Exploring the Effects of a Running Program on Self-efficacy and Enjoyment of High School Students: A Case Study

by

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B.Ed., National Taiwan Normal University, 1999

A Thesis Submitted in Partial Fulfillment of the

Requirements for the Degree of

MASTER OF ARTS

in the School of Exercise Science, Physical and Health Education

University of Victoria

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Abstract

In Taiwan, the running race has become a prevalent physical activity (PA) over the past decade. A personalized running program, *Run-Up*, is a middle distance running unit that integrates a series of educational activities into an existing high school physical education (PE) course for enhancing students' efficacy beliefs and enjoyment of running. Self-efficacy theory (SET) provided a framework to help the researcher understand how and why the *Run-Up* program activities affect students' efficacy beliefs and perspectives on running. This qualitative case study was designed to explore the effectiveness of the *Run-Up* program in promoting high school students' self-efficacy and enjoyment of a middle distance running in a single class of grade twelve students in Taiwan. Data collection methods included semi-structured interviews with students and the teacher, their course feedback forms, and the samples of their journal entries including the students' course work and teacher's teaching notes. Data were analyzed by using constant comparison. Three resulting themes explicated how diverse learning activities integrated with multiple learning strategies in the *Run-Up* program could serve as an avenue to foster high school students' self-efficacy and enjoyment of running. Comments from both the teacher and students highlighted the value of the *Run-Up* program as an educational PA program.

Keywords: running, self-efficacy, enjoyment, adolescents, physical education

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Acknowledgements

I would like to especially thank my supervisor, Dr. Sandra Gibbons, for her incredible support and constant belief in me throughout my journey as a graduate student at the University of Victoria. Your very first email with your agreement to be my supervisor was warm and encouraging. It allowed me to make the decision to come here right away. The more time I stayed with you, the more appreciation I have for you. Not only I am grateful for the guidance you have given to me, but also for supporting me in a very thoughtful and understanding way. I admired your teaching philosophy, which has inspired me to be the best possible teacher I can be. As well, thank you to Dr. Lara Lauzon, who has shared her passion for teaching with me and provided me with her expertise and assistance for my study. Your support and kind words are truly inspiring and encouraging.

To the participating teacher and students in Taiwan, I am so grateful for the time and energy you have contributed during the study. To the teacher, your support and active engagement played an essential role in the successful implementation. I couldn't help admiring your teaching belief and the close relationship you developed with your students. To the students, I have so appreciated your participation in the study and willingness to share your valuable experience. Your support and suggestions have reminded me how important it is to consider students' diverse needs as a teacher.

A special thank you to my researcher assistants, student teacher Wu and Tsai. I could not have done this study without your engagement and assistance. With a remote setting in this study, both of you helped me prepare the documental materials and facilities in the first sites throughout the study. The satisfied outcomes and enjoyment I received from conducting this study with you are so amazing because we have coped with the challenges and shared the growth together.

Dedication

Being a PE teacher, I would like to thank my senior high school PE teacher, teacher Deli Wu and university professor, Dr. Mayling Chuang, who provided the support and love I needed to develop my professional and personal confidence. To teacher Wu, who passed away when I was in the first year of my graduate studies, you had shown me that a PE teacher could give the students so much love as a parent to impact their entire life. To Dr. Chuang, you not only guided me to become a certified PE teacher but also have consistently inspired me to be an "enthusiastic teacher."

Finally, I would like to thank my families, friends and former students who have supported me in different ways. Thank you to my parents and three brothers for providing the love and freedom I needed to persevere throughout my overseas study. And to those friends and former students, thank you for constantly believing in me. Your support and love have brought me so much joy and happiness which have nurtured me to be a progressively better lifetime teacher.

Chapter 1: Introduction

Community running races in Taiwan have become a dominant social trend over the past decade. According to statistical data, the number of running events in Taiwan between 2006 and 2016 increased from 98 to 595 per year (Runners' Plaza, n.d.). To date, the organizers of running events cooperate with local governments and commercial sponsors to design multiple running activities, such as gender themed, local culture themed, family themed and even charity themed road running races. These types of running events have become one of the most prevalent leisure time physical activity (PA) choices. Also, the increasing popularity of running events contributes to a growing number of running participants. For example, forty-two thousand runners enrolled in the races at the 2014 Taipei Fubon Marathon, including 9K, 21.095K (half marathon) or 42.195K (marathon) run. In terms of age distribution, 65% of the certificated finishers who ran either a half or full marathon were under 40 years old in 2014 significantly higher than the 50% in 2005 (Zhang, 2014). The age of entrants of these running events tends to be lower, which implies the potential benefit in promoting young adults' physical health.

Physical education (PE) in the Taiwanese school system is well-situated to help students learn the necessary knowledge, skills, and behaviours to participate in these types of running events. The high school PE curriculum in Taiwan aims to help students develop the required skills and knowledge of lifetime PA, and present positive attitudes and behaviours for future active and healthy life (K-12 Education Administration, Ministry Education, 2015). Additionally, research findings support that the learning experiences in high school PE are positively associated with adolescents' self-concept (e.g., physical level, body image and, global self-esteem; Beasley & Garn, 2013; Garn et al., 2012). The preceding outcomes emphasize the potential for a well-designed running program in PE to increase students' intention or motivation

to engage in running as a leisure time activity.

High school PE programs in Taiwan are comprised of a range of team sports and individual physical activities. Fitness-based and running-related activities are well-accepted as critical and effective contributors in many high school PE programs. In particular, they are viewed as important options to help students develop their overall physical fitness. For example, Bonhauser et al. (2005) reported that fitness programs could help teenagers not only develop VO2max, speed, and jump performance, but also self-esteem and mental well-being. Running is viewed as a priority unit in the existing PE curriculum because of its potential for helping students reach the goal of being healthy across physical, mental and social dimensions. Running is a natural mechanism (body movement) with beneficial features of the optimal environment (less limitation in location and facility), accessible (individual and economic activity), adaptable (personal progress rather than winning), and inclusive of promising outcomes (physical fitness such as cardiovascular fitness and psychological well-being such as self-efficacy).

To date, preliminary studies not only present evidence of successful fitness-based or running-specific programs in high school PE, but also provide suggestions on how to enhance the effectiveness of relevant programs. For example, findings indicate that meeting students' different needs (based on ability, preference, past experience, etc.) and having proper context adaptions (choices of doing different tasks, individuals' goals, and assessment of desired tasks, etc.) may reduce their discomfort and increase the enjoyment of running in PE class (Næss, Säfvenbom & Standal, 2014). A consistent finding also suggests that teachers who have more understanding of students' needs (e.g., preference and various activities) and proper strategies (e.g., diverse levels of activities and proper grouping) can positively affect high school students' attitude toward fitness units in PE (Rikard & Banville, 2006). Furthermore, the study indicates

that the more lifelong activities (i.e., that people can do at any age with low risk) students do in high school PE, the greater likelihood they will continue those activities throughout their lives (Barney et al., 2015). Thus, students are expected to learn running or jogging as one of their lifetime sports that they can do throughout their lives. However, there is a scarcity of research that examines the effectiveness of a specific middle-distance running unit within the high school PE curriculum in Taiwan. The purpose of this project was to examine the effectiveness of the *Run-Up* program (a running-specific unit) in high school PE and its potential to contribute to adolescents' physical health and psychological well-being.

The *Run-Up* program is a personalized running unit in high school PE in Taiwan that aims to help adolescents learn the skills and knowledge of running, improve their physical fitness level, increase their enjoyment of running, and foster their efficacy beliefs in accomplishing a middle-distance run (e.g., 3 K or 5K). It also assists students in coping with challenges in life and stimulates their motivation to engage in running and enjoy their running experience in PE class. The *Run-Up* program is situated in the category of competitive sports (i.e., track and field) within the curriculum in Taiwan (KEAME, 2015). The program also highlights "the concept of the fourth core ability that students can cultivate a positive attitude and gain a substantial ability to deal with the pressure in life from the learning experiences" (KEAME, 2015, pp. 374-375).

Many of the learning activities and strategies included in the *Run-Up* program are grounded in the concept of self-efficacy. Self-efficacy is the core concept of Bandura's (1986) social cognitive theory of motivation and illuminates how individuals' beliefs about performance can successfully affect their behaviours. Self-efficacy beliefs are defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). The concept of self-efficacy is relevant to learning in the PE context.

That is, adolescents with higher self-efficacy might present higher motivation to engage in the desired behaviours such as sports skills learning and PA participation in PE class. The four major sources of self-efficacy, including enactive mastery experience, vicarious experience, verbal persuasion, physiological and affective states provide a means to better understand how and why the learning activities and strategies used in the program impact students' efficacy beliefs. Thus, using self-efficacy as a theoretical framework is beneficial to examine the learning activities and strategies utilized in the *Run-Up* program.

Purpose of Study

The *Run-Up* program is designed to fit into the track and field unit in the high school curriculum in Taiwan. The program is integrated with a number of diverse learning activities and specific strategies to elicit beneficial and meaningful learning outcomes for students. The program learning activities and strategies selected for inclusion in the *Run-Up* program are grounded in the concept of self-efficacy. The purpose of the study was to gain insight into the effectiveness of a personalized running program *(Run-Up)* in developing high school students' skills, knowledge, and physical fitness level associated with middle distance running and how the learning experiences affect their self-efficacy and enjoyment of running.

Research Questions

Three research questions were addressed in this study:

1. What are the students' perceptions of the effectiveness of the *Run-Up* program on their self-efficacy?
2. What are the students' perceptions of the effectiveness of the *Run-Up* program on their enjoyment of running?
3. What are the teacher's perceptions of effectiveness of the *Run-Up* program on students'

self-efficacy and their enjoyment of running?

Assumptions

1. The participants (students and the teacher) responded truthfully to the program journals, handbooks, feedback forms and the interviews.
2. The participants were able to verbally describe and reflect authentically on their experiences.
3. The researcher's past experience became part of the research process.

Limitations

1. The themes presented were only applicable to the experiences in this PE course in this large-sized urban school in Taiwan.
2. The researcher might have biased the results or influenced the interpretation of the responses.
3. There was no preliminary study to support the effectiveness of the personalized running program because it was a novel program.

Delimitations

1. The study focused on students in their final year of high school (grade 12, aged 17-18) and their PE teacher (with at least 5 years teaching experience).
2. The study was limited to the participants of one PE class (one teacher and 38 students) in a high school.
3. The duration of the study was comprised of eight 50-minute lessons over four weeks.

Operational Definitions

Adolescence: the adolescent refers to the period of transition between childhood and adulthood. In this study, late adolescence (15-18 years old) was examined.

Descriptive case study: a study that investigates a contemporary phenomenon through describing a case in depth and in its real-world context (Yin, 2014).

Fitness unit: the fitness unit in this study is one of the course content relating to physical health in high school physical education and it includes the fitness of cardiorespiratory endurance, muscular endurance, muscular strength, flexibility, and body composition (Feith, 2014).

Learning activities: the activities that the teacher-guided instructional tasks and assignments for students in the program (Wandberg & Rohwer, 2011). In this study, these learning activities were dynamic warm-up, cool-down stretching, a runner story, personalized running practice, grouping running activities (e.g., rope-holding and chasing run), self-reflection, journal writing, a 3K/5K run, assignments, etc.

Learning environment: the class setting (structures and teaching strategies) and student interactions (student-student and student-teacher) in class.

Learning strategies: these are strategies integrated into the learning activities for achieving the desired learning outcomes. The following ten learning strategies were included in this study: mastering, goal-setting, modeling, self-reflection, journaling, incentives, social support, positive feedback, positive self-talk, and technology.

Motivation: the energy, direction, and persistence of activation and intention (Deci & Ryan, 2000).

Personalized running program: a running program designed with diverse activities and specific learning strategies to consider the individual differences (e.g., abilities, interests, and personalities) among students.

Physical activity (PA): any bodily movement produced by skeletal muscles that require energy

expenditure (World Health Organization, 2016).

Physical Education (PE): a school subject that aims to not only help students acquire the skills, knowledge, and joy, but also develops appropriate attitudes, behaviours and habits to enhance their quality of life through participating in active living (KEAME, 2015).

Runner story: a video describing how a famous Taiwanese ultra marathoner, Tommy Chen, pursued his challenging goal (Gong Shi, 2013).

***Run-Up* program:** a personalized middle-distance (e.g., 3 K or 5K) running program that aims to help adolescents learn the skills and knowledge of running, improve their physical fitness level, increase their motivation to run, foster their efficacy beliefs, and increase their enjoyment of running.

Senior high school students: school students between the ages of 15-18 (grade10-12).

Single-case study: a case study organized as a single case; the case might have been chosen because it was a critical, unusual, revelatory, or longitude case (Yin, 2014).

Teamwork: the work accomplished by a group of people who have the same purpose.

Chapter 2: Review of Literature

The literature review has been divided into five sections. The first section examines the research on running programs in elementary and high school PE. The second section explores some studies on extracurricular running programs and their learning activities. The third section explicates adolescents' age-related development of PA behaviours. Section four highlights the concept of self-efficacy in PE and how its sources are used as a framework to elucidate the impact on high school students' motivation and enjoyment of running. The fifth section summarizes the program learning strategies utilized in running-specific studies in both school-based PE and extracurricular programs.

Research on Running Programs in Physical Education

Lubans et al. (2017) posited that the *Supportive, Active, Autonomous, Fair, Enjoyable* (SAAFE) principles could serve as a guide for the planning, delivering, and evaluating a high-quality school-based program. The authors suggested that a quality PA program is designed in accordance with the following five principles including a *Supportive* learning environment, *Active* PA engaging time, *Autonomous* support, a *Fair* opportunity to success, and an *Enjoyable* learning experience. Overall, research has exemplified many of the principles identified by Lubans et al. (2017) as necessary for the design and implementation of an effective PA program.

The vast majority of research on the effectiveness of running programs in PE is at the elementary level. A series of studies provide some evidence to illuminate how to foster elementary school students' motivation to participate in PA via running programs (Xiang et al., 2007, 2011; Xiang, Bruene, & McBride, 2004; Xiang, McBride, & Bruene, 2004, 2006). The findings support that running-related units may not only promote children' physical fitness but also change their feelings of running, which is reported to be the least popular unit in PE. Three

of the five studies examined the impact of participation in a specific running program (*Roadrunners*) in PE on fourth graders' motivation to engage in healthy behaviours (Xiang, Bruene, & McBride, 2004; Xiang, McBride, & Bruene, 2004, 2006). They found that students who participated in this mastery-goal-focused program significantly increased their task values, fostered their efficacy beliefs to fitness performance, and were motivated to participate in future PA. This finding elucidated Lubans et al.'s (2017) *Fair* principle, which endeavours to provide all students with an opportunity to experience success or progress. In two more recent studies, Xiang and her colleagues (2007, 2011) examined how the four different goal orientation patterns (i.e., high task/high ego, high task/low ego, low task/high ego and low task/low ego) distributed among children and how the patterns affected their motivation and achievement in PA through examining their experiences of a running program, called *Run for Your Life.* The findings of the studies showed that the task-mastery goal-orientated program was positively associated with students' motivation and performance in PA. In addition, the findings highlighted that most fifth- and sixth-grade students shifted their goal orientation patterns to the desired goal patterns (i.e., high task-orientated) via participating in the program.

To elucidate, the five studies focusing on achievement goal theory provide consistent evidence that students who participate in a program with task orientation or mastery goal tend to have positive expectancy beliefs (i.e., the beliefs how well you can perform in desired behaviours), a high level of task values (importance, interest, and usefulness of task), an intention to future PA participation, and a better 1-mile running performance (Xiang et al., 2007, 2011; Xiang, Bruene, & McBride, 2004; Xiang, McBride, & Bruene, 2004, 2006). The findings of two studies, grounded in achievement goal theory and expectancy-value model as a framework to examine students' motivation and achievement behaviours in running, suggest that

students with a higher task-efficacy belief tend to display a higher motivation to engage in later activities and have a better performance on their 1-mile running tests (Xiang, McBride, & Bruene, 2004, 2006). Furthermore, Xiang, McBride, and Bruene (2004) suggest that the learning activities, which are interesting for children to do and helpful for them to understand the value of running, can help young students not only have fun and enjoy running but also encourage them to participate in future activities. This is in consistent with Lubans et al.'s (2017) *Enjoyable* principle. These results also support that students' expectancy beliefs and interests of running are positively associated with their efforts and persistence to overcome some difficulties such as physical discomfort or incompetence in tasks (Xiang, McBride, & Bruene, 2004, 2006).

The two studies integrating the *Run for Your Life* running program into fifth-grade elementary school PE class reported a positive relationship between achievement goal patterns and students' motivational behaviours in running (Xiang et al., 2007, 2011). Nearly 60% of the 533 students, who participated in the running program and displayed the adaptive goal patterns (i.e., high task/high ego and high task/low ego) tended to persistently make efforts doing their tasks (Xiang et al., 2007). On the other hand, 27% of students who have low task/low ego goal orientation were more likely to have a lower expectancy belief, possibly leading to a lower level of motivation to learn in class. The findings of a two-year follow-up study not only reinforced a significant relationship between task orientation and behavioural motivation but also indicated that the goal patterns showed promise in predicting a change in motivation over time for elementary school students (Xiang et al., 2011). For example, a task-orientated running program like the *Run for Your Life* program can successfully foster students' expectancy beliefs in fifth to sixth grade, help them understand the importance and usefulness of the task, and then increase their motivation to participate in running activities (Xiang et al., 2007, 2011). Additionally,

expectancy beliefs of and interest in a task are highlighted as critical learning outcomes of a running program. All in all, a well-designed running program including the proper goal patterns or a motivational climate may help children promote their running abilities, believe they can perform well in future desired tasks, and increase their enjoyment of running.

In a more recent study, Sluder and Howard-Shaughnessy (2015) examined a running program that integrated two educational models (i.e., sports education and cooperation learning) on primary school students' feelings and engagement in running. Their findings suggest that a running program may not only embrace an autonomy-supportive and teamwork-focused climate but also integrate interdisciplinary subjects and technologies. The authors discussed how a running program utilizing technologies (e.g., music, GPS, video, or heart rate monitor) and cross-subject resources (e.g., such as health or math) in game-like and running-related activities had the potential to successfully help children enjoy running. The findings confirmed Lubans et al.'s (2017) *Supportive* principle by providing students with a supportive learning environment, *Autonomous* principle via offering them with choice, and *Enjoyable* principle through letting them have fun.

There is considerable evidence that shows a well-designed running unit with a positive learning environment focusing on skills learning will promote children and adolescents' physical fitness (e.g., cardiovascular fitness) and psychological well-being (e.g., reducing anxiety and fostering self-esteem), while a negative learning environment (e.g., no fun activities) may diminish the outcomes. Xiang, McBride, and Bruene (2006) gained insight into reasons why fourth-grade participants in the *Roadrunners* program enjoyed or did not enjoy the program. Their findings indicated that two-thirds of the students enjoyed the program because they realized the benefits of running (e.g., promoting health and learning movement skills).

