他們講解填寫問卷的指引和告訴他們答案沒有「對」與「錯」之分。他們填妥問卷後便直接將問卷給研究員。而個人資料只會作本次研究使用，不會向其他人洩露。

As all participants are below 18 years old, parents' or guidance's approval will be completed before participating in this research. Participants will be randomly selected from form one to three classes. Participants are required to fill in a questionnaire at the beginning of their PE lesson. They will be assigned into a quiet classroom with a researcher monitoring the whole process. Then the researcher will explain the purpose of this questionnaire and the direction of filling in the questionnaire and inform them that there is no 'right' or 'wrong' answers. After they fill in the questionnaire, they have to give it to the researcher directly. All personal information will be used in this research only and will not reveal to the others.

C) 說明任何利益 (包括對參與者的補償)

C) Potential benefits (including compensation for participation)

此研究沒有任何利益。

There is no potential benefits..

說明任何風險 (若無，請明確指出)

The potential risks of the research (State explicitly if none)

此研究沒有潛在風險。

There is no potential risk.

貴校學生/教師的參與純屬自願性質。所有參加者皆享有充分的權利在研究開始前或後決定退出這項研究，更不會因此引致任何不良後果。凡有關 貴校學生/教師的資料將會保密，一切資料的編碼只有研究人員得悉。

Please understand that your students'/teachers' participation are voluntary. They have every right to withdraw from the study at any time without negative consequences. All information related to your students'/teachers' will remain confidential, and will be identifiable by codes known only to the researcher.

描述將如何發佈研究結果

Describe how results will be potentially disseminated

研究結果將會以壁報展覽及匯報。

The result will be presented by the board presentation.

如閣下想獲得更多有關這項研究的資料,請與潘詠彤聯絡,電話 或聯絡她/他們的導師謝采揚博士,電話

If you would like to obtain more information about this study, please contact Poon Wing Tung at telephone number or their supervisor Dr. Andy Tse at telephone number

如閣下對這項研究的操守有任何意見,可隨時與香港教育大學人類實驗對象操守委員會聯絡(電郵:hrec@eduhk.hk; 地址:香港教育大學研究與發展事務處)。

If you have any concerns about the conduct of this research study, please do not hesitate to contact the Human Research Ethics Committee by email at hrec@eduhk.hk or by mail to Research and Development Office, The Education University of Hong Kong.

謝謝閣下有興趣參與這項研究。

Thank you for your interest in participating in this study.

潘詠彤
Poon Wing Tung
首席研究員
Principal Investigator

Appendix 10.3: Consent form for parents:

香港教育大學

<健康與體育學系>

THE EDUCATION UNIVERSITY OF HONG KONG
<Department of Health and Physical Education>

參與研究同意書

初中生對體育課的學習動機和課餘運動習慣之間的關係

CONSENT TO PARTICIPATE IN RESEARCH

The correlation between motivation in Physical Education lessons and exercise habit among junior secondary school students

茲同意敝子弟_____參加由謝采揚博士負責監督，潘詠彤執行的研究項目，她/他們是香港教育大學健康與體育學系的學生/教員。

I _____ hereby consent to my child participating in the captioned research supervised by Dr. Andy Tse and conducted by Poon Wing Tung, who are staff / students of the Department of Health and Physical Education in The Education University of Hong Kong.

本人理解此研究所獲得的資料可用於未來的研究和學術發表，然而本人有權保護敝子弟的隱私，其個人資料將不能洩漏。

I understand that information obtained from this research may be used in future research and may be published. However, our right to privacy will be retained, i.e., the personal details of my child will not be revealed.

研究者已將所附資料的有關步驟向本人作了充分的解釋，本人理解可能會出現的風險，本人是自願讓敝子弟參與這項研究。

The procedure as set out in the **attached** information sheet has been fully explained. I understand the benefits and risks involved. My child's participation in the project is voluntary.

本人理解本人及敝子弟皆有權在研究過程中提出問題，並在任何時候決定退出研究，更不會因此而對研究工作產生的影響負有任何責任。

I acknowledge that we have the right to question any part of the procedure and can withdraw at any time without negative consequences.