Conversely, a feeling of boredom was the second key factor of why students did not enjoy the running-related activities (the leading factor was a feeling of physical discomfort). These curricular running programs in elementary school PE are highlighted because their potential contributions to help children learn running skills, promote physical fitness, enhance self-confidence, and foster their enjoyment of running.

Contrary to the aforementioned running programs in elementary school PE, there is a scarcity of research that examines the effectiveness of curricular running programs at the high school level. Resonating with Lubans et al.'s (2017) *Autonomous* and *Enjoyable* principles, Næss, Säfvenbom, and Standal (2014) suggest that a running program such as *Running with Dewey,* which integrates autonomy-supportive and reflection-supportive climate in PE may help adolescents enjoy running. According to Dewey's experiential learning concept (1916), students' needs (based on previous experiences, preferences, abilities, etc.) can be satisfied by perceiving autonomous support during the learning process, and students' learning outcomes can be strengthened by reflecting on the interactions between previous learning experiences and an external learning environment. For example, these findings indicate that if students are allowed to choose their own running forms (e.g., speed and pace) or are guided to reflect upon their previous learning experiences at the end of every class, they tend to have a more enjoyable running experience (Næss, Säfvenbom, & Standal, 2014). The authors also suggest that positive experience-orientated running activities (having fun and enjoying running), an autonomy-supportive, and reflection-supportive climate could be implemented in the running-related courses to increase students' motivation. Specifically, the evidence suggests that autonomy-supportive climate plays an essential role in affecting students' positive feelings toward running (Næss, Säfvenbom, & Standal, 2014; Sluder, & Howard-Shaughnessy, 2015).

Community Running Programs for Children and Adolescents

Running programs in before- or after-school programs. The results of several studies demonstrate that extracurricular running programs can effectively promote PA participation, increase the understanding of the value of exercise, and change the attitude toward running (DeBate, Zhang, & Thompson, 2007; Jenny, & Armstrong, 2013; Stylianou, Hodges, & Kloeppel, 2014; Wanless et al., 2014). Jenny and Armstrong (2013) provide a guide to implementing a distance running program for educators to establish a safe, fun, and long-term running program for children. They suggest that a well-considered running program can not only help children avoid injury (e.g., over-training) and the negative psychological impact such as a sense of incompetence (e.g., failure of task), but also successfully motivate them to engage in tasks and help them enjoy running. Their findings highlight *Mighty Milers* as a running program that encourages children to become involved in running-related activities through increasing their awareness of the values of running and rewarding their task-accomplishments such as receiving a medal when their accumulated running mileages reach a marathon distance (26.2 miles). Additionally, Stylianou, Hodges, and Kloeppel (2014) found that a before-school running/walking club, which has teachers running or walking with students daily, helped students increase their levels of PA and meet the daily recommended PA (i.e., 60 minutes of MVPA per day) and allowed the teachers to view themselves as a significant role model in promoting healthy living. Also, DeBate, Zhang, and Thompson (2007) found that *Girls on the Run*, a girl-specific program that included 24 curricular lessons and the training for a 5K running event, helped girls solve the issue of being physically inactive. The findings confirmed that the running lessons provided the girls with sufficient opportunities to learn the course content and satisfy their needs such as PA self-efficacy, physical development, social support (from peers and

instructors), and emotional satisfaction (enjoyment and happiness).

Community running programs for children and adolescents in Taiwan. In Taiwan, the most recent extracurricular running programs for children and adolescents were established by a non-profit organization, the John Tung Foundation (JTF), which aims to promote health for all of the people of Taiwan (John Tung Foundation, n.d.). In 2015, the Taiwanese government assigned the foundation to design and conduct a running project for fostering people in Taiwan to engage in PA. The project, named *Run for Fun*, aims to help students cultivate running as an exercising habit and meet the PA recommendation in Taiwan as a so-called *SH150* ("S" stands for Sports and "H" stands for Health; *SH150* means doing exercise at least 150 minutes per week) (Sports Administration, Ministry of Education, n.d.). This project is in consistent with Lubans et al.'s (2017) *Active* principle, which aims to maximize participants' PA engagement. There are a series of three running programs in the project from 2015 to 2016 including, *Fun Run in Monopoly-Run into the Dream Land* (FRM-RDL), *Fun Run in Olympics-Run around the World* (FRO-RW), and *Fun Run in Four Seasons-Run up the Top Hundred Mountains in Taiwan* (FRFS-RTHMT) (SAME, n.d.; Ministry of Education, n.d.). These programs provide an example of a recreational running program, which combines a program goal, an interesting theme, and an incentive system. For example, the FRO-RW is based on a theme, run around the Olympics cities (e.g., Taipei to Atlanta USA: 12,928km.), with a monthly goal to run a distance about 12,928m (about 65 laps for 200M/lap) to earn a certificate and a chance to receive a prize such as a sports watch or t-shirt, etc. These programs provide an online mileage recording system for students to upload, track, and, reflect their running mileages and performance (SAME, n.d.). Consequently, with the policy support (i.e., *SH150*), the running programs have shown positive results in promoting the levels of PA for school-aged youth in Taiwan over the past two years.

Development of PA Behaviours among Adolescents

According to Harter (1999), how and why adolescents change their self-perceptions as they get older is based on their cognitive development and sociocultural environment. With increasing age, teenagers become more cognitively mature to have a complex self-perception system than children. That is, adolescents' cognitive development is more capable of dealing with the complicated thinking procedures and interacting with the sociocultural environment. Weiss (2004) suggests that the motivational behaviour can be best understood by examining individuals' differences (self-perceptions), social environmental factors, and the interaction between both. She indicates that three common reasons why adolescents participate in PA are physical competence (self-efficacy), social acceptance and approval, and enjoyable experiences. To illustrate, the findings of her studies support that the sources of the competence (efficacy) and concept of ability for adolescents are distinguishable from children. Children (ages 4-12) may evaluate their performances and abilities based on their own efforts and feedback from their significant ones' (e.g., parents, peers, and teachers). However, for teenagers (ages 12-18), the factors of how they view themselves and determine their abilities become more complex due to the significant change in physical, cognitive, and emotional development. They tend to use self-referenced information (e.g., skills improvement, efforts, goal achievement, evaluative feedback, competitive outcomes, and attraction toward sports) in order to describe themselves more specifically in observed behaviours, skills, and abilities. For example, teenagers can distinguish the evaluative feedback in multiple aspects such as subjects and ability (e.g., task difficulty, effort, and outcome).

Several studies indicate that peer support is the main source of teenagers' competence and positively associated with their enjoyment, intrinsic motivation, and commitment to engage in

PA (Allen, 2003; Weiss & Smith, 2002). However, within the same age, the sources of competence and motivation may be affected by other factors such as skill level. For instance, Weiss (2004) reported that higher-level gymnastics used the feeling of nervousness and audience's feedback as the main sources to evaluate their feelings and performances. Conversely, the lower level gymnastic tended to use the efforts and enjoyment as the primary sources of their competence.

In terms of the multiple facets of ability, Weiss (2004) highlights that during late childhood and early adolescence, youth can distinguish the differences between ability and capability and know their own personal limitations (i.e., personal ability and efforts may not fully predict the outcome). Once adolescents have a mature concept of ability, they tend to define success in terms of personal improvement and mastery. That is, they judge their self-worth and abilities from their efforts or progress instead of the outcome.

It is evident that understanding age-related changes is beneficial to increase adolescents' self-perceptions and help them cope with the sociocultural environment via employing the sources of competence (Weiss, 2004). In regard to PE, teachers may foster adolescent students' PA behaviours via implementing the development-oriented activities, which aim to provide the personalized sources of competence such as mastery experience, evaluative feedback, and the support from teachers and peers.

Self-efficacy and Four Sources of Self-efficacy

Bandura (1997) defines self-efficacy as the perception of one's ability to perform a desired (given types) task successfully and viewed as one situation-specific form of self-confidence. He also indicates that individuals' outcome expectancies along with self-efficacy can affect their performances. Perceived self-efficacy is the judgment of the one's ability to display a

performance successfully, whereas outcome expectancy is "a judgement of the likely consequence such performance will produce" (Bandura, 1997, p. 21). That is, outcome expectancy is that teenagers expect the results of their performances in types of outcomes including physical (e.g., pleasure or discomfort), social (e.g., social acceptance or rejection), and self-evaluative (e.g., monetary prize or forfeiture rewards) consequences (Bandura, 1997). Ultimately, according to Bandura (1997), adolescents' self-efficacy varies along three dimensions including level (high/low), generality (a wide range of certain domains can be transferred to similar skills and situations), and strength (likelihood to perform successfully and persistently).

The sources of self-efficacy. Self-efficacy has a pivotal role in promoting adolescents' health behaviours. According to Bandura's self-efficacy theory (1986, 1997), adolescents' self-efficacy is increased by the following four sources including enactive mastery experience (performance accomplishment), vicarious experience (modeling), verbal (social) persuasion, and physiological and emotional state based on different circumstances.

The first and viewed as the most powerful source of self-efficacy is mastery experience. In a mastery experience, an individual is successful by mastering simple tasks first and then progressing to more complex tasks (Bandura, 1997; Short, 2014; Weinberg & Gould, 1999). For example, teenagers can learn a distance run by mastering the postures of the body, pace of breathing, coordination of multiple skills while gradually increasing distance. Mastery experiences can help the learners increase their self-efficacy. For instance, Krause and Benavidez (2014) stated that school-aged youth used mastery experiences through playing golf in a Wii video game setting. These experiences motivated them to sustain PA and play golf in the real world.

Vicarious experience is that knowledge or information about a skill or behaviour derived

from modeling others' behaviours and experiences to help individuals improve their performances or learn new skills. To illustrate, teenagers may increase their beliefs to become physical fit via modeling a celebrity's exercise behaviours. They find out about the celebrity's fitness regimen, internalize how to reproduce the behaviours, and perform the actions that coordinate observed behaviours with their abilities. Besides modeling behaviour of another individual in skill learning, observing the experiences of incentives such as seeing a runner receiving a medal or a certificate when accomplishing a marathon may encourage adolescents to participate in a running activity. Overall, modeling the behaviour of significant others (e.g., peers or teachers) has the potential to contribute to adolescents' self-efficacy, learning, and healthy behaviours. Therefore, teachers may use a model and social influences from significant others to enhance students' efficacy beliefs and motivation to perform the desired tasks.

Verbal (social) persuasion such as receiving positive feedback from significant others is another approach to help individuals increase their self-efficacy. Adolescents can be motivated to perform the desired task while their significant' others such as parents and friends express faith in them in the form of verbal support. In PE, teachers might raise the students' efficacy beliefs by conducting the social-related learning activities such as using positive words to comment on the learners' performance (i.e., positive feedback) during the class. In addition, Krause and Benavidez (2014) demonstrated that the use of social persuasion in exergaming could effectively increase the players' self-efficacy. The findings elucidated that the exergames typically provided either verbal (e.g., "awesome" or "good job") or visual (e.g., screen scores or a sign of performance level) feedback or both to enhance players' performance during or after the game. Besides the social influence, verbal persuasion can be an intrapersonal source such as self-talk and self-reflection to encourage teenagers to perform the desired task. For example, an athlete

may say, “I can do this because I have been trained for a long time” before the start of a race or “I am staying on pace” during the race to help them feel confident and maintain the focus on the race. Hence, the use of verbal persuasion shows a contribution to self-efficacy and engagement in health-related behaviours.

The fourth source of self-efficacy is the physiological and emotional state. It is evident that individuals’ self-efficacy and motivation are associated with not only performance but also physiological arousal and specific emotions (Bandura, 1997; Short, 2014; Weinberg & Gould, 1999). A number of studies support that some behaviours or strategies can help adolescents and young adults have a positive physiological or emotional state such as having a better quality of sleep, speaking a positive language, writing a journal, and using a technological device to promote their self-efficacy (Bort-Roig et al., 2014; Caldwell et al., 2009; Fritson, 2008; Hatzigeorgiadis et al., 2008).

Influences and promotion of self-efficacy in adolescents. It is evident that adolescents’ efficacy beliefs have significant positive influences on their behaviours and performances (Bandura,1986; Horn, 2008; Weinberg, & Gould, 1999; Short, 2014). Studies indicate that efficacy beliefs influence how teenagers feel about their behaviours, how much effort they may put forth in the task, how they overcome obstacles, and what level of the goal they intend to achieve (Horn, 2008; Weinberg & Gould, 1999). Additionally, the findings of previous research support that adolescents who perceive a higher self-efficacy via exercising can gain more positive emotional experiences (having fun or feeling excited) and increase motivation to participate in or maintain PA (Samson & Solmon, 2011).

With regard to viewing effort as a key component of performance in the sport and exercise domain, the findings of research highlight a positive relationship between persistence

and performance (Samson & Solmon, 2011). Whereas adolescents with lower efficacy attribute their failure to a lack of ability and are more likely to withdraw from the task engagement, those teenagers who have a higher self-efficacy attribute their setback to a lack of effort (Bandura, 1986; Chase, 2001). Particularly, the results of the preceding studies emphasize that perceived self-efficacy has the potential to help adolescents sustain the effort, persistence, and choice while encountering failure. Chase (2001) also highlighted that the promotion of self-efficacy could help teenagers preserve effort and persistence in order to overcome adversity, improve performance, and learn new skills. Regarding goal achievement, Chase (2001) found that adolescents who had a higher self-efficacy tended to set a higher goal and have a stronger intention (effort and persistence) to attain the goal than those people who had a lower efficacy belief.

Gao, Lodewyk, and Zhang (2009) examined the relationships between self-efficacy and other potential variables, including expectancy-related beliefs (the beliefs to explain how well one can perform a task by knowing goal choices, performance, effort, and persistence), outcome expectancy (one's belief of the probability and value of the desired behaviour), task value (importance, interest, and usefulness of the learning activities and performance) among adolescents. To illustrate, the authors reported that students who believed and expected they could perform well (i.e., ability beliefs: self-efficacy and expectancy-related beliefs) in the cardiovascular fitness test and PE class tended to be more active in PE and were more likely to have a better performance on the fitness test (PACER). This finding is analogous to the findings of aforementioned studies where young students with a higher efficacy and expectancy beliefs tend to display a higher motivation to engage in running activities and have a better 1-mile running performance (Xiang, McBride, & Bruene, 2004, 2006). However, Gao, Lodewyk, and Zhang (2009) indicate that expectancy-related beliefs (context-specific ability beliefs) contribute

to the predictor of PACER scores independently, and self-efficacy (situation-specific ability beliefs) is specified to be a better predictor of the outcome behaviour. In terms of the outcome expectancy and task values, their findings supported that both of them were significantly associated with adolescents' self-efficacy. Additionally, they highlighted that students' values of the task explained the large variance in the motivation to involve in PA while the outcome expectancy might not effectively predict the intention of engaging in PE due to insufficient understanding of the task values.

Three studies examined the promotion of adolescents' self-efficacy and fitness performance via the employment of motivational climates and goal orientations in school PE (Gao et al., 2013; Gao, Lochbaum, & Podlog, 2011). Gao, Lochbaum, and Podlog (2011) indicated that promoting mastery-approach goals and creating a mastery-involving climate could increase students' efficacy beliefs toward their performance in fitness tasks. On the contrary, students with a mastery-avoidance goal were rated as lower in self-efficacy and more likely to have a poor PACER performance (Gao et al., 2013). In addition, one qualitative study examined how a specially designed program could effectively foster adolescents' self-confidence (Lindgren, Patriksson, & Fridlund, 2002). The findings of the study showed that young women aged 13-20 gained the feeling of self-confidence in both sports context and their school life from participating in a self-strengthening program. The participants attributed their increased self-confidence, a faith in their ability to perform successfully in specific circumstances, to the learning experiences from the program such as a value clarification (knowing the value of themselves) and talking in front of a group. In particular, the participants also highlighted that they were empowered by the program to cope with the challenging or uncomfortable situations in their lives.

Learning Strategies to Increase Self-efficacy in the *Run-Up* Program

A number of learning strategies included in the *Run-Up* program were specifically chosen to promote children and adolescents' efficacy beliefs and motivation to participate in running. These learning strategies are explained in this section. The ten strategies are mastering, goal-setting, modeling, self-reflection, journaling, incentives, social support, positive feedback, positive self-talk, and technology (running apps and music). Whether in PE, extracurricular or in the community, running-related programs use similar learning strategies. The implementation of the learning strategies is prevalent across the running programs. The program leaders/instructors adjust the usage and intention of learning strategies for different circumstances. Overall, running programs in PE, before- or after-school, and community-based circumstances share the analogous learning strategies such as goal-setting, incentives, mastering, social support, and journaling and each strategy contributes more or less in the implementation of a running-related program.

Mastering (mastery experience) is a strategy to learn or improve skills and gain confidence via a consistent practice to obtain the successful experiences (e.g., a simple task learning leading to a complex task learning). The experience of mastery is viewed as the most powerful factor determining a person's self-efficacy (Bandura, 1997). The following studies illustrated the positive relationship between a successful past performance and self-efficacy. Hendricks (2014) found that high school musicians who had consistent enactive mastery experiences (rehearsals) were more able to apply their efficacy beliefs to their instrumental performance than those musicians who did not have mastery experiences. Similarly, Sitzmann and Yeo (2013) reported that past performance had a moderate to strong influence on self-efficacy and the impact was across performance tasks, contextual factors, and methodologies.

The results of previous studies imply that the past mastery performance plays an essential role as a predictor of performance because the successful past experiences help individuals increase' their efficacy beliefs (Samson & Solmon, 2011). Consequently, these findings support that the mastery-oriented learning activities in PE have the potential to increase students' self-efficacy and lead to a better performance in an activity like running.

Goal-setting (a form of mastery experience and social/verbal persuasion) is a strategy to learn skills, accomplish a task, and gain confidence via setting objective (e.g., finishing time) or subjective (e.g., performing well) goals. Since Locke first examined goal-setting in 1968, it has been evident that goal-setting is an effective strategy to increase motivation to have a better performance across domains. According to Zimmerman (1990), goal-setting focuses on planning and achieving goals and it involves three major stages of self-regulation: forethought (setting goals), performance control (monitoring performances), and self-reflection (evaluating goal progress). Schunk (2001) suggests further that goal-setting is beneficial for learners to attain goals because it helps them focus on the task and increase their motivation to overcome task difficulties. Similarly, Locken (2007) reported that setting goals helped athletes improve training quality, enhance progress, and increase their motivation to engage in the sports.