參加者姓名:

Name of participant: _____

參加者簽名:

Signature of participant: _____

父母姓名或監護人姓名:

Name of Parent or Guardian: _____

父母或監護人簽名:

Signature of Parent or Guardian: _____

日期:

Date: _____

有關資料

INFORMATION SHEET

初中生對體育課的學習動機和課餘運動習慣之間的關係

The correlation between motivation in Physical Education lessons and exercise habit among junior secondary school students

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B) 說明選擇該組參與者的原因

B) Why were you chosen for this research?

初中學生有較少因素影響他們的課餘運動習慣，例如：學業壓力、學校職責等等。而且，他們有最少六年參與正式體育課的經驗，對體育課的學習動機較小學生穩定。因此選擇初中學生可以幫助我們取得一個較準確的結果。

Junior secondary students may have fewer factors, such as academic pressure, duties in school and so on, in affecting their exercise habit. Also, they have experienced at least six years of formal PE lesson in Primary school. Their motivation in PE is more stable than the primary school students.

Therefore, choosing junior secondary students may help us getting a more accurate result.

研究方法

The methodology of the research

A) 參與人數

A) Describe how many participants you will include in this study

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250 participants will be recruited for the proposed study. The contact of the participants will be obtained through schools and participants.

B) 說明工作及步驟

B) Procedure of the research

由於所有參與者的年齡都少於 18 歲，所以在參與研究前，他們的家長或監護人需要填寫一份同意書。參與者將會在中一至中三的班別中隨機抽選，而他們需要在體育課期間填妥問卷。他們將會被安排到一個有研究員監察的課室中填妥問卷。參與者在該課室內需要保持寧靜，而研究員將會首先向參加者講述本研究的目的。另外會向他們講解填寫問卷的指引和告訴他們答案沒有「對」與「錯」之分。他們填妥問卷後便直接將問卷給研究員。而個人資料只會作本次研究使用，不會向其他人洩露。

As all participants are below 18 years old, parents' or guidance's approval will be completed before participating in this research. Participants will be randomly selected from form one to three classes. Participants are required to fill in a questionnaire at the beginning of their PE lesson. They will be assigned into a quiet classroom with a researcher monitoring the whole process. Then the researcher will explain the purpose of this questionnaire and the direction of filling in the questionnaire and inform them that there is no 'right' or 'wrong' answers. After they fill in the questionnaire, they have to give it to the researcher directly. All personal information will be used in this research only and will not reveal to the others.

C) 說明任何利益（包括對參與者的補償）

C) Potential benefits (including compensation for participation)

此研究沒有任何利益。

There is no potential benefits.

說明任何風險（若無，請明確指出）

The potential risks of the research (State explicitly if none)

此研究沒有潛在風險。

There is no potential risk.

閣下及 貴子女的參與純屬自願性質。閣下及 貴子女享有充分的權利在任何時候決定退出這項研究，更不會因此引致任何不良後果。凡有關 貴子女的資料將會保密，一切資料的編碼只有研究人員得悉。

Your child's participation in the project is voluntary. You and your child have every right to withdraw from the study at any time without negative consequences. All information related to your child will remain confidential, and will be identifiable by codes known only to the researcher.

描述將如何發佈研究結果

Describe how results will be potentially disseminated

研究結果將會以壁報展覽及匯報。

The result will be presented by the board presentation.

如閣下想獲得更多有關這項研究的資料，請與潘詠彤聯絡，電話 或聯絡她的導師謝采揚博士，電話

If you would like to obtain more information about this study, please contact Poon Wing Tung at telephone number or her supervisor Dr. Andy Tse at telephone number

如閣下或 貴子女對這項研究的操守有任何意見，可隨時與香港教育大學人類實驗對象操守委員會聯絡(電郵：hrec@eduhk.hk；地址：香港教育大學研究與發展事務處)。

If you or your child have/ has any concerns about the conduct of this research study, please do not hesitate to contact the Human Research Ethics Committee by email at hrec@eduhk.hk or by mail to Research and Development Office, The Education University of Hong Kong.

謝謝閣下有興趣參與這項研究。

Thank you for your interest in participating in this study.

潘詠彤
Poon Wing Tung
首席研究員
Principal Investigator