In addition, goal-setting is a major learning strategy in the running programs where setting short-term and/or long-term goals can motivate and guide participants on how to run and self-assess their progress. Firstly, two elementary school PE running programs, *Roadrunners* and *Run for Your Life*, set a 1-mile running test as a goal and one after-school running programs, *Mighty Milers*, set a PACER test as a goal to promote participants' cardiovascular fitness (Mighty Milers, n.d.; Xiang et al., 2007; Xiang, Bruene, & McBride, 2004). Secondly, the task goal in *Mighty Milers* program is to encourage children to reach the accumulated running

mileage of a marathon (Mighty Milers, n.d.). Similarly, the three aforementioned running programs in Taiwan intend to motivate adolescents to accomplish a monthly goal of running between 8km to 13km (SAME, n.d.; Ministry of Education, n.d.). Thirdly, a time-orientated goal-setting task is used as a daily PA goal for 60 minutes running/walking in a before-school running club (Stylianou, Hodges, & Kloeppel, 2014). The last type of goal-setting is challenge-orientated goal-setting, which highlights individuals' progress and displays their running capabilities through consistent practice in the activities. For example, the *Girls on the Run* program aims to help elementary girls be able to complete a 5K run without walking and the goal in *Students Run LA* program is to encourage at-risk high school-aged youth to accomplish the Los Angeles Marathon (DeBate, Zhang, & Thompson, 2007; Students Run LA, n.d.).

Use of SMART goals is a well-known strategy in education. The SMART goal setting was first used by Doran (1981) in a management review where the acronym stands for S: Specific; M: Measurable; A: Attainable; R: Realistic; T: Timely. To illustrate, the structure of using a SMART goal setting to help accomplish a marathon could include: a "Specific" goal (e.g., finishing in 5 hours), a "Measurable" goal (e.g., the finishing time can be measured by a stopwatch), an "Attainable" goal (e.g., a training plan is within personal ability/proper difficulty), a realistic goal (e.g., the 5 hours finishing time is set based on the past experience or ability such as the past finishing time was 5 hours 20 minutes), and a timely goal (e.g., a date to hit the goal such April 1st). In exercise and PE contexts, Locken (2007) reported that using the SMART criteria helped swimming coaches and athletes make an effective training plan, improve skills, and increase efficiency in practicing and performance. In addition, McDonald and Trost (2015) found that SMART goal setting is beneficial to improve health behaviours in school-aged youth. Their findings showed that nearly 80% middle school students who received the SMART goal

setting instruction made significant progress in their aerobic fitness based on their PACER test. As a result, the implementation of SMART goal setting has the potential to be a feasible and an effective strategy for fostering children's and adolescents' efficacy beliefs and increasing their goal attainment and motivation to engage in running activities.

Modeling (vicarious experience) is a strategy to learn or improve skills, and gain confidence via observing a successful behaviour (e.g., in person observing, watching a video, and reading a story), gaining instructional information (comparing with one's own performance), and demonstrating the imitated behaviour. Research supports that vicarious experience is an effective avenue to enhance individuals' self-efficacy (Ashford, Edmunds, & French, 2010). Samson and Solmon (2011) organized modeling into four types modeling including participant modeling (by others' physical instructing), self-modeling (by watching own performance), peer modeling (by imitating others' performances) and coping modeling (by observing others overcoming challenges and adversities) to explain how the different types of models affect the vicarious learning on a person's efficacy beliefs. They suggested that participant and peer modeling are more effective learning methods than self-modeling. In terms of the participant modeling, it is a typical method in sports skill learning. For example, when learning how to high jump, students observe the teacher's or peer's successful demonstrations first and then perform the desired movements while the teacher uses a physical assistance such as using one arm to lift the student's waist to help them display the arching movement. In terms of the coping modeling, individuals' self-efficacy is enhanced via observing how a role model overcomes challenges and adversities of a task. For instance, a famous runner or someone who has shown the behaviours of successfully overcoming challenges and adversity can be a coping model to foster students' confidence and intention to accomplish a task such as a 5K run. Kitsantas, Zimmerman, and

Cleary (2000) showed that participants who observed a coping model displayed a better dart-skill performance and a higher self-efficacy than two other groups who observed a mastery model and did no observe any model. Accordingly, the participant modeling and coping modeling may serve as a potential source of self-efficacy.

Self-reflection (a form of vicarious experience and emotional state) is a strategy intended to help someone learn or improve skills, and provide psychological support (e.g., self-growth) via self-assessing the past performance and adjusting own behaviours for future actions before, during, and after the learning activities. It is a cognitive and emotional thinking process that people recall their past experiences to understand what or why they have done results in a better or worse performance, then examine the connections between the experiences and the future desired goals, and have adaptive reactions (Lew & Schmidt, 2011). Additionally, Ganzer and Zauderer (2013) highlighted that the process of self-reflection could significantly affect individuals how they think, feel, and behave. Self-reflection has been used successfully to help students improve their running. For example, Næss, Säfvenbom, and Standal (2014) found that use of a self-reflection exercise allowed teachers to know how students felt about running and what factors affected their experiences in running. Based on the students' responses to the self-reflective questions, the self-reflection exercise helped them recognize what the conditions and the factors that would help them enjoy running such as listening to music and setting a goal before running.

Journaling (a form of vicarious experience and emotional state) is a strategy designed to improve skill learning, gain confidence and provide psychological support (e.g., stress relief and emotional comfort) via recording and reflecting the behaviours and thoughts before, during, and after the learning activities. It is well accepted that journaling is an effective means to help

individuals practice reflective skills, comfort negative emotions, increase self-efficacy, and promote their motivation to engage in learning activities. Rowland (2007) suggested that employing journaling in PE could strengthen adolescent students' engagement in the running activities. In other words, writing a running journal for tracking the performances and reflecting personal thoughts during running has the potential for desired goals. Several studies support that journal writing is positively associated with students' abilities to self-reflect (Hubbs & Brand, 2005; Lew & Schmidt, 2011; O'Connell & Dyment, 2011). According to Kolb's (1984) four-stage model of experiential learning including examining the specific past experience, reflecting the experience and feelings, interpreting the information into thoughts, and executing the thoughts into actions, the reflective process emphasizes the potential for journaling. That is, the reflective journal provides an avenue for inner discourse that connects thoughts, feelings, and actions (Hubbs & Brand, 2005). The findings of five studies concluded that reflective journaling could help students record the past performances, become aware of the meaning of their actions, analyze the factors of being successful or failing, enhance the value of a performance, decrease the emotional impact, guide them to attain positive learning outcomes, and encourage them to involve in learning activities (Baleghizadeh & Mortazavi, 2014; Blake, 2005; Fritson, 2008; Hubbs & Brand, 2005; James, 2005). Furthermore, reflective journaling benefits students' learning development, critical thinking, emotional state, and self-efficacy (Blake, 2005; Fritson, 2008; James, 2005). The findings showed that the process of writing the reflective journals could promote students' motivation and a positive attitude toward learning activities via tracing their past experiences and gaining more understanding what made them successful and how they overcame the challenges (Baleghizadeh & Mortazavi, 2014; O'Connell & Dyment, 2011).

With regard to the type of journaling, Baleghizadeh and Mortazavi (2014) clarified

journaling in three ways based on the sources of feedback including teacher-feedback journal, peer-feedback journal and personal journal (no feedback from others). Their findings showed that the students who used the feedback-journal, which collaborated with teachers or peers (social/verbal persuasion), significantly increased on their efficacy beliefs. The importance of providing either a visual or verbal feedback is highlighted by the findings that receiving feedback from others (e.g., teachers or peers) has more potential than personal journaling in learning development (Blake, 2005; Hubbs & Brand, 2005; James, 2005). Although journaling is generally supported as a beneficial educational tool, some studies showed that using a journal as an assessment tool might have a controversial effect (Blake, 2005, James, 2005; O'Connell & Dyment, 2011). For example, O'Connell & Dyment (2011) reported that some students tended to avoid writing certain thoughts because they were concerned with how they would be graded. Two studies demonstrated that writing a running journal with a proper guide could increase children's motivation to run or sustain their running engagement (Jenny & Armstrong, 2013; Wanless et al., 2014). Therefore, taking a considerable care to provide a guide for students is needed while employing journaling in a running PA.

Use of incentives (a form of social/verbal persuasion) is a strategy to enhance learning behaviours and goal achievement via rewarding and applauding the performance or accomplishments to sustain the desired behaviours. The findings of five studies supported the effectiveness of the incentive-based programs in promoting exercise behaviours but the effectiveness varied due to some factors such as types of incentives, magnitude of incentives, and social support (Charness & Gneezy, 2009; Gneezy, Meier, & Rey-Biel, 2011; Patel et al., 2016; Strohacker et al., 2015; Strohacker, Galarraga, & Williams, 2013). For example, Strohacker et al., (2015) showed the effectiveness of using small monetary as an incentive to encourage university

students to increase PA (more calories expended) although their PA engagement declined dramatically a few weeks after the intervention. Overall, the major message resulting from research on use of incentives is the concern that once people participate in an incentive program, participants who do regular exercise before the program might give up their exercise habits or do less exercise when the incentives are taken away (Charness & Gneezy, 2009; Patel et al., 2016). Thus, the implementation of the incentives should be considered carefully because it may lead to positive or negative behavioural outcomes in varied circumstances. Furthermore, incentives are normally tied with a goal-setting to enhance the motivation to reach the goal and it is consistent with the application of external rewards used in community races. For instance, children can receive a medal when their running mileage reach a marathon distance in the *Mighty Miles* program, younger youth can run one to four miles to earn patches in the *Young Runners* program, and Taiwanese school-aged students can receive a certificate and a chance to get a prize when they accomplish a monthly running distance in any of three *Run for Fun* programs (SAME, n.d.; Mighty Milers, n.d.; Young Runners, n.d.). With these examples, goal-setting and rewarding systems are plausible learning activities that will help foster participants' involvement in running, especially in the effort- and participation-focused running programs.

Social support (a form of social/verbal persuasion) is a strategy to not only enhance skills learning and goal achievement but also provide psychological support (e.g., having a feeling of belonging or reducing the perception of pain) via significant ones. In a study examining the definition of social support, Cooke et al. (1988) suggest that there are five important types: emotional (reassurance), esteem (value and respect), network (sense of belonging in a group), appraisal (positive feedback), and altruistic support (perception that doing something for others is worthwhile). Findings indicate that parents play an essential role in encouraging their younger

children to engage in after-school running programs (Jenny & Armstrong, 2013). However, other findings suggest that the main sources of social support for teenagers are more likely from teachers and peers (Wentzel et al., 2010). Several researchers found that receiving social support from significant others had a positive association with self-efficacy and PA. For example, Cowan, Slogrove, and Hoelson (2012) found that young adult cricketers who perceived support from coaches, staffs, and teammates tended to have a higher belief to perform successfully than those who did not have social support. Vargas-Tonsing (2009) also suggested that coaches could promote athletes' efficacy beliefs through pre-game speeches as appraisal support, which contained informational content. In addition, Cox, Duncheon, and McDavid (2009) reported that students who received teachers' support and peers' acceptance as emotional and network support tended to have a sense of competence and enjoy doing exercise. Similarly, Lubans, Morgan, and McCormack, (2011) stated that students who reported a higher level of support from teachers and peers were more likely to show a strong self-belief to make progress in school sports. As well, Dishman et al. (2009) highlighted that adolescent girls receiving social support from peers increased their self-efficacy to overcome the barriers of PA engagement. Overall, these findings support a promising result that the social support from teachers and peers for school-aged adolescents has a potential contribution to their self-efficacy and PA.

Positive feedback (a form of social/verbal persuasion) is a strategy designed to not only motivate or enhance skill learning and goal achievement but also provide psychological support via receiving the instructional or informational advice from the sources (e.g., peers, teachers, and oneself). The feedback (verbal or visual format) is given based on a person's performance to encourage him/her to sustain or improve the desired behaviours during or after the learning activities. Bandura (1997) claims that the feedback as an influence on efficacy beliefs can either

enhance or weaken an individual's self-efficacy. The findings of a recent research suggest that the relationship between feedback and self-efficacy can be positive or negative (Beattie et al., 2016). The researchers reported that the participants who received very little feedback tended to have negative efficacy beliefs to future performances while people who received more feedback showed a positive relationship between their self-efficacy and performance. In terms of positive feedback, some studies support that providing people with positive feedback is positively associated with their self-efficacy and performance in PA (Ashford, Edmunds, & French, 2010; Rajati et al., 2014).

Positive self-talk (a form of verbal persuasion) is a strategy based on positive thinking that not only to enhances learning achievement but also provides psychological support (e.g., keeping energetic) via giving self-verbal cues to persist on the desired behaviours. According to Hardy and Oliver (2014), self-talk can be either speak-out or a silent voice in mind from oneself. While both positive and negative self-talk can affect one's efficacy beliefs and performance, they suggest that the positive response has been supported to be a more powerful strategy over the negative one. Five studies support the positive relationships between self-talk, self-efficacy, and performance in sports domain (Hardy et al., 2005; Hardy, Gammage & Hall, 2001; Hardy & Oliver, 2014; Hatzigeorgiadis et al., 2008; Hatzigeorgiadis et al., 2011). For instance, Hardy et al. (2005) reported a positive relationship between self-talk and athletes' self-efficacy in a sit-up task for undergraduate students. Also, Hatzigeorgiadis and his colleagues (2008) found that young tennis players who employed a self-talk intervention reported greater feelings of self-efficacy and later performance than those who did not use self-talk.

Technology (a form of social/verbal persuasion and physiological and emotional state) is a strategy to not only motivate or enhance learning achievement but also provide a psychological

support via receiving past performance feedback from apps and emotional comfort from music to sustain the desired behaviours. The application of technology in sport and exercise has become more prevalent over the past decades because using music or exercise-related devices (i.e., apps, GPS, and heart rate monitor) is viewed as an effective strategy to promote PA engagement (Ardipal, 2014; Karageorghis, 2014). Karageorghis (2014) indicates that the implementation of music has been well noticed in exercise for over a century and become even more widespread nowadays due to the development of digital technology. Preliminary studies elucidate how music can affect people's physical performance and psychosocial state and what factors influence its effectiveness (Ardipal, 2014; Karageorghis, 2014). Karageorghis (2014) suggests that listening to music before a performance or competition can help exercisers stay focus on or get ready for the task because the rhythm of music may recall the techniques or comfort their mental impact (e.g., anxiety and pressure). In terms of in-task music, the study supports that the music can strengthen individuals' positive feelings (e.g., excitement) and help them distract from unpleasant feelings (e.g., physical discomfort or fatigue) during the training or competition (Ardipal, 2014; Karageorghis, 2014). Ardipal (2014) reported that the use of music in elementary school PE class helped students learn motor skills, reduce negative psychological impact (e.g., a feeling of fatigue), and increase their motivation to engage in the task. In order to optimize the benefits of the music, the findings suggest that music should be selected based on the types of the tasks and the listeners' individual features (e.g., age, culture, and past experience; Ardipal, 2014; Karageorghis, 2014). For instance, low intensive rhythm (below 120 beats per minute) music is good for mindset sports (e.g., yoga) and for introvert people while high intensive music (above 160 beats per minute) is suitable for competitive sports (e.g., basketball and running) and for extrovert people. In addition, Ardipal (2014) suggests that implementing an appropriate kind of

music, which harmonizes with the desired task or the sessions of learning activities (e.g., warm-up and cool-down) in PE class, can benefit students' learning motivation and psychological state. As a result, with a proper application of music, individuals may not only be stimulated to do exercise persistently, actively, and happily but also benefit their PA efficacy beliefs.

In addition to music, the findings of the following studies support that the implementation of smartphone (with exercise apps) or exercise-related devices (e.g., GPS and heart rate monitor) is beneficial to sports and PE contexts (Ardipal, 2014; Bort-Roig et al., 2014; Mears, Sibley & McKethan, 2012; Næss, Säfvenbom, & Standal, 2014; Partridge, King, & Bian, 2011). For example, Bort-Roig et al. (2014) found that a smartphone could serve as a measurement tool, an intervention or both for PA promotion. He suggested that the smartphone has great potential as a strategy for promoting PA engagement because smartphone apps offer some motivational functions such as PA profile, real-time feedback, social network, and expert consultation. Several studies support that the utilization of PA-related apps (including GPS and heart rate monitor) in PE can help students improve and increase the quality of learning, technological skills, interest, and engagement in PA (Bort-Roig et al., 2014; Mears, Sibley & McKethan, 2012; Næss, Säfvenbom, & Standal, 2014; Partridge, King, & Bian, 2011). However, researchers suggest that the teachers should be aware of the possible negative impact on students when using the technological devices as an evaluating tool (Partridge, King, & Bian, 2011). The researchers pass on some useful advice that teachers can mitigate the negative effects by providing students with individualized assessment standard and focusing on their self-improvement of PA performance. Accordingly, the technological device has the potential to contribute to sports and PE while its implementation should be well considered to maximize the benefits and minimize the disadvantages to the users as well.

Summary

These aforementioned studies have provided the evidence of the effectiveness and contributions of the physical fitness-/running-related context at fostering adolescents' physical health and psychological well-being. However, there has been little research to examine this content-specific PE unit in a school-based program. Research has highlighted the benefits of the selected educational strategies to foster the self-efficacy and PA behaviours in the exercise and educational context. A qualitative investigation will help gain insights into the effectiveness of the running-specific PE program, *Run-Up*, at developing the necessary skills, knowledge of a lifelong PA and fostering physical and psychological well-being in high school youth.

Chapter 3: Methodology

The purpose of this study was to explore the effectiveness of the *Run-Up* program in developing high school students' self-efficacy and enjoyment of running. This chapter presents the methodology used to address the research questions, including a description of the design of this study and the case (the *Run-Up* program), the selection of participants and setting, and an explanation of how the data were collected and analyzed. This chapter closes with a discussion of trustworthiness of the study and the background of the researcher.

Design

A case study design was chosen for this study. According to Yin (2014), a case study is an appropriate design if the researcher is interested in investigating a contemporary phenomenon through describing a case in depth and in its real-world context. That is, the method allows the researcher and readers to acquire a broader and deeper understanding of the phenomenon (Yin, 2014). This design was selected to provide insight into both the participating teacher and students' perceptions of the effectiveness of *Run-Up* program's learning activities and strategies in fostering adolescents' self-efficacy and enjoyment of running.

Case Description

The "case" for this study was a high school personalized running program, *Run-Up*, which involved one PE teacher and one of his grade twelve class at a high school in Taiwan. The school and the class was selected for this study because the *Run-Up* program appropriately fits with the curriculum and schedule of the school and the program has the maximal potential for this grade level of students.

Description of *Run-Up* program. The researcher originally designed the *Run-Up* program when she was employed as a high school PE teacher in Taiwan. The content of the *Run-*

Up program is grounded in her 15-year experience as a PE teacher. The original version of *Run-Up* program was first implemented in the researcher's classes in 2002. She has worked on refinements of the program in the subsequent thirteen years. Throughout these years, she has made adjustments to the program based on her reading of applicable research and experience offering the program. The *Run-Up* program aims to help adolescents increase their efficacy beliefs and enjoyment of running via participation in specifically selected learning activities integrated with targeted strategies and culminating in the accomplishment of a middle-distance run. In addition, the *Run-Up* program refers to the category of competitive sports (i.e., track and field) within the Taiwan curriculum (KEAME, 2015). The purpose of the program addresses the fourth core ability in the curriculum, namely, that students can cultivate a positive attitude and gain substantial ability to help them deal with the challenges in their lives (KEAME, 2015).

In terms of the course design, the *Run-Up* program follows the Taiwan high school PE curriculum. The program aims to help male students accomplish a 5K run and female students complete a 3K run without walking in the final test. The main reason for the distinct running distance for boys and girls is the different finishing time of the distance run for males and females. In general, most male students can run longer distances than female students in the same period. Therefore, the decision to have different running distances for boys and girls was made to satisfy the natural school setting in Taiwan so students can accomplish the run and the relevant activities (e.g., 15'/20' individual running practice) within the class time. The different running distances do not mean to demean or negate the abilities of the female students. The entire program contained a series of eight running-related lessons (50 minutes per lesson) and the lessons were conducted twice a week for four weeks in regular PE classes. Each lesson contained three sections: (a) pre-activity warm-up for raising motivation and ensuring physiological

preparation, (b) main-activity built-up for learning the context-relevant knowledge and skill, and experiencing the social interaction, and (c) post-activity wrap-up for reviewing the course concept and recording the self-reflection. The *Run-Up* program includes a Teacher Handbook (see Appendix E) and Student Workbook (see Appendix F).

The course activities were designed to foster the development of health-related learning outcomes. These learning outcomes included a capability to run a certain distance without or reducing walking (3K/5K), an ability (the learned skills and strategies such as goal-setting) to do or plan a regular exercise, the improved physiological health (cardiovascular fitness), a positive relationship with peers and the teacher (positive support and feedback), a fostered feeling of confidence (self-efficacy), an increased motivation to run, and a greater enjoyment of running. In addition, the ten program learning strategies including mastering, goal-setting, modeling, self-reflection, journaling, incentives, social support, positive feedback, positive self-talk, and technology application specifically highlight the final two outcomes (self-efficacy and enjoyment of running).

Implementation of the *Run-Up* program. The *Run-Up* program was implemented in a natural setting (the existing timetable of the high school). The primary learning activities including physical (e.g., dynamic warm-up, cool-down stretching, and personalized running practice) and written (e.g., goal-setting, self-reflection, and journaling) activities were included throughout the eight lessons. Implementation of the program occurred between October and November in 2016 for four weeks depending on the participating teacher's curriculum calendar. The intervention was implemented with 40 students in a regular grade twelve co-educational PE class.

The education system in Taiwan. Compulsory education in Taiwan was kindergarten

through grade nine (ages 14-15) and has expanded to grade twelve (ages 15-18) since August 2014 (Twelve-year Basic Education, 2017). According to statistical data, the percentage of junior high school students (grades 7-9) entering advanced levels of education after graduating was 99.52% in 2014 (Ministry of Education, 2016). This shows that almost all junior high school students in Taiwan will attend senior secondary schools (senior high, vocational, or continuing school). Physical education is a required subject for all senior secondary school students from grade 10 to 12 in Taiwan (KEAME, 2015). The senior PE courses are conducted twice a week (2 x 50 minutes per class). According to the prospective on learning outcomes of the Taiwan high school PE curriculum (KEAME, 2015), students have the potential to develop the skills and knowledge of personal sports and learning strategies, show positive social behaviours, actively engage in PA, and experience the joy of sports within the *Run-Up* program.

The school. The participating school is a high school with a senior and a junior division in Taoyuan, Taiwan. Taoyuan city is in northern Taiwan and located approximately 40 km southwest of Taipei (the capital of Taiwan). Taoyuan is the second largest city in Taiwan (area 1,220 km², population 2.1 million people) and its economy is primarily based on business and industries. However, roughly 43% of the land is currently used for agriculture, forestry, fishery, and pasture (Taoyuan City, 2016).

As of 2016, the school population is approximately 2,400 students and 200 staff members within grade seven to twelve (39 classes in junior high school and 32 classes in senior high school division). The school supplies teachers and students with sufficient resources, including a recreation centre, a track and field area, a weight room, four volleyball and basketball courts, a library, and classrooms with relative computer facilities for the need of PE and this study. The school mission statement is not only to focus on developing students' character and reading

capabilities but also strengthen students' achievement in science, language, and PE. Particularly, the participant school is unique because over the past decade it has held an annual cross-country running race for all students (male students run about 6K and female students run about 3K) to promote their physical health at the end of each year. Consequently, the implementation of the *Run-Up* program in PE is beneficial to students' performance in the school running event. A successful performance in the annual running race can serve as a goal that motivates the students to actively participate in the *Run-Up* program activities.

The teacher. The participant teacher in this study was a male PE teacher who was scheduled to teach the grade twelve co-educational course in the first semester of 2016. The teacher has about 20 years of teaching experience. The participant teacher was provided with a Teacher Handbook (see Appendix E) in order to familiarize him with the *Run-Up* program.

The students. The 40 male and female students enrolled in the grade 12 PE course were invited to participate. All the students were the participant teacher's previous students in grades 10-11. The 38 students (15 males and 23 females) who returned their consent forms participated in eight *Run-Up* program lessons in PE scheduled over a four-week-period in their final year of high school. Of the 38 participating students, one male student and five female students did not fully complete the six personalized running practices (completing less than 4 practices) in first six lessons due to a physical injury or illness. However, their responses were taken included in the results of study in order to gain all participants' perspectives of the program.

Participant Recruitment

Approval from the Human Research Ethics Board (see Appendix A) and the school was obtained prior to making contact with potential participants. After receiving the permission from respective school principal, I emailed the invitation letter with a consent form and the program's

teaching handbook (see Appendix E) to the PE teacher assigned to teach grade 12 in the first semester in September 2016. The students were recruited through an online video presentation (via BlueJeans network). The research was introduced and explained to the class. They also received a copy of the learning workbook (see Appendix F) for the program and the program consent forms for the students (see Appendix B) and their parents. The consent of the participant teacher, the potential students, and the students' parents was sought via the consent form that described the purpose of the study. The consent form also addressed the confidentiality, any known risks, and benefits of participation. Participants were informed of their right to withdraw from the study at any time.

This study was limited to the students in the participant teacher's class. All students in the class were invited to participate in this study. The final sample size was determined by the number of signed consent forms returned and signed by both students and their parents. The students and their parents' consent forms were distributed to students by a research assistant while the researcher introduced herself and explained the study to the class via an online video presentation. The students were given one week to return their consent forms to the research assistant. To maintain the anonymity of the student and the participant teacher, the consent forms were returned in sealed envelopes. Although all students (40 students) participated in the scheduled *Run-Up* PE unit, only those students (38 students) who returned two signed consent forms participated in the focus group interviews had their interviews transcribed and sample of their written documents (feedback forms and running journals) analyzed.

Data Collection

In this study, data collection methods included online focus group interviews, students' feedback forms (see Appendix C) along with the samples of their running journals (see Appendix

F), the online teacher interview, the teacher's feedback form (see Appendix C) along with the sample of his teaching journal (see Appendix E), and the notes of after-lesson discussions with the teacher. Yin (2014) suggests that the multiple sources of data, such as documentation, interviews, physical artifacts, and archival records, serves as a primary principle of sufficient evidence for drawing and supporting conclusions in a high-quality case study. Particularly, the multiple forms of data collection, known as triangulation, enhance the validity of evidence (Patton, 2002).

Focus group interviews with students. Online focus group interviews were used to gain insight into the students' perceptions of the learning activities in the *Run-Up* program regarding the content, learning outcomes, and the factors affecting their self-efficacy and enjoyment of running. Focus group interviews are beneficial to the researcher for attaining a wide-range of information because the group participants who have similar conditions with each other (e.g., classmates) are more likely to be candid when responding to the questions (Stokes & Bergin, 2006).

In shorter case study interviews (less than or about one hour), the researcher may assign the participants to a small group of persons to attain the perspectives of a large group of participants (Yin, 2014). Therefore, the 38 student participants were grouped into six focus groups (6-8 participants in a group). The duration of the focus group interviews was approximately 40-60 minutes to fit into the students' morning self-study or lunch break time (reviewing the feedback form for five minutes and conducting the semi-structured questions interviews for 35-55 minutes). During the focus group interviews, the principal investigator was the moderator for the discussion while two research assistants helped set up the necessary equipment and sustain the interviews on the site. A focus group question guide (see Appendix D)

was created to address the research questions. At the beginning of the interview session, the participants were asked to review their feedback forms that they completed at the end of the *Run-Up* lessons for prompting points of interest and enhancing their engagement in the discussion. In addition, a copy of the group question guide was distributed to every participant before the discussion in order to help the participant concentrate on the topics. A semi-structured format used in the interviews means the researcher use a list of potential questions beginning with general questions and leading into specific questions to probe and explore the participants' deeper levels of meaning and perspectives (Ayres, 2008).

The focus group interview questions were piloted with one focus group to refine the content and procedures for the main study and then adjusted accordingly. Ultimately, all focus group interviews were conducted in a performance studio with relevant computer equipment at the participant school. The computer facilities included the projector connected to the computer with Wi-Fi for the online interviews. Blue Jeans, the online conference tool, was downloaded to the researcher's laptop cooperating with a webcam and six relevant website links of the focus group interviews were sent to the primary research assistant in advance.

Prior to the beginning of the focus group interviews, the primary research assistant set up the room along with the aforementioned facilities and checked with the principal investigator to make sure that the quality of the interview was sufficient. Additionally, some snacks and water were offered to the participants to create a comfortable atmosphere. All the participants were informed again about the purpose of the study as well as their right to withdraw from the study at any time. Each student was assigned a number for anonymity and transcription. All participants were provided with their feedback forms and a question guide to help them answer the questions during the interviews. The main research assistant recorded the interviews via a digital video

camera and the secondary research assistant helped take notes and deal with any potential issues such as internet lags or missing conversations during the interviews.

The analysis of the focus group interview transcripts helped the researcher gain insight into the students' perceptions of the *Run-Up* program as an effective means to promote physical and psychological well-being. These findings were triangulated with the findings from students' journals along with their feedback forms.

Students' feedback forms and running journal including lesson worksheets.

Documentation, such as a participant journal, a record of an event, and an evaluation of the case, is a primary source of data collection and analysis in a case study (Creswell, 2013; Yin, 2014). In this study, students' feedback forms were included as part of the formal data collection and analysis for understanding students' perspectives of the effectiveness of the *Run-Up* program and their experiences with participation. Besides this, the feedback forms were used to help students engage in the focus group interviews. Similarly, the lesson worksheets and students' running journals aimed to provide more information on specific details to the researcher so these written materials were transcribed into supplemental data for analyzing.

At the beginning of the first *Run-Up* class, the Student Workbook (SW), which includes a student running journal and several lesson worksheets, were distributed to all students so they could fill in their basic information. Considering the natural setting, the SWs were distributed to the students in the last five to ten minutes of PE classes so the students could accomplish the activity worksheets and write down their reflections of the lesson. The SWs were collected after every class and kept in the PE teacher's office. Following each *Run-Up* lesson, students were allowed to take SWs away with them after the class if they needed more time to complete or amend the assigned tasks and the open-ended feedback forms. However, all the written work

needed to be returned to the PE teacher's office by the end of the day. After collecting the documentation, the researcher copied the participating students' written work and transcribed their feedback forms into NVivo 11.0 for analysis. The non-participating students' work was returned to the students. Data analysis of the feedback forms and the samples of the students' written assignments was used to gain insight into their perceptions of the *Run-Up* program and its influences on the students in detail.

Interview with the teacher. A one-on-one online interview was conducted within a week after completing the *Run-Up* program. The teacher interview aimed to acquire information to understand the teacher's perspectives of the *Run-Up* program as an educational resource. In order to obtain a high quality of data, a list of the questions for the teacher interview was designed with a semi-structured format (see Appendix D).

The remote interview between the researcher and the participating teacher was conducted in a quiet room with a laptop including the online interview equipment (both a digital video and audio recorder) at the researcher's house and the teacher's house. The online conference tool (BlueJeans) was downloaded to the researcher's laptop and a relevant online interview link was sent to the teacher before the scheduled interview. The interview lasted about 40-60 minutes including five minutes for reviewing his pre-written feedback form and 35-55 minutes for conducting the online interview. The teacher was given the interview guide questions prior to the interview to enhance the discussion.

After the interview, the data was transferred to the desired transcription. The verified transcription was analyzed and summarized into potential patterns, categories, and themes that best addressed the research questions. These findings were triangulated with the findings from the teacher's feedback, his teaching journal and the after-class discussions to highlight the

strength of the research's interpretation and conclusions.

Teacher's feedback form, teaching journal, and after-class discussions. In this study, the teacher's feedback form was used to gain insight into his perspectives of the *Run-Up* program as an educational resource in the Taiwan high school PE curriculum. In addition, the teaching journal and after-class discussions presented the teacher's personal experience of implementing the program and his observations of students' reactions to the designed learning activities.

Before the initial online meeting between the participant teacher and the researcher, the primary research assistant delivered the Teaching Handbook, including a teaching journal and notes, to the teacher in Taiwan. The teacher was asked to write a brief teaching note within five to ten minutes after conducting every lesson. To ensure consistent implementation of the program, seven online after-lesson discussions (about 15-30 minutes) between the researcher and the teacher were held within a day after each lesson. The discussions not only allowed the teacher to express comments and concerns immediately but also let the researcher track the implementation and provide the teacher needed clarifications so he could make adjustments for next lesson. After conducting the final lesson, the teacher was asked to complete an open-ended feedback form and the teaching journal within two days. The feedback form and notes of the after-lesson discussions were typed into Nvivo 11.0 by the researcher and a copy of the samples of the teaching journal was used as part of the analysis.

The teacher's written documents were analyzed by explicating the emerging patterns, categories, and themes from the transcriptions and relevant information. The findings were used to help the researcher understand the effectiveness of the *Run-Up* program in promoting students' physical and psychological wellness, and whether the running program is an effective approach

as an educational program. The findings from the teacher's feedback form, after-class discussions, and journal were triangulated with the findings from the teacher online interview to enhance interpretations and conclusions of the study.

The aim for the entire data analysis was to gain insight into both the teacher's and the students' perceptions and experiences of the *Run-Up* program. Consequently, the findings from the focus group interviews and the students' written work were summarized and interpreted to best address the first two research questions while the findings from both the teacher's and students' responses in the data sources can best be addressed and concluded in the third research question.

Data Analysis

According to Creswell (2013) and Stake (1995), five forms of data analysis and interpretation in qualitative case study are: a description of the case (describing a detailed view about the case), categorical aggregations (aggregating a number of categories), direct interpretations (analyzing a single instance to gain a relevant meaning), established patterns (gaining from categories), and naturalistic generalizations (generalizing the similarities and differences among the findings into the themes). In the case study, this section describes the steps of how each data source was analyzed.

The first step in analyzing the data was to transcribe and proofread all the data sources. In order to have a better understanding in a variety of contexts for the latter analysis, I transcribed all the data by myself. Creswell (2013) suggests that the utilization of the computer program in qualitative research is beneficial for the researcher to sort, organize, examine, and locate data. The participating teacher and students' feedback forms and journals and the notes of the after-class discussions with the teacher were transcribed and summarized into a Microsoft Word

document upon receiving the collected data. The video and audio records of the online focus groups and the teacher one-on-one interview were transcribed immediately following all the interviews. Nvivo 11.0, a qualitative software program, was used to manage the data and conduct a thematic analysis. Additionally, the transcriptions were verified to ensure the accuracy of participants' conversations and their assigned numbers. Further, taking language into consideration, the raw data collected from the documentation and interviews were transcribed in the participants' original language, Traditional Chinese. After attaining generalized themes through analyzing the data, the data were translated from Traditional Chinese to English.

Once all the data were transcribed, the next step was to search for credible statements that reflect the research purpose and questions. While examining the texts, the researcher wrote notes to record potential information for the further analysis. The researcher continued to read, re-read the data, and organize the findings into categories (or codes) to address the research questions. Then, the aggregated categories were analyzed to form some clarifying patterns by examining the relevant instances. The last step was to reflect the critical patterns to the aim of the study and participants' responses and then group them into several generalized themes by comparing their similarities and differences. The generalized themes were organized in a table. The final interpretation of the themes included one theme connected to the concept of self-efficacy, which serves as a theoretical framework to elucidate the findings relevant to individuals' efficacy beliefs. Ultimately, an elaborate description of the case and the link between the researcher's interpretation of these informative themes and the research literature by others supports the findings of this case study in a credible and valid way.

Establishing Trustworthiness

Trustworthiness is a concept and a set of strategies to describe the worth of a study in

qualitative research (Given & Saumure, 2008). Four facets used to establish trustworthiness in this study are described below.

Credibility. Credibility represents whether the researcher describes the desired phenomenon including the participants, context, the setting of the study in a rich and accurate manner (Given & Saumure, 2008; Jensen, 2008a). Jensen (2008a) provides the following methods to increase the credibility in this study.

1. Sufficient engagement: the researcher established enough contact with the participants including participating school, teacher, and students to get the in-depth information about the program context for having an appropriate setting prior the study. In addition, the researcher made sustainable communication with two research assistants for gaining a better sense of the emerging data collection and analysis due to the research design in this study (remote online interviews).
2. Productive descriptions: the researcher provided detailed and tangible descriptions of the case, the participants, and the setting of the study from the multiple perspectives of data to help the reader have an in-depth understanding of the study.
3. Member checks: the researcher provided the participants (the teacher and students) sufficient opportunities to confirm the transcriptions of their interviews through direct verbal communication or indirect email contact. In addition, the researcher asked the research assistants to check the collected data including written document and video data.
4. Method triangulation: the researcher utilized the multiple methods of data collection including students' focus group interviews, feedback forms, running journals, a teacher's one-on-one interview, feedback form, journal, and after-class discussions to support the conclusions and findings of the study.

5. Peer debriefing: the researcher used the peer's debriefing to enrich and support the research via reviewing and critiquing the findings during the data analysis.

Transferability. Transferability refers to the potential of a study to be transferable to other studies in a similar setting or environment, such as other running-specific interventions in school-based PE. Jensen (2008b) offers two strategies to enhance the transferability of the study, including an exhaustive description of the study and a purposeful sampling. That is, providing a rich and informative description of the context (*Run-Up* program), the participants (the teacher and students), the setting, and the design of this study can help the readers to find the connection and the potential contribution to their own studies. Also, the selections of this study that aim to most represent to the purpose and the design of the research, such as the participating school (features), the experienced teacher (at least five years), and the grade-specific students (grade 12), can enhance the transferability to other desired contexts.

Dependability. The degree of dependability depends on the researcher's ability to provide other researchers with sufficient information about the methodology that they can apply in their studies (Jensen, 2008c). Besides, the dependability of this study can be increased via illustrating the process of the change of research design by the researcher. For example, the researcher presented the process of the alterations of the interview questions by reviewing the feedback form, or the adjustment of grouping the focus group interviews based on the final recruitment in this study.

Confirmability. Jensen (2008d) supports that confirmability can be satisfied in a study by indicating the findings of the study are consistent with the collected data. The researcher endeavoured to achieve the confirmability by providing evidence that the interpretation and findings of the study fully reflected participants' perspectives such as confirming their responses

via multiple data sources such as written document, video records, and the interview written notes to review the consistency between the interpretation and their perceptions in this study. Therefore, the potential for researcher bias in this study was clarified and managed to minimize its impact on the research quality.

Background of the Researcher

An early morning in December 2013, thousands of Taiwanese and several world-famous South African runners were gathering in a plaza by the Pacific Ocean to participate in a running event, the 2013 Pacific Ocean Marathon. I was there with more excitement and intense feelings than ever before because more than 20 of my students came to join me. For most of them, it was their first extracurricular running race in their lives. Standing in a start corral nervously waiting for the race to begin, they were showing excitement along with a slight anxiety similar to the one they had experienced at the final distance-running test in their PE class. The elite athletes who ran for 42.195K were symbolized as “Antelopes”. Many of the other runners enrolled with the 5K run were referred to as “Wild boars” which represented particular local animals. We were a cohort of happy “wild boars.” Seeing my students smiling faces, soaked in sweat, hearing their breathing with stable pace, and celebrating the accomplishment of the run with them gave me a tremendous sense of satisfaction as a teacher. Being their teacher, I was so thrilled and proud to see how they behaved and how much progress they made all the way from the very beginning. The memory has stayed in my mind for a long time and made me wonder “how can I motivate or bring more students to participate in these kinds of events?”

I have taught the distance-running course, *Run-Up* program, several times during my 15 years of teaching in two schools. Since it was introduced in my third year at the first school, the *Run-Up* program has been selected for the school required PE curriculum over the past decade.

Additionally, I conducted this program at the second school in 2013, and two of my colleagues adopted the program as their curriculum in the next year. These changes in curriculum show the potential of this distance running program as a feasible and sustainable curriculum in high school PE.

Being a school PE teacher, I believe that PE can serve as an avenue to help school-aged adolescents foster their physical and psychological wellness if the courses are well-designed. According to my observations about this running-specific program, the students' behavioural changes and their positive feedback support the value of the program. Furthermore, the fact that the running race has become the most prevalent sports in Taiwan over the past decade enhances the attainable benefits of this program in PE. Therefore, having a profound understanding of how this running program helps students attain the necessary skills, knowledge, and experiences for later life is desired. Consequently, a qualitative inquiry for gaining insight into the effectiveness of the *Run-Up* program in high school PE would be a potential means to enlighten my teaching as well as students' learning.

In order to examine the effectiveness of the program in developing students' physical and psychological well-being, both the evidence of the learning outcomes from the participants and the other benefits of the program were examined in the study. The use of the case study as the research method allowed me to explore in-depth the influences of the *Run-Up* program on the teacher's and students' perceptions of the program. During my first year at the University of Victoria, I gained the knowledge and practical experiences in both qualitative and quantitative research from my course work in research methods. In addition, two courses of statistics method and one case-study-focused course built up my knowledge and efficacy beliefs to conduct this study.

My teaching experiences and beliefs, peers' and students' support, and literature evidence have shaped this study from the beginning including the development of the purpose, research questions, and the choice of the methodology. My hope is that the results of this study highlights the potential benefits of PE. I also hope that the knowledge gained will not only be used for personal self-improvement, but will also be widely shared with other educators and researchers to inspire positive changes in the field of PE.

Chapter 4: Results

This chapter describes the impressions from teacher and students of their participation in the *Run-Up* program to illuminate the effectiveness of the personalized running program on high school students' self-efficacy and enjoyment of running. Three themes resulted from data sources in the study. The data sources included six remote focus group interviews (FG), 38 student feedback forms (SF) and journal entries (SJ), an interview with the teacher (TI), a teacher feedback form (TF), eight teaching notes in a teacher journal (TJ), and seven teacher after-lesson discussions (TA). The supporting details are identified by a data source and a participant coded name. To illustrate, as "FGSB11," the first two represent the data source so "FG" means the data is from a focus group. The succeeding letters, "SB11" represent as a participant student name code that "SB" stands for a focus group (i.e., "SB" is focus group SB), the first number followed by the group stands for gender (i.e., "1" is male and "2" is female) and the last number stands for the order of a group ("1" is the 1st participant in a group, "2" is the 2nd participant in a group, and so on). The three recurring themes are summarized in Table 1. The titles of each theme were decided by identifying major comments/ideas from data sources.

Table 1

Recurring Themes from the Qualitative Data Analysis

Theme 1	Knowledgeable, Motivated, and Enjoyable: Multiple Learning Activities
Theme 2	It all Matters: Reaching the Finishing Line via Multiple Learning Strategies
Theme 3	Progress, Accomplishment, and Challenge: Self-efficacy Stands out

Theme 1 - Knowledgeable, Motivated, and Enjoyable: Multiple Learning Activities

Theme 1 represents what and how the students' felt about various learning activities based on their participation in the eight-lesson running unit. Multiple lesson activities were designed to help the students not only obtain the expected learning outcomes but also satisfy

their diverse learning patterns. The findings from the teacher and students' responses showed that the activities have homogenous effects on the students. Students elucidated that the multiple learning activities helped them gain useful running skills, improve physical fitness, increase motivation to run, foster self-confidence, and enjoy a distance run. To illustrate, the following responses from both the teacher and students highlighted the value of a dynamic warm-up and cool-down stretching.

The teacher highlighted the effectiveness and importance of the dynamic warm-up and cool-down stretching in class via giving a 9 out of 10 point rating. He supported that the warm-up activity helped the students reduce the likelihood of injury during running and the cool-down activity helped them recover from physical fatigue after running.

> *Most students could do the dynamic warm-up and cool-down stretching that helped them avoid getting injured during running and quickly recover from their physical fatigue of running. (TI)*

The succeeding responses from students confirmed the teacher's positive comments on the warm-up and cool-down. Some students highlighted the usefulness of the dynamic warm-up and cool-down stretching as "helpful" in preventing injury while doing exercise and feeling physically "comfortable" after running.

> *I learned many dynamic warm-up techniques from the lessons that I could use to avoid getting injured while running (FGSR23).*

> *Doing the warm-up before running help relax and warm up my thighs which made running become easier for me. (FGSY12)*

> *I felt that other skills were not influenced but the warm-up and cool-down were so helpful not only for running but also for other sports. (FGSO25)*

It is worth noting that two students commented that doing the dynamic warm-up and cool-down stretching was new to them and it was a reason why they were interested in and motivated to do it. The following comment describes such an instance.

> *The most memorable learning activity in the program was the dynamic warm-up, as well as the cool down exercises because I have never seen and done these exercises before (FGSG11)*

In SJ, five comments out of 36 responses to the dynamic warm-up were negative. Those students felt exhausted after doing the warm-up. Conversely, most of the students indicated that they liked doing dynamic warm-up due to its benefits to running including an effective warm-up, injury prevention and feeling comfortable. The following paragraph shows a few examples of the students' responses of why they either like or dislike the dynamic warm-up.

Dynamic warm-up. Do you like or dislike this activity? Why? (SJ2)

No, [I felt] *exhausted. (SJSG13)*

Yes, [dynamic warm-up] *could protect muscles and reduce exercise injury. (SJSR25)*

Yes, stretching muscles was very comfortable. (SJSB27)

Yes, [I] *did not feel as tired running after doing the warm-up. (SJSG26)*

Both the teacher and students' comments emphasized that the designed learning activities had a positive impact on the students' motivation to engage in running. For example, the teacher indicated that the students' motivation was increased via recognizing running as a valuable exercise after watching the *Runner story* in the first lesson. The *Runner story* was a video retrieved from YouTube channel describing how a famous Taiwanese ultra marathoner, Tommy Chen, pursued his challenging goal.

> *As we implemented modeling through the Runner story, the students took the runner as a role model who could motivate them to run. After watching, they realized that running is a beneficial exercise. (TI)*

Additionally, the students' responses confirmed the teacher's positive statement by commenting on touching aspects of the story and how it motivated them to accomplish a run. Almost all of the students (36/37) mentioned in their journal responses that they liked the *Runner*

story and it encouraged them to try running. This finding emphasized the potential of implementing a learning activity like the *Runner story* in a running program. The following comments about the *Runner story* highlighted what the students learned from the runner (Tommy Chen).

> *I learned from Tommy Chen (running model) to be able to persist to the end and make a consistent effort to complete my self-determined goal because he showed how he did his best and did not giving up in achieving his goal. (SJSY25)*

> *At the beginning, the teacher showed us the video (the Runner story) in which the runner accomplished the run with his grit no matter how exhausted he was. It influenced me to make an effort to run and persist in moving my feet. (SFSP12)*

Some learning activities emphasized social interactions as an essential factor in a school-based learning environment. The teacher's and students' comments highlighted that some learning activities were beneficial to develop positive social interactions and in turn motivated the students to increase their efforts. Regarding the social support in the group activities (i.e., rope-holding and chasing run) in class, the responses from the teacher and students emphasized how the students felt encouraged and engaged during the running. The teacher expressed his great support for the effectiveness of the group learning activities in attaining the expected learning outcomes such as running skills and enjoyment of running by giving a 9 out of 10 point rating for effectiveness on his feedback form. Additionally, he indicated how the students' participation in the rope-holding and chasing run helped them recognize that maintaining a stable running speed is a key strategy in a distance run. They also enjoyed the activities and felt closer to each other because of their teamwork and peer support.

> *The students showed obvious interests in engaging in the rope-holding run. They enjoyed the positive interactions between the four running groups. (TA)*

> *… In a rope-holding run, one is supposed to run with a stable speed while one is supposed to run with a changing speed in a chasing run. The experience of two different group running activities helped them understand the importance of maintaining a stable*

speed while running a distance run in the following lessons. (TI)

Fourteen student responses supported that the rope-holding run was their most favorite learning activity in the program. Their comments highlighted that the rope-holding run provided them with a chance to learn how to cooperate with other members of the team and experience the joy of teamwork and running. The following comments provide a few examples and elucidated the aim of the rope-holding activity.

> *My most memorable activity is the rope-holding run because everyone in a group needed to run together despite the different (running) speed we had. During the run, all the runners needed to adjust their speed until the group can set a speed that was acceptable to everyone. I felt it was fascinating. (FGSO26)*

> *Mine* [memorable activity] *was the rope-holding run too because all of us held one rope and shared the feeling of making an effort. When I thought of giving up, seeing other* [in the group] *hanging in there encouraged me to keep running with them. (FGSP23)*

In addition, five student responses show that the chasing run allowed them to experience running at a changing speed and develop a sense of cooperation within a group and competition between groups as the following two examples.

> *I thought that the best activity was the chasing run because it provided us with a chance to run and compete with our peers and adjust our speed to adapt to a circumstance that required a different speed. (FGSR12)*

> *I prefer the chasing run… I felt that if someone was leading you to run, you would try to follow him/her closely and be more likely not to give up. (FGSY26)*

Furthermore, the power of the social support was illuminated in the final 3K/5K run. The students described how they felt about the run as a support receiver and giver during the run in their journals. The following comments are examples of when the runners received support from their peers and how the support influenced them in their 3K/5K runs.

> *…after running for 10 laps, I began to walk instead of running. Fortunately, there were classmates encouraging me, otherwise, I might have given up. (SJSG12*)

> *The classmates were cheering for me when I passed them so I felt motivated to run.*

(SJSB25)

From a partner (i.e., a support giver) perspective, most students (31/37) described that they had consistently cheered for the runners during the run and helped them feel comfortable after the run via giving verbal praises and nonverbal supports such as offering the runner a massage or water.

> *While my partner was accomplishing every lap, I was cheering for her and encouraging her to persist to the end. (SJSR24)*

> *When they (the runners) were running the last lap, I felt so emotional and moved because I was so happy for them that they could accomplish the run and had a great performance. …It let me realize how wonderful it could be to accomplish one task. (SJSB27)*

Alternately, some student responses showed that social interactions might become a barrier to a student once it turned into a pressure. Several comments explained why some students viewed social interactions as a social pressure during the group running activities. These students experienced physical discomfort and pressure from the peers because they had inferior speed or physical skill.

> *The activity I found most memorable and also disliked was the rope-holding run because I felt more exhausted after running by myself as the team* could not *establish the pace and speed for everyone to complete the task. (FGSR26)*

> *I did not like the chasing run because it was so exhausting to run in an unstable speed (i.e., need to speed up to catch up with the leading runner of the team). (FGSG26)*

The main learning activity, the personalized running practice was designed to provide the students an autonomy-supportive, along with goal-orientated, and progress-focused climate which aimed to reduce the impact of the differences in student's physical level, interest, and self-efficacy to achieve their learning outcomes. Thus, they could decide their own running speed and goal and focus on personal progress so they were more likely to feel comfortable, motivated, and a sense of enjoyment during the program. Some students' feedback enhanced the benefit of

having an individual running practice to promote an individual's physical ability. In addition, some students emphasized that they liked this event because they could run at a speed, which was based on their physical abilities without considering others.

> *I like to run by myself, a personalized run, because I felt more relaxed, had less pressure, and could decide my own speed. (FGSB26)*

> *I felt free during the personalized running practice, ... I could control and adjust to run faster or slower depending on my physical condition. (FGSB12)*

> *I thought that the personalized running practice was my favorite because it was unlike the rope-holding and chasing run, which could be stressful for an individual who may be concerned about being a burden to others… (FGSO25)*

A summary of the most memorable learning activities derived from interviews with the teacher and focus groups is presented in Table 2. Accordingly, the top three favorite activities were rope-holding run (14 students), chasing run (5 students), and personalized running practice (4 students). Conversely, four students disliked the rope-holding run and another four students disliked the chasing run. This finding supported that the personalized running practice could satisfy the need of those students who did not like the group learning activities. Overall, the diverse learning activities which provide the learners with an opportunity of knowing task value (e.g., dynamic warm-up and cool-down stretching), imitating a running model (i.e., Runner story), and making own choices (e.g., personalized running practice), and an experience of receiving social support (e.g., rope-holding and chasing run), accomplishing a goal (e.g., 3K/5K run), and enjoying running (e.g., teamwork in rope-holding run and the sense of accomplishing 3K/5K run) have showed the potential for helping the students obtain the desired learning outcomes in a knowledgeable, motivated, and enjoyable way.

Table 2

Summary of the Most Memorable Learning Activity

Learning Activity	Teacher Like	Student Like	Student Dislike
Rope-holding Run	✓	14	4
Chasing Run	✓	5	4
Personalized Running Practice		4	
Goal-setting		2	
Journaling		2	
Warm-up and Cool-down		1	
Running Skills		1	
Running Tactics		1	
5K Run		1	
Total		31/38[a]	9/38[b]

Note. Data retrieved from the interviews with the teacher (TI) and students (FG).
[a]31/38 refers to 31students out of 38 students. [b]9/38 refers to 9 students out of 38 students.

Theme 2 - It all Matters: Reaching the Finishing Line via Multiple Learning Strategies

Multiple learning strategies in the *Run-Up* lessons facilitated the teacher and students in a variety of ways to develop the learning outcomes associated with the running unit. The findings showed that all the learning strategies helped students engage in relevant running activities and attain varied levels of learning outcomes. Most of the teacher's and students' responses from the data sources highlighted the effectiveness of the multiple learning strategies including a mixed effect of a few learning strategies on the students. The following paragraphs share considerable insights into the teacher's and students' perceptions of the learning strategies in overall and distinctive aspects.

The teacher's perspective on the overall learning strategies. From four responses in TJ, the teacher indicated that he used all the learning strategies within the eight program lessons. Yet, his comments in the interview highlighted that teachers should provide students with more

detained instructions and sufficient practice time while teaching these learning strategies so the students can benefit more from it. The following is an example of the teacher's suggestions.

> *As for learning skills (strategies), I thought the teacher needed to explain or demonstrate it to the students in more detail and allow the students to practice so they would be more likely to use it. For example, the practice of modeling was applied in learning running gestures, breathing, and pace. (TI)*

The students' perspectives on the overall learning strategies. Regarding the students' viewpoints, they supported the effectiveness of most of the learning strategies in attaining the expected learning outcomes except one student who stated that the strategies did not impact him. The following responses highlighted that learning the multiple learning strategies helped the students attain three learning outcomes including improved physical level, running skills, and positive attitude.

> *SF Question: Do you think that these strategies helped you learn about distance running and what outcomes did you gain through the strategies?*
>
> *Yes, all of them were helpful in improving my physical health and fostered my psychological well-being.* [*I learned about*] *the spirit of teamwork, the courage to persevere, and the positive attitude in facing future challenges. (SFSB13)*
>
> *I learned a lot such as the tactics, strides, breathing techniques and warm-up for running. (SFSY12)*
>
> *Since learning these skills (strategies), I feel more confident and stronger in facing challenges. (SFSY25)*

In SJ and SF, several comments indicate that some students thought that some learning strategies such as journaling, technology, modeling, and self-reflection were not effective for them, but a majority of the students (26/37) mentioned that they had utilized the designated strategies during the learning process. In particular, most of the students (33/35) thought that they did well in learning the strategies.

Further, Table 3 presents the result of what learning strategies the students have learned

from 24 responses in SF. Of the top highlighted skills among ten learning strategies, goal-setting (15/24) stood out and modeling, positive self-talk, mastering, social support, positive feedback, and self-reflection showed a relatively equal impact.

Table 3

Summary of Students' Highlighted Learning Strategies

Learning Strategies	24 Students' Responses
Goal-setting	15
Modeling	8
Positive self-talk	8
Mastering	7
Social support	7
Positive feedback	7
Self-reflection	7
Technology	5
Incentives	3
Journaling	2

Note. Data retrieved from student feedback forms (SF). Students were allowed to choose more than one learning strategy.

Mastering. Mastering is the learning process that helped the students attain a skill or knowledge via constantly practicing the same task or the tasks while gradually increasing the difficulty. The teacher and nearly all of the students supported that mastering and goal-setting helped them reach their goals. The teacher gave the concept of mastering a 9 out of 10 point rating in his feedback form and highlighted its effectiveness in the interview by describing that the students' running skills and physical fitness were promoted via constantly practicing the skills and increasing the training load (e.g., running laps or time).

> *Mastering was effective for sure because one (the student) would become proficient in the sports skills via consistently practicing. In addition, one's physical fitness had been promoted through gradually adding the running time. Therefore, students' running*

ability was fostered through the mastering learning. (TI)

Similarly, during the interviews, most of the students (33/38) supported the concept of mastering as an effective learning strategy. Their comments indicated that mastering strategy helped them build up their physical fitness, learn running skills, and prevent injury via consistently doing the desired tasks and setting their task goals. Two responses emphasized that the use of gradually extending the running duration (progress) and setting up a progressive goal helped them promote their physical fitness (e.g., running for a longer time or a further distance).

> *The consistent running practice with the gradually increasing level (time and distance) helped me run further which meant I could run for a longer time before I stopped. (FGSG26)*

> *This mastering learning helped me surpass my limits. That is, it allowed me to follow my own pace and adapt to the increased training level so I could improve my physical fitness. (FGSR12)*

In addition, two comments from eight students highlighted that mastering helped them make progress and improve the running skills such as breathing rhythm, dynamic warm-up, and cool-down stretching so they could display a better running performance.

> [Mastering] *helped me distribute my physical energy and adjust my breathing* [while running] *so I could run in a more stable and efficient way. (FGSG12)*

> *I felt that it (mastering) was helpful for the warm-up before running and cool-down after running…I worked so hard to control my breath during the class that it improved my running so much. (FGSP11)*

Although most of the students benefited from the mastering, two students indicated a need to increase the frequency of the running lesson, more than twice a week, so they could attain sufficient mastery of a distance run.

> *I felt that running twice a week is not enough. It (mastering) would be more effective if more lessons are added. (FGSO24)*

> *One lesson every two or three days and without immediately reviewing after a lesson would reduce the effectiveness of mastering because the students might forget what they*

have learned. (FGSY24)

Goal-setting. During an after-teaching discussion and in a teaching journal, the teacher highlighted that setting a goal helped the students learn the running skills and increase their motivation to run.

> *Because of setting a goal* [for next lesson], *the students showed a positive learning attitude and a high level of motivation. (TA)*

> *Goal-setting helped increase running skills and motivation. (TJ)*

However, the teacher indicated that the SMART goal setting seemed to be too complicated for students to use. The following comments made by the teacher and a student described the concern with using the SMART goal setting.

> *We did not use the SMART goal setting during the whole learning process…. The students preferred to use the simple goal setting such as setting a goal for next 5-min run after their first 5-min run. It was easy for them to use it. They would not think of using SMART to set their goals…. It may need the teacher to spend more time to explain why we use it. Without more clarification of the learning process (SMART), the students would not use it to set their goals. (TI)*

> *As for SMART goal setting, I do not understand what it is. (FGSB25)*

Alternately, most of the students (31/38) indicated that goal-setting helped them achieve a goal or accomplish a task. It is evident in the following comments that goal-setting stimulated the students to persevere and put forth effort while pursuing their goals.

> *It was helpful because I would make an effort to accomplish it. (SJSB28)*

> *In the past, I intended to stop after running for a short time.* [*Now*,] *If I set a goal, I could run more than before because I will not quit until achieving the goal. (FGSG26)*

> *Goal-setting encouraged me to achieve the goal and not to think of giving up. (I)intend to accomplish the goal that I set for today. (FGSY23)*

Further, the following responses highlighted that goal-setting helped the students attain a sense of achievement and happiness and stimulated them to set up a higher goal or to overcome

barriers.

> *…Wrote down the distance that I hoped to run… Although I may not reach the goal every time, almost accomplish it made me feel happy…. (FGSY24)*

> *I would set up a goal to run a further distance next time. Once I reached the goal, I would feel so happy and then set a higher goal. It led to a better running performance. (FGSY25)*

> *After reaching the goal I set, I felt a sense of accomplishment and it increased my self-confidence that stimulated me to achieve more goals. (FGSG11)*

Three comments from the teacher and students emphasized the importance of allowing the students to set the goals on their own.

> *… Some students felt that they set their own goals, so they would likely think that those goals were achievable. Therefore, they would try to ask themselves to reach the goal. In fact, most of the students had achieved their goals. A few students indicated that the reason why they did not reach their goals was due to some physical issues such as a foot injury and stomach pain. (TI)*

> *…. By reaching your own goal, you feel a sense of accomplishment. (SJSB24)*

> *Setting my own goal energized me to complete the run. (SJSG26)*

Conversely, a few students indicated that goal-setting did not affect the achievement of the distance run. They mentioned that they did not feel the effect of goal-setting because they would still fail to reach the pre-set goal due to some other reasons such as diverse circumstances and personal beliefs.

> *Due to different environmental circumstances, the goal you set each is not always achievable. (FGSB27)*

> *I felt that you may not reach the goal when the goal set is too difficult. (FGSO25)*

> *Goal-setting did not benefit me because I knew how far I could run at a time after several practices. Therefore, I thought it would not be helpful. (FGSO26)*

Accordingly, the responses to a journal question provided some information about what kinds of goals the students want to achieve in this program. A few examples showed that

accomplishing the run (3K/5K run), losing the body weight, and promoting physical ability were the main goals for the students.

> *SJ Question: What are your SMART goals for this program? (Specific, Measurable, Attainable, Realistic, Timely)*
>
> *Finishing 3K* [run] *without stopping in 18 minutes, losing weight, and having a better muscular endurance. (SJSY25)*
>
> [Running for] *5000m without stopping and* [improving] *physical fitness. (SJSB13)*
>
> *Losing weight to match the weight (I had) in junior high school. (SJSR26)*

Modeling. Modeling was employed in many learning activities including the *Runner story*, running skills and tactics, and running practices. In the following comment, the teacher illustrated that modeling facilitated the students to learn a distance run. The students were inspired and motivated to run after watching a video of a well-known runner because they took the runner as a role model. Additionally, they learned and modified their running skills via following the teacher's demonstrations and instructions.

> *As for the modeling, the students were motivated by the runner's story at the beginning (of the program) because they viewed the runner as a role model and they recognized running as a great exercise after seeing the story… I taught the students the running gestures and the tempo of breathing and allowed them to discuss it. Thus, they learned how to adjust their breath while running. They felt they made progress through the learning process. This experience let them believe that they could accomplish the 3K/5K run once they controlled their breath well while running. Therefore, I felt that (learning by) modeling was effective in this learning process. (TI)*

Different from the teacher's viewpoint, the comments in FG showed two sides of the students' aspects of modeling (21 positive and 17 negative responses) depend on learning occasions. The students supported that modeling peers' or the running model's running skills (e.g., pace and gesture) and inspirational performance (e.g., persistence, attitude, and emotional support) helped and encouraged them to master the running skills and make their efforts to complete the desired running tasks. The following comments provided the reasons for it in detail.

> *…I thought that modeling learning is important because (or) you would not know what you did wrong while running by yourself. If you observed another person's performance, you would know what you should be aware of. It was very helpful to me to know how to do warm-up and cool-down correctly. … After watching the Runner story, I persuaded myself to persist in running to the end even though I felt so exhausted after I completed the run. (FGSY26)*

> *…. I have a friend in class who can run faster than me in a distance run. … when I was struggling in controlling my breath, I would observe how he regulated his breath, pace, and speed…. In addition, I modified my running gestures via observing others' when I could not do it right.… The runner story showed me how a runner persisted in accomplishing a difficult running task and it let me believe that I could complete my distance run, too. (FGSY11)*

Alternately, about half of students (17/38) thought that modeling was not helpful and could even be a harmful thing to them because individuals have different ways of and abilities in running.

> *I felt that (modeling) was not helpful because everyone has different running movements and gestures. It would consume too much energy if you patterned others' performance. (FGSO13)*

> *I thought that everyone has a different level of physical fitness…. If you followed a runner who had a better physical ability than you, you would not be able to catch up to his/her speed and feel exhausted. (FGSR24)*

Self-reflection. During the interview with the teacher, he indicated that self-reflection was effective to modify the students' performance or increase their motivation to run but he mentioned it should be conducted in a way with more teaching instructions. For example, allowing the students to review the journals before a class may provide them with an opportunity to reflect upon their previous performance. The reflecting process could help motivate them to accomplish tasks or goals. Besides, he suggested that cultivating self-reflection as a habit, which students could do regularly in class, may help them benefit more from this strategy.

> *Self-reflection allowed the students to reflect on their previous performance and then set up a goal for the next class. However, we did not emphasize the procedure in class. For example, the students had written down their feeling and performance in the journal but they put it aside. They did not review the journal before the next class so they can recall*

> *their personal strengths and weaknesses in the previous class. If we could guide them by knowing what they have done in the previous class and what they wanted to do in the following class via reviewing the journal at the beginning of the class, it could enhance them to modify their current performance or increase their motivation. Overall, I think that it was effective but we did not attain its full benefits, as it was not fully implemented. (TI)*

> *If we could help students cultivate it (self-reflection) as a habit like the first learning skill (strategy), mastering, they would get used to checking their previous goals and recognize what they planned to do in class. The self-reflection would enhance its effectiveness if we ensure in using it at the beginning of each class or before doing skill practices. (TI)*

Half of the students (19/38) identified self-reflection as an effective strategy because it helped guide them toward analyzing their previous performance and recognizing what they could do next time to run better. A few examples of their comments are:

> *I would reflect by myself "How did I do?" and "Did I do my best to accomplish the task?" after every running practice. If I did, I would set up a higher goal to keep making progress. (FGSP25)*

> *I would reflect on how I breathe and gestured in my previous run and make some adjustments in the next running practice. Thus, I could have a better or an easier run. (FGSP24)*

Conversely, half of the students thought that there was no need to do self-reflection because running is a simple or a natural thing to do. They were more likely not to reflect on their previous performance after running.

> *Running is a simple thing for me. You* [I] *just keep running until the time up is up. (FGSO11)*

> *I felt that running was all about a feeling of happiness during the process. Once I reached the goal I set for today, I felt that I did it. Therefore, I would not think of the difference between yesterday and today. (FGSY23)*

Journaling. The teacher mentioned that journaling provided the students with a way to document their performance and thoughts after each lesson. His comments indicated that the students' motivation and self-confidence were fostered through journaling because they could review their previous performance to see whether they achieved their pre-set goals and recall

their current goals while writing the journal.

> *Journaling gave the students a chance to write down their running performance and thoughts. It was effective to foster their motivation and self-confidence because they could see their goals from the journal. While writing the journal, they could check the record to see if they reached the goal or not. Thus, I thought journaling was helpful to the students' learning performance. (TI)*

In addition to supporting the use of journaling, the teacher suggested making two instructional modifications to enhance its effectiveness. He suggested that the teacher should supervise the students during journal writing so they would more likely write down their feelings and thoughts in detail. Additionally, the teacher should read the journals and give the students immediate feedback before the next lesson to help and encourage them to make progress.

> *While journaling, I thought that teachers should stay with the students to supervise them to finish the journal writing so they could make sure that they write it down. The reason was that we had no time to let the students write the journal in class after conducting all learning activities. Therefore, some students wrote their journals well but some other students would leave out a lot blank on the journals. (TI)*

> *I did not read the student journal in time so I could not give them feedback about their good performance in the previous lesson and what they could improve in class. (TI)*

Only one-third of students in the focus group interviews (13/38) identified journaling as a helpful strategy. They mentioned that they used it to record and reflect on their performance so they could overcome their weakness. The reflection encouraged them to make a great effort to complete the running tasks because they were able to see previous accomplishments and present goal.

> *I like journaling very much. I felt that writing down what had happened in each PE class and what goal I set (for the next class) stimulated and motivated me to reach the goal. When I achieved the goal that I set at the beginning, I felt so happy. (FGSG25)*

> *While writing the journal after a lesson, if I did not reach my goal, I would try to figure out why and analyze the reason. For example, if the reason was about controlling breath or others, I would modify it. It helped me do a better run next time. (FGSY25)*

Conversely, many of the students (about 2/3) expressed that they did not view journaling

as a helpful strategy. The reasons included that they felt too exhausted to write the journal right after running and the journal design did not satisfy their needs and personal preferences. The students provided some suggestions including a reasonable frequency, a proper timing, and a diverse format of the journal writing in order to increase its acceptability and adaptability. The following examples are representative.

> *I felt that writing the journal was too frequent and it could be modified to writing it once a week. That means to write one journal, which includes two runs in a week. (SFSO13)*
>
> *I felt that the way of recording the lessons could be changed such as taking pictures or using apps… because I felt bored writing it at the end as every lesson asked similar questions. (SFSO25)*
>
> *It should say that I felt so tired writing the journal right after running. I felt that if the field on the form for adding information (in the journal) could be changed to a numerical scale like an emotional scale which allowed us to fill with the number 1~5, it would be easier to write and not be in a situation of not knowing how to express (our thoughts). (SFSO26)*

Incentives. Although the teacher did not use any formal material reward (e.g., a certificate) as an incentive in the program, the teacher's and students' viewpoints on the use of incentives differed. The teacher indicated that the use of an incentive might not be effective and needed in this program because the main goal of the program was the students' accomplishments of a 3K/5K run and not how fast they could complete the run. The following comments explicated why the teacher did not support using an incentive to help the students engage in this program.

> *…. The students were taught to run with a stable speed, follow a peer, or without walking instead of finishing a run in a specific time. Therefore, they felt happy when they completed the (3K/5K) run. They intended to accomplish it without thinking about how fast they needed to run to get a better score. Therefore, it seems that the teacher does not need to use an incentive to persuade the students to complete the run in a specific time. (TI)*

Additionally, some students (1/3) had the same opinions as the teacher's on the need for

material rewards. Those students felt no need to have an incentive in the running program because they aimed to run for their own physical and psychological benefits such as a stress relief and improvement of physical ability and enjoyment of running instead of running for a material reward.

> *Running is to relieve a stress. For relieving a stress, there is no need to use a special reward or a motive. It (an incentive) did not work for me. (FGSY12)*

> *I feel that an inducement and a reward are nothing to me. Running is to promote my physical fitness and it is not about a prize. (FGSR11)*

Further, two students indicated that if a reward was too difficult for them to receive, they would not be influenced by the incentive. It also addressed the consideration of personal running ability when employing an incentive.

> [My] *ability was so limited. I would not able to get the reward. Thus, it was the same to me with or without an incentive. (FGSO12)*

> *As an inducement, the teacher offered us a free drink if we finished it t (the run) at a certain place time. Since I felt that it was too difficult to achieve, it (the incentive) impacted me very little. (FGSR23)*

On the other hand, many of the students (2/3) suggested that a material incentive has the potential to intensify their efforts to engage in the desired tasks. During the FG, a great number of the students (23 students) made several exhaustive comments to address their desire to have an incentive such as a certificate or a prize from the teacher or peers because of the feeling of accomplishment and joy.

> *I felt that if there was a reward after the run, I would be stimulated to achieve the goal so it would help me make progress. I thought that using a certificate as an incentive would be helpful because it would prove my accomplishment of the challenge. (FGSG11)*

> *Even if you are not sure if you will be able to achieve the goal, you would be more likely to put more effort in running (rather than a circumstance without an incentive) when there is a reward to do it. (FGSG26)*

In addition, some comments from FG highlighted that social influences from a teacher or

peers can enhance the effectiveness of an incentive. An example showed that the teacher and a peer provided the student with an incentive to complete a run.

> *I felt that I would be motivated to run for a reward when I had a bet with a classmate to run a few laps at a time or the teacher offered a deal that if anyone could complete the 3K/5K run within a specific time, he would treat him/her to a drink... (FGSP23)*

The learning strategies, social support, positive feedback, positive self-talk, and technology were strongly supported by the students to help them attain the learning outcomes. The following findings provide considerable insight into how these strategies helped the students achieve their goals.

Social support. Both the teacher and most of the students (30/38) confirmed that receiving social support from significant others (e.g., teachers and peers) influenced the students' motivation to run, their enjoyment of running and their attitude towards running. The teacher commented that some of the students perceived emotional support and felt happy when running with other classmates.

> *For some of the students, I found that they were very happy when they run with a partner… If students participated in a running group such as runner club or a running event, they would love to engage in this kind of activity because they could run with someone… For this program, I found that the students had smiles on their faces while running with a partner and were happy when they complete the run. That is why I support having a companion as a social support because it is beneficial. (TI)*

Similar to the teacher's responses, many of the students mentioned that receiving support from a significant other was very helpful to them to engage in and persist in completing the task. The following comments elucidated that some of the students who perceived emotional, appraisal, and esteem support through running with a companion or receiving verbal encouragement from peers or the teacher were more likely to be motivated to put forth more effort in the run.

> *I felt that if I run with someone, we could compare our performances and cheer up each*

other. It would encourage me to complete the run with persistence. (FGSR26)

When we were running, our classmates stood aside to cheer us or pass us water. This would make you (me) want to persist (in running) throughout the run. (FGSG25)

I thought that social support was useful. While I was running, the teacher (the PE teacher's name) told me that I run well and so on. It boosted my energy and motivation to accomplish my goal and feel more confident about my physical fitness. Therefore, I thought that it was the most important thing to me. (FGSR11)

However, some of the students (8/38) indicated that social support did not benefit them. One student illustrated that running was a personal choice and interest whether they received social support or not.

I felt that it would be great to have someone to support me. However, if I really like this sport, I would continue to do it whether someone gave me support or not. (FGSO25)

Positive feedback. Both the teacher and students commented on the effectiveness of positive feedback. The teacher indicated that receiving a positive verbal or nonverbal feedback was essential to the students while they were running because it encouraged them to persist in completing their runs. Additionally, he emphasized the importance of using specific feedback instead of general feedback.

This (positive feedback) was helpful to the students because we were cheering and encouraging them [to persevere] *while they were running. For example, in the final running test, the second half group of the students walked toward the track to cheer for their partners and some of them ran with the runners to encourage them. Moreover, some of the students also used other gestures such as giving high fives to their partners to encourage them and telling them "Cheer up! You are almost there" to them. Therefore, the runners were motivated by this process to persist in running… I thought that positive feedback was an encouragement for them* [to put more effort into or persisting on a running task]. *(TI)*

As for positive feedback, I will be more specific about the positive feedback I gave them. For example, when I taught running with a stable and changing speed to modify their behaviour I would go tell them "you did well today. you had maintained the speed throughout the run." I would only give them the positive feedback when they made some change... instead of just telling them general comments such as "Very good. It's great, keep going." (TI)

Further, the teacher mentioned the challenge of implementing positive feedback in this

intensive program. He mentioned that he did not have sufficient time for a discussion and provide more feedback to the students due to time limitations.

Similarly, most of the students (34/38) confirmed the teacher's viewpoint that positive feedback stimulated them to put in more effort to the running activities. Comments showed that the students received positive feedback from the teacher and peers via verbal languages.

> *…The teacher also told you (me) something like "Cheer up! Just a few minutes left." (FGSO24)*

> *While running, there was one person encouraging you "Cheer up! Almost there, just a few laps left." Having someone's encouragement, I felt so great when I accomplished the run. (FGSG24)*

> *It also happened to me at the last time (final run). During the run, some people gave you (me) support via tapping your (my) shoulders and said "Hurry up. You can do it." Therefore, you (I) would think of that "Sure. Run forward" and followed the runner. (FGSP25)*

Although the teacher and most of the students supported the effect of positive feedback, two students said that it did not benefit them because it felt like social pressure to them.

> *Although I encouraged other people while seeing them running, I felt very stressed if someone told me to cheer up or something while I was running. I was afraid of failing to achieve my goal so I wish that I could complete the run quietly (without social interactions) because I would feel stressed when someone is nearby. (FGSY24)*

> *Running was about going beyond the limitations so people did not need to care about what other people said. (FGSR25)*

Positive self-talk. Surprisingly, the responses from the teacher and students revealed different information about the use of positive self-talk. The teacher indicated that it was difficult for him to determine whether the students used the positive self-talk since he did not hear the students talking about it in class or see anything about it in their journals.

> *I did not recognize it (positive self-talk) while they were running or in students' journals so I could not answer you if it was effective or not. However, it was supposed to be helpful to us. In my opinion, we did not emphasize that the students had an option of using self-talk to encourage themselves. In addition, some of them felt that they were so*

exhausted and would not have the energy to say something like "I can do it, almost done" to themselves. That was how I felt. (TI)

Alternately, during the interviews, almost all of the students (35/38) said that positive self-talk was an effective skill for them to accomplish a task. A few examples of the student comments described the content of their self-talk. Their comments were related to a goal-orientated task and a motivation to persist in running (i.e., not giving up).

Like in the last 3K/5K run, I talked to myself "14 laps left" after completing a lap. I felt so happy and it motivated me to keep running. (FGSR23)

In the past, I would stop running and start to walk when I felt tired. Now, I would talk to myself to keep running when I feel tired. That is, I could almost persist in accomplishing every run now. (FGSG11)

Technology. The use of technology including utilizing running apps and listening to music in the program revealed a complex result from the multiple data sources. The teacher indicated that only about 11 students used a running app or listened to music during their runs even though all the students showed an interest in using it while running. Further, the teacher mentioned that the full potential of technology was not realized because the students had limited access to Wi-Fi and insufficient instructions on how to use it.

Because the students were not allowed to access the school Wi-Fi, they could not download the apps in class. (TA)

There were only a few students using the technology. It probably was because we did not teach them how to use it. We did not ask and allow those students who could use it to spend some time to teach other students. Therefore, there were very few students using apps. Some of the students did listen to the music but they had to find their own music… (TI)

The teacher suggested giving more detailed directions to the students so they would be more likely to employ technology in their running activities.

The app had many functions. If it was conducted in an indoor environment and allowed the students to choose their own ways to operate it, it would increase their acceptance. (TJ)

> *In the use of technology, you (the teacher) should teach the students how to operate it and let them practice so they would be more likely to use it or apply this strategy in their runs. (TI)*

Many of the students (22/38) emphasized the potential for the use of the apps and music in running activities. Several students described that using a running app or listening to music as a learning strategy to let them know their running speed and distance, relieve their emotional impact (e.g., via distracting the physical discomfort), and made them persevere with the running tasks.

> *The running app helped you (me) measure your (my) current and total running distance and know how your (my) pace was after finishing the run. It was very helpful because it helped me understand more the way I run. (FGSY23)*

> *I thought that it was very helpful. That is, you listened to music while running and you could transfer your attention. Besides, if you listened to the music that you liked, you would be very happy and your feet would just move faster. (FGSO25)*

The following student comments highlight the factors that diminish the students' interest and potential for the use of technology.

> *…After the teacher mentioned that we could listen to the music while running, I gave it a try. However, I felt that it did not help because I synchronized my run to the music's tempo and it caused problems with my breathing. (FGSP11)*

> *I did not use an app or listen to the music because I felt that running should be free. I did not want to worry about how far I had to run and just thought about what I wanted to run instead… Therefore, I thought that it was not helpful to me. (FGSY24)*

> *…Although the version of the Nike running app looked great, I would not use it because I disliked holding a cell phone while running. (SJSB25)*

> *I disliked it because I was sweating so I could not wear the earphone. (SJSG12)*

In sum, the aforementioned learning strategies were supported by a varied number of students as effective in the *Run-Up* program. That is, all the multiple learning strategies matter to the teacher and students to achieve the learning outcomes even though some of them were more

effective than others.

Theme 3 - Progress, Accomplishment, and Challenge: Self-efficacy Stands Out

The *Run-Up* program was designed to help the students obtain five major learning outcomes including running skills and knowledge, physical fitness, self-efficacy, motivation to run, and enjoyment of running. The teacher indicated that the students achieved the learning outcomes via the learning activities. He highlighted that all the students' physical fitness improved and also gave a 7 out of 10 rating to show the level that the students gained the running skills and knowledge. However, as to the three other outcomes, self-efficacy, motivation to run, and enjoyment of running, the teacher indicated that the students partially achieved those outcomes in different circumstances. Alternatively, Table 4 includes a numerical summary of students' response to whether they felt they achieved the five learning outcomes.

Table 4

Summary of Students' Achievement of Learning Outcomes

Learning Outcomes	Focus Group						Students
	SB	SG	SO	SP	SR	SY	Total
1. Running Skills and Knowledge	7	6	4	6	5	6	34
2. Physical Fitness	8	6	4	5	4	6	33
3. Self-efficacy	5	6	4	6	6	4	31
4. Motivation to Run	3	5	2	5	1	5	21
5. Enjoyment of Running	2	5	5	5	2	6	25
Total Participants[a]	8	6	6	6	6	6	38

Note. Data retrieved from six focus group interviews with students (FG). SB = student blue group; SG = student green group; SO = student orange group; SP =student purple group; SR = student red group; SY = student yellow group.
[a]Total participants presented the number of students in each focus group and in total in the horizontal row.

Running skills and knowledge. It is evident that the students attained running skills and knowledge through participating in the program. In SF, many of the students (29/38) indicated that they did well in learning running skills and knowledge by learning how to do the warm-up

and cool-down and perform appropriate running gestures, speed, pace, and breath while running.

During the FG, most of the students (34/38) mentioned that they felt noticeably different after participating in the program activities because they learned how to run correctly and efficiently. Additionally, they highlighted that the running skills, which they learned from the lessons including the dynamic warm-up, cool-down stretching, running gestures, and the control of the running breath and pace, helped them develop their physical fitness and enjoy the running. A few examples show that the students felt happy and interested in learning the running skills and tactics, which were new and helpful to them. That is, they recognized the distance run as an achievable and enjoyable task after learning the relevant running skills and knowledge.

> *In the past, I didn't know about running strides and pace so I couldn't adjust it well. It made me hate running because I felt exhausted after running and would think, "Why run?" However, since I learned these skills, (I realized that) running was not that difficult. (FGSP25)*

> *I felt that this course could help us promote my running ability. That is, as to running, it allowed you (me) to know how to adjust my own breath and strides. Also, my physical fitness improved. (FGSG13)*

Half of the students highlighted the proper control of breathing rhythm during running helped them run a further distance, at a faster speed, and with a more comfortable feeling.

> *…I felt that the warm-up before running and the cool-down after running were helpful. I ran so slow at the beginning but when I heard that the teacher told us to adjust our breath. I tried to do it and it helped me improve my way of running completely. (FGSP11)*

Further, a number of the students (11/38) confirmed the effectiveness of the dynamic warm-up and cool-down stretching in avoiding injury and soothing their physical fatigue.

> *I felt that… the warm-up and cool-down were so helpful for not only running but also other kinds of exercises. (FGSO25)*

> *This course helped me learn many dynamic warm-up skills so I could use these skills to prevent an injury in my future running activities. (FGSR23)*

In general, it appeared that this learning outcome, running skills and knowledge, was very

convincing for most of the students. Alternately, during FG, four students mentioned that they did not attain running skills and knowledge. The two non-supporting examples are presented in the following comments.

> *I felt that I learned the knowledge of running but not the running skills because everyone had different running gestures. (FGSO13)*

> *Since I only ran a couple of times and attended only a few lessons, it seems I did not learn anything. (FGSR25)*

Physical fitness. Both the teacher and students agreed that the students' physical fitness (e.g., cardiovascular endurance and the ability to run further and faster) had been promoted through the program. It is worthy to note that, during the first lesson, almost all of the students (36/38) indicated that they were dissatisfied with their current physical fitness levels including their body weight and running ability. A few examples of their concerns are:

> *SJ Question: Are you feeling satisfied with your physical fitness level? Why?*

> *No for the insufficient fitness and willing to get better. (SJSB25)*

> *No for feeling tired after running just a few laps. (SJSR26)*

> *No for its bad to be overweight. (SJSG12)*

During the interview with the teacher, he indicated that the students' physical fitness had improved because of the constant and progressive practices in the series of running lessons.

> *Because our running practices in each class increased the students' running time, during of the mastering practice, the students were able to set up their goals and run a longer distance. Therefore, they could run further in each time. They wouldn't start to walk just after running for a short time. Thus, I felt that they had benefited* [from it] *in their physical fitness. (TI)*

In addition, he highlighted a cause and effect relationship between improved physical fitness and enjoyment of running.

> *As to the learning outcomes, the students made progress in their physical fitness… I felt that they made progress in their physical fitness so they could enjoy running and felt*

> *running as a pleasure. If they had an insufficient physical ability, they would only feel that running was so exhausting. (TI)*

Similarly, most of the students (33/38) indicated that their physical fitness including cardiovascular and muscular endurance had been increased during the program. To illustrate, the following comment indicated that increased physical fitness level during the lessons contributed to a better running performance.

> *I felt that my physical fitness was better than before. I felt out of breath after running for a short time in the past. However, I did not feel that tired since I learned how to breathe correctly. (SFSY25)*

Five students highlighted the potential for the use of the mastering practice (i.e., continuing and gradually adding running time and distance) to improve their physical fitness.

> *In the past, it was impossible to run 5K as fast as I do now. The technique of running slowly and gradually increasing the difficulty was very helpful in improving my physical fitness. (FGSG11)*

> *It (the running practice) allowed me to follow my own ability to increase the intensity of the training and adapt it gradually to make my physical fitness become better. (FGSY12)*

Additionally, 15 students emphasized notable improvement in their physical fitness after participating in this program. The following comments explain the progress in their physical fitness.

> *After this training, I felt that my muscular endurance had been increased a lot. In the past, my weakness was muscular endurance because I could not run well in a long-distance run. At the beginning, I took me 32 minutes to run less than 5 kilometers, but by the but by the final test I was able to finish 5 kilometers in 26 minutes and 37 seconds. I felt so good. (FGSY11)*

> *In the past, I felt so exhausted after running 8 laps but I could run 15 laps in a row now. (FGSO11)*

> *(My) Cardiovascular endurance was increased.* [I felt] *out of breath when running 1600m in the past but now I have no problem running 4000m. (SFSY12)*

However, a couple of the students indicated that they felt no difference in their physical fitness levels after the engagement in the lessons because they felt bored in doing the running

activities, inferior to others, or had insufficient participation (e.g., due to an injury or sickness) in the classes. The following comments are representative.

> *It was so-so. I didn't like running and felt bored and annoyed while running. (FGSO25)*
>
> [I felt I was] *worse than others. I run very few times (a fewer practices) so it had no impact (promoting physical fitness). (FGSO12)*
>
> *I felt that my foot injury made me feel uncomfortable again after running. Therefore, I did not feel as much sense of accomplishment in running. I almost didn't run so there was no change for me. (FGSR24)*

Self-efficacy. The responses from three data sources, TI, SF, FG, provided insights into aspects of the program that helped students foster their efficacy beliefs in a distance run and other tasks in life. During the interviews, the teacher indicated that some of the students' self-confidence was fostered through the lessons and most of the students (31/38) mentioned that their self-efficacy was increased by the program. The teacher highlighted that the experience of accomplishing the program learning activities and journaling helped students increase their efficacy beliefs to complete the final 3K/5K run. The following conversations and responses in the interview indicated that the students were more likely to set up a higher goal (a further running distance) for the next class due to recognition of the progress they made in the previous class. They accepted the distance run as an achievable goal. Thus, students were more encouraged to overcome the fear of a challenging task and face it with a confident attitude.

> *Teacher: In learning outcome, … some of the students' confidence was increased …*
>
> *Moderator: How do you think was their confidence fostered?*
>
> *Teacher: In their journals, when they set their goals for the next class such as a 5-min run, 10-min or 20-min run, they would set a higher goal instead of setting a goal to run less than the distance they ran today. Everyone set a higher goal so I felt that they thought "I can achieve it." Therefore, from this aspect, I felt that they felt confident in themselves.*
>
> *In journaling, he/she (the student) could write about their running performance and their*

> *thoughts of the moment. It could enhance his/her motivation and self-confidence…. (TI)*

> *…Because in the journals, some of the students mentioned that he/she (a student) persisted in completing the 3K or 5K run. After finishing the run, he/she got to feel "I also could complete a running task like this." He/she wrote something in the later section that it (the accomplished of the run) helped him/her have more confidence of completing it when he/she face some more challenging tasks in future. That is, this thing was incredible in the past but he/she felt more confident of not being afraid of the difficulty of it and believed that he/she could complete it. (TI)*

In the SF and FG, many of the students indicated that their self-confidence increased when they participated in the program. They highlighted the impact of the progress in the running performance and physical fitness on their self-efficacy.

> *This was because of the course, which not only promoted my physical fitness but also fostered my self-confidence through continuous improvement. (SFSB13)*

> *Before completing the run, I would always feel that I could not do it and finish the run. However, I found that once I persisted in doing it, I could reach a certain level. The feeling of accomplishing the run had gradually increased my self-confidence. (SFSG24)*

In addition, comments from students elucidated the potential for the achievement of a challenging task. Some students emphasised that the achievement of a challenging task such as the 3K/5K allowed them to increase their efficacy beliefs and motivated them to pursue a higher goal.

> *Because 3000m run was a big challenge (to me), when I achieved the challenge it probably encouraged me to aim for a bigger challenge. (a higher level). (FGSR25)*

> *It was because, in the past, I would think that running 3K was difficult and felt so tired after running. However, after finishing the 3K run, I recognized that I could accomplish it and not fail. Therefore, my self-confidence was built up and it stimulated me to aim for a higher goal, which is to run a longer distance. (FGSB26)*

Further, a few students identified the use of goal-setting as a contributor to their increased efficacy beliefs and intentions to achieve a progressive goal.

> *Self-confidence was increased a lot because I could take my time to achieve the pre-set goal and then set up a goal to run for a further distance. (SFSY23)*

When every time I achieved the goal that I set, I felt a strong sense of accomplishment. It increased my self-confidence and encourage me to aim for more goals in the future. (FGSG11)

Two comments from students illustrated how the experience of running practices encouraged them to overcome their fear of failure and allowed them to use their stronger efficacy beliefs for other running or non-running activities.

At the beginning of this event, I was thinking about how I could complete the 5000m run. After I accomplished the run, I realized that I was able to make it. Therefore, I started to have the confidence to face other problems. (FGSO13)

Because of the constant practices, I made great progress. I felt a sense of accomplishment after finishing every run even though my physical fitness was poor. When doing other things, I tell myself "You did it in the last running task. Why can't you do this," "I completed the run last time, I am definitely to make it on this one," "It is nothing more than running." Thus, I became more confident. (FGSY24)

Several students highlighted the potential for the increased self-confidence during the lessons that the students shifted their attitude toward running from negative to positive. That is, they were more likely to reduce their dislike of running, increase their interest in running, and engage in more running activities.

I used to hate it (running) but after I took up running again, I saw the positive side of running. (SFSR25)

As I just mentioned, I used to hate running so much. After [/Before/] *I joined this (running program), I never thought that I could run as far as three kilometers. I felt so proud of myself because of knowing that I could make it. (FGSP25)*

It was the change of self-confidence. At the beginning, I was a person who was not good at sports but I found that I had the potential for running after a few running practices. (FGSP11)

Alternately, during FG, several of the students (5/38) indicated that their self-confidence was not changed by the program. The following comments are representative.

I felt nothing changed and different from the past. (FGSO12)

I couldn't say that my self-confidence had been increased because I didn't participate in it (the running activity). I felt that it's pitiful. (FGSY23)

Motivation to run. Both teacher and students provided diverse opinions about the impact of the program on students' motivation to run. The teacher indicated that some of the students' motivation to run had been increased via setting a goal, watching the runner story, writing the journal, and promoting their physical fitness.

Goal-setting was helpful to promote running ability and motivation. (TA)

…through the runner story, he/she (the student) would view the runner as a role model so we (teachers) could use it to increase the students' motivation. By giving the students a chance to see the runner story, they saw that running could be a great exercise. After watching it, I felt that it was pretty useful to increase the students' motivation. (TI)

…. We employed this learning process, which allowed the student to experience running as a way to promote the physical fitness. So, he/she would continue to run but he/she not just run for the sake of running. He/she would probably use running to enhance his/her physical fitness to engage in other physical activities…. I found that few female students felt happy during running. No matter observing them during running or seeing what she (they) wrote in the journal, you (I) would think that she would be more likely to sustain the running activities. (TI)

Interestingly, in the student journal entries following the first lesson, most of the students (30/35) thought the program would increase their motivation to run. Three examples show that the students were motivated to run because they had a goal to achieve and wanted to promote their physical fitness and health.

SJ Question: Do you think that this program will promote your motivation to participate in running?

Yes, for having a goal-setting. (SJSB11)

Yes, for promoting my fitness. (SJSP11)

Yes, for physical health. (SJSR11)

However, following completion of the program, more than half of the students (21/38) thought their motivation to run was increased by the program. They felt motivated because the

experience of the program helped them attain the running ability and become confident to accomplish the run. The following student comments exemplify their motivation to maintain engaging in running activities.

> *After this running course, I think I will try to get up earlier to run or run on weekends. (FGSP24)*
>
> *I felt that running became more enjoyable after promoting my physical fitness. So, I would be more likely to run with classmates after school and keep exercising. (FGSY25)*

Further, a few of the students indicated that their experiences of participating in this program stimulated them to participate in a running race in future.

> *…After this program, I would maintain this habit of a distance run when I have time. I might participate in a half marathon or running race. (FGSY11)*
>
> *When I completed the run, I decided to run a marathon during university or do something like that. (FGSP25)*

Alternately, about half of the students indicated that their experience in the program did not affect their motivation to either maintain running or participate in future running races. The reasons included fatigue from running, a lack of interest in running, and the physical discomfort of sweating. A few examples are:

> *(I was not motivated to run because) I have no interest. (SJSO12)*
>
> *After finishing this run, I felt that running was still exhausting so I probably won't participate in a running race in the future. (FGSG24)*
>
> *I will not join running competitions. Although I felt great and a sense of accomplishment when I completed the run, I still hate the feeling of sweating. (FGSP26)*

Enjoyment of running. Although the teacher and students indicated different opinions as to whether students managed to achieve enjoyment of running, they identified the same two factors, social interactions and improved physical fitness, which contributed to this learning outcome. The teacher mentioned that providing the students with social support (e.g., running

with a peer), self-paced learning climate (e.g., running at their own speed), and increased physical fitness allow them to enjoy running.

> *For a couple of the students, I felt that they would be happier if someone kept them company while they were running… I found they (the students) had smiles on their faces when running in a pair. Although the speed was not fast, they would complete the run with happiness… He and she (the student) would feel that distance run was not that difficult as they originally thought. In addition, he/she said that he/she would be happier. (TI)*

> *When they (the students) didn't feel the enjoyment of running,* [the teacher] *should help them to cultivate the running as a habit via accompanying…Running with one or two peers so they could chat and feel the distance is shorter. It allowed them to get used to running with no pressure, chatting with peers… When time went by, I felt that they would enjoy and like running. They would not refuse it (run) because they would no think that running is so exhausting and such a painful experience. (TI)*

> *…I felt that their (the students') physical fitness needed to be promoted so they could enjoy running. He/she (the student) would feel that running was fun. If he/she were not physically fit, he/she would feel that running will be too exhausting. (TI)*

In addition, as mentioned in the beginning of this theme, the teacher said, "You (the students) enjoyed running and you (they) would automatically participate in the running activity," to emphasize the potential for this outcome and viewed it as a priority among the learning outcomes because the students who felt a sense of enjoyment while running were more likely to sustain and engage in running activities.

During the interviews, two-thirds of the students indicated that they experienced the enjoyment of running through the program. Along with social support and increased physical fitness, other factors including a sense of accomplishment, a feeling of relaxing, and the joy of doing a challenging task contributed to the students' enjoyment of running. In SF, most of the students viewed the distance run as a challenging but a satisfying task because they overcame the difficulty, made remarkable progress and persisted in completing it. The following comments are representative.

SF Question: What do you think of distance running after attending this program?

The process was tough because I felt exhausted and wanted to rest and give up. However, I put all my efforts in the run and I eventually persisted to the end. (SFSB27)

The process was harsh but I felt a strong sense of accomplishment when persisting to the end in completing the goal. Every challenge in life is just like this principle. (SFSY25)

SF Question: Did you experienced the enjoyment of running during the program?

Yes. By overcoming my limitation and surpassing the previous performance, I felt that it was fun and fell in love with jogging. I will find more time to run in the future. (SFSB27)

Yes…. In the past, I only felt that running made people feel exhausted and only those people who had grit could do it. That made me dislike it. Then, with my persistence in it (running), I made some progress and the accomplishment made me feel some of the pleasure in running. (SFSG24)

As to social support, a number of the students highlighted that running with others brought them more pleasure than running alone. Two examples are:

The feeling of running with classmates was very special and happier than running by my own. (SFSB25)

Specially, running with others allowed [us] *to encourage each other. (SFSY11)*

Some of the students emphasized that engaging in running activities helped them relieve stress and distract their attention from something that they worried about. The following comments illustrated the impact of running on the students' psychological state.

I felt good when running. No matter if I run when I am in a good mood or bad mood, it (running) became a way to relieve my stress. I felt happy. (FGSO25)

One could free oneself when running. You could set yourself free and feel t that those problems are gone. Therefore, I found that I could enjoy the moments when I am running and my mood got better. (FGSY24)

Additionally, a few students highlighted that the experience of participating in the running program had the potential for shifting their attitude toward running from negative to positive. The following comments exemplified the change.

> *… I never thought that I would enjoy running and feel happy doing it. In the past, I always felt that it was painful to run and felt "Oh, my god! Running again," when being asked to run.... I found that running could be very enjoyable…. In particular, I felt very happy to run when I felt stressed due to my academic studies in the senior year of high school. (FGSP25)*

> *I used to dislike running but through this course, I became a person who likes running. That is, I didn't hate it as before. (FGSP24)*

Furthermore, two comments highlighted that allowing the students to enjoy running while doing the program activities stimulated them to continue running and put forth more effort to achieve the desired goal.

> *Although it (the program) was finished, I still have a desire to keep running. It was fun to do. (FGSB28)*

> *Because of enjoying the moment of running in this running program, you (I) were motivated and have an intention to put in efforts to complete the running task. (FGSG12)*

Alternately, a few students indicated that they did not enjoy running because of a feeling of fatigue, physical discomfort, or it did no interest them at all.

> *I still feel tired of running now so I don't think that it is fun to do. Although I felt happy when completing the run, I didn't like the process very much. (FGSR23)*

> [I] *just have no interest in it. (FGSO12)*

When asked to select the most important of the five learning outcomes, gaining self-efficacy was selected as the most important learning outcome for many of the students (14/38), whereas the teacher thought that enjoyment of running should be the priority. The summary of the teacher's and students' responses to the most important learning outcome are shown in Table 5.

Table 5

Summary of Teacher's and Students' Selection for the Most Important Learning Outcomes

Learning Outcomes	Teacher	Focus Group						Students
		SB	SG	SO[a]	SP	SR	SY	Total
1. Running Skills and Knowledge		0	2	0	3	1	0	6
2. Physical Fitness		1	3	0	1	0	1	6
3. Self-efficacy		5	1	0	2	4	2	14
4. Motivation to Run		2	0	0	0	1	0	3
5. Enjoyment of Running	1	0	0	5	0	0	3	8
Total Participants[b]	1	8	6	6	6	6	6	38

Note. Data retrieved from a one-on-one interview with the teacher (TI) and six focus group interviews with students (FG). SB = student blue group; SG = student green group; SO = student orange group; SP =student purple group; SR = student red group; SY = student yellow group.

[a]One student did not identify any of the outcomes as the most important learning outcome in this group. [b]Total participants presented the number of teacher and students in each focus group and in total in the horizontal row.

The following comment indicated the reason that the teacher considered facilitation of the enjoyment running as the most crucial learning outcome of the program.

> *I thought that it (the most important learning outcome) should be the fifth one, enjoyment of running. Because the main purpose of teaching this kind of curriculum was to hope that they (the students) would enjoy exercising and running. If you (people) enjoy running, you would feel happy while running and would love to run. Then, you would experience the joy of running such that you would spontaneously engage in a running activity… (TI)*

The following comments provide some insight into students' selection of self-efficacy as the most important of the five learning outcomes. A few examples indicated that without a belief to do the thing well, it was hard to attain the other learning outcomes. Conversely, once the students had a self-belief to do a task successfully and made efforts on it, the accomplishment of the task would promote their self-worth and motivation to sustain the engagement. Furthermore, a few of the students indicated that they intended to apply what they have learned in this program, specifically their enhanced self-beliefs, in facing the other challenges and difficulties in their lives.

> *Because I felt that having a belief is the most important (priority), you (students) wouldn't have other options (outcomes) if you didn't have a belief in yourself. If you didn't have the motivation and self-belief, you would not do this thing (running) and have a concern with running gestures and physical fitness level. (FGSP12)*

> *I feel that what he (SP12) said about having a thought is very important. Because it was easy to feel tired and have a thought about giving up while running, you told yourself not to give up. When you (I) finished the run, you (I) would feel yourself (myself) being a real great person and it made you (me) become motivated to keep running next time. It enabled me to make progress. (FGSP25)*

> *It was the impact of the persistence during the 3000m-run and the feeling of accomplishment when completing the run (which made me view self-efficacy as the most important outcome). I felt that I could transfer it (self-efficacy) into many other things so I could use it to encourage myself to face future challenges. (FGSY24)*

In addition to self-efficacy, all learning outcomes were important to some of the students for a variety of reasons. For example, six students ranked learning the running skills and knowledge as the most important learning outcome.

> *…Since the teacher taught us the running knowledge (skills and tactics), I learned a lot of running methods and I was motivated to run after that. (FGSP11)*

Six students viewed the promotion of physical fitness as the most important learning outcome because having a sufficient level of physical fitness enabled them to deal with the challenging circumstances in running or in other sports.

> *Physical fitness should be good. If it was not good enough,* [people] *would not be able to complete many things either in running or in other sports. (FGSG22)*

Four students thought that increasing motivation to run was the most significant. The following comments showed that the motivation to run could mean either participating in a distance race or continuing to engage in running activities after the program.

> *I feel that if there were a race, I would take part in it. However, to keep doing the training (running) would not be convenient for me and I will not feel not motivated… (FGSO13)*

> *I feel that I am more likely to continue running but I will not join a race... (FGSO24)*

Lastly, eight students mentioned that enjoyment of running was the most important learning outcome. They found that engaging in a distance running activity allowed them to have fun, and enjoy, or relieve stress in their life.

> *It is very important that you are interested in this sport so you keep on running. Because you like it, then you would feel happy and enjoy running. (FGSO26)*

> *I just felt that running made me feel happy and helped me release the pressure. Therefore, I felt that it was great to find another way to relieve the stress and promote my physical health. (FGSY23)*

Overall, the findings show that each of the students attained a cluster of these five program learning outcomes. While all five learning outcomes were not valued equally or achieved equally by all students, it seemed that both teacher and students acknowledged their overall contribution. The responses from the teacher and students emphasized that achievement of the five learning outcomes was achieved through integrating the multiple learning strategies into the diverse learning activities.

Chapter 5: Discussion

The primary purpose of this study was to explore the effectiveness of a high school PE running program, *Run-Up*, on students' self-efficacy and enjoyment of a distant running. In particular, discussion will focus on the factors, which facilitated the high school students' achievement of the learning outcomes associated with self-efficacy and enjoyment of running. Theme 1 demonstrated that the selection of learning activities met students' diverse needs including knowledge acquisition, motivation, and enjoyment. Theme 2 identified that the selected learning strategies contributed to the learning outcomes. Theme 3 endorsed the students' top priority, self-efficacy, the teacher's first priority, enjoyment of running; and the broader learning outcomes of the program including running skills and knowledge and physical fitness. Discussion of the three themes will connect with literature reviewed in Chapter 2 to answer the research questions. This chapter concludes with practical implications for PE teachers and other sports practitioners and considerations for future research.

In general, the results of this study confirmed and in some instances extended the results of previous studies on the relationship between the multiple learning activities, ten learning strategies, and self-efficacy and enjoyment of running. The responses made in seven data sources including TI, TF, TJ, TA, FG, SF, and SJ indicated that both the teacher's and students' perceptions of the learning activities and strategies conducted in the program were effective in helping the students achieve different levels of efficacy and enjoyment. Specifically, the students highlighted fostered self-efficacy as the most important learning outcome. Although the primary research interest was the achievement of self-efficacy and enjoyment of running, the teacher and students also affirmed that students were benefited from other learning outcomes of the course including running skills and knowledge, physical fitness, and motivation to run which were

associated with the focused outcomes.

As Dewey (1916) suggested, by reflecting on the interactions amongst their personal experience (e.g., abilities, beliefs, and interests) and external learning environment (e.g., learning activities), students' needs could be satisfied and learning outcomes could be strengthened. Theme 1 and Theme 2 described the importance of including multiple learning activities and strategies in the *Run-Up* program to satisfy the individual needs of students. It was evident that the program was effective because of the variety of learning activities and strategies. In other words, it was clearly not a "one size fits all" program. Consistent with Lubans et al.'s (2017) guide for a high-quality school-based PA program, the findings of this study highlighted that the *Run-Up* program exemplified many of the SAAFE principles including a *Supportive* learning environment, *Active* PA engaging time, *Autonomous* support, a *Fair* opportunity to success, and an *Enjoyable* learning experience. The teacher and students' comments elucidated that the knowledge-, motivation-, and enjoyment-orientated learning activities integrating with selected strategies contributed to achievement of the desired learning outcomes. According to Weiss (2004), adolescents tend to define success in terms of personal progress and judge self-worth and ability by the efforts they made. In accordance with the finding, the aforementioned learning activities and strategies were focused on the impact on students' efficacy beliefs to persist in running activities and their enjoyment of running via employing of novel learning activities, developing positive social interactions, and feeling a sense of accomplishment of a challenging task. In this study, the multiple learning activities demonstrated the complex contributions to the physical and psychological outcomes via employing the learning strategies explicated in Theme 2. Both teacher and students confirmed that the multiple learning strategies integrated into the designed learning activities, including motivation-focused activity as runner story, task-value-

oriented activity as the relevant running skill activities (e.g., running gestures, dynamic warm-up and cool-down stretching), mastering/autonomy-supportive activities as personalized running practice and journaling, and interaction-focused activities as 3K/5K run and group activities, helped the students foster their self-efficacy and enjoyment of running during the learning process and after participation in the program.

All the learning activities and strategies played a part in helping the students achieve the learning outcomes. For example, the activity entitled "Runner story" served as the first program activity to motivate students to engage in the program and increasing their beliefs in accomplishing the 3K/5K run. As suggested by Ashford, Edmunds, and French (2010) and Bandura (1997), a vicarious experience was as an effective avenue to enhance individuals' self-efficacy. This statement is consistent with how modeling was employed in the *Run-Up* program. According to Samson and Solmon (2011), modeling was organized into four types modeling including participant modeling, self-modeling, peer modeling and coping modeling. Namely, coping modeling is a way to enhance individuals' self-efficacy through observing how a role model overcomes the challenges and adversities of a task (Samson & Solmon, 2011). For instance, individuals who observed a coping model were more likely to display a better skill performance and higher self-efficacy than two other groups who observed a mastery model (peer modeling or participant modeling) and did not observe any model (Kitsantas, Zimmerman, & Cleary, 2000). This finding was consistent with the findings of this study. During the first lesson of the program, the students watched a video about how a coping model, a famous Taiwanese runner, Tommy Chen, achieved his goal (ultimate marathons) successfully through overcoming the challenges and adversities and they were stimulated and became confident to accomplish the challenging task (i.e., 3K/5K run). Both the teacher and students commented that knowing the

runner's story allowed the students to view him as a role model and recognize the value of running. Their comments highlighted the effectiveness of the use of a coping model in a challenge-orientated program like *Run-Up.* It allowed the observers to have more understanding about the value of the task and feel inspired and motivated to engage in the desired task. In addition, participant modeling was implemented in the program activities via the teacher's demonstrations and peer modeling were mainly utilized while learning and modifying the running skills in non-individual practices for achieving the desired learning outcomes. Comments from the teacher and students emphasized that observing the teacher's demonstrations and peers' performance allowed the students to understand and improve relevant running skills. Samson and Solmon (2011) echoed this finding, identifying participant modeling as a common approach in sports skill learning. Additionally, the teacher and students provided advice on the runner story, including offering students more choices and a meaningful rationale for the activity, which resonated with Lubans et al.'s (2017) *Autonomous* principle. Aside from using a video, the teacher suggested that the runner story could also be demonstrated through other formats like in a newspaper article.

Teacher and students alike highlighted that knowing the value of the relevant running activities, including dynamic warm-up, cool-down stretching, and running skills, helped students engage in and enjoy doing the desired running tasks. Most of the students identified doing the relevant running skill activities of the program as important, helpful, and interesting for them. Many of them emphasized that establishing and mastering the warm-up movements before running and cool-down stretching after running was not only beneficial to the performance in running and other sports but also essential to prevent exercise-related injuries. Noticeably, the dynamic warm-up satisfied Lubans et al.'s *Active* principle (2017). The dynamic warm-up as the

first activity and cool-down stretching as the last activity in each lesson were also in consistent with the suggestion by Lubans et al. (2017) to include an enjoyable opening and closing activity for a lesson. Additionally, they highlighted the impact of learning the correct running forms including arm motion, foot placement, and stride length on their running performance. As for the running pace, some of the students emphasized that having the proper control of the breath and speed while running helped them improve the way of running and realize the importance of maintaining a steady running speed during a run. The finding was in accordance with the studies by Xiang and other researchers (2007, 2011) where they found a task-orientated running program successful in helping students understand the importance and usefulness of the task, thus increasing their motivation to participate in running activities. In addition, Xiang, McBride, and Bruene (2004, 2006) suggested that if the learning activities are interesting for students and allow them to understand the value of running, they would more likely enjoy running and be motivated to participate in future activities. As found in this study, the teacher and students identified the engagement in the task-value-orientated activities, the dynamic warm-up, the cool-down stretching, and the running skills and knowledge, as important, useful, and interesting. Specifically, both teacher and students identified doing a new activity (e.g., dynamic warm-up and cool-down stretching) as a factor that made them feel interested and enjoy the running.

The students identified the personalized nature of running practice (especially mastery and goal-setting) as particularly beneficial to them. This personalized running practice served as the primary learning activity in each lesson. According to a series of studies by Xiang and her colleagues (2004, 2006, 2007, 2011), elementary students who participated in a task-mastery and goal-orientated program were more likely to increase their task values, beliefs to a better running performance, and motivation to future PA. Similar findings emerged from this study. Mastering

served as the main learning strategy in the personalized running practice to help students learn running-relevant skills such as running pace and improve running abilities. The teacher identified mastering as a vital strategy for students to learn sports skills via "consistently practicing" and improve physical fitness via "gradually adding the running time" in each running practice. Consequently, as Bandura (1997) and Samson and Solmon (2011) suggested, successful past experiences help individuals increase their efficacy beliefs. In this study, along with the promoted running skills and improved physical fitness, the progress in the personalized running practices was viewed as a learning achievement that let the students have a higher belief in completing the final challenging task, 3K/5K run.

Alternately, similar to Dewey's (1916) enduring postulation that autonomous support can satisfy students' diverse needs, comments from focus group discussions consistently mentioned the autonomy-supportive feature of the *Run-Up* program, the personalized learning activity, as directly contributing to their motivation to run and enjoyment of running. This is consistent with Lubans et al.'s (2017) statement that an autonomous learning climate could be built through allowing students to have the choice to set their own goals, and pick or alter their own activities. Locke (1968) first postulated goal-setting as an effective strategy to increase motivation to have a better performance across domains, which was echoed in this study. Both the teacher and students indicated that allowing the students to set up their own goals for the next run in each lesson and consistently adjusting their goals helped them to complete the final run and become actively engaged in the tasks. The findings of this study highlighted the potential of integrating individualized goal-setting into the personalized running practice as an autonomy-supportive setting in the program. Some students emphasized their preference of this running practice because it allowed them to make decisions based on their own perceptions. Allowance for this

decision-making not only helped them gain success performance but also brought more pleasure in the accomplishment. Næss, Säfvenbom, and Standal (2014) echoed this finding, where they found that an autonomy-supportive climate that allowed students to decide their running forms such as speed and pace in PE contributed to adolescents' enjoyment of running. In addition, as found in the research by Xiang and her colleagues (2007, 2011), they emphasized the potential for the use of mastering along with setting goals by indicating that the students who participated in a task-mastering and goal-focused were more likely to believe in having a successful performance and become motivated to persistently put forth effort in the task. This finding confirmed that the personalized running practice along with goal-setting met the *Fair* principle by Lubans et al. (2017) through allowing all students to have a reasonable chance to experience success in their PA engagement regardless of their physical abilities. Further, Schunk (2001) highlighted that goal-setting facilitated individuals to achieve their goals because it helped them focus on the task, encouraged them to overcome task difficulties, and fostered their efficacy beliefs to accomplish the desired task. This is in accordance with the results of this study. The students emphasized that goal-setting stimulated them to persist in accomplishing the desired running tasks and put forth their efforts to overcome challenges they encountered along the way. They stated that setting a goal helped them "persevere," "intend to accomplish," and "run with full effort."

With regard to setting a goal by oneself, Næss, Säfvenbom, & Standal (2014) posited that providing high school students with a choice of individualized running forms (e.g., pace, length, etc.) could mitigate the latent discomfort and increase their motivation and enjoyment of running in PE class. Similar findings emerged from this study. The teacher and students described that allowing the students to set their personal goals and complete course tasks (e.g., the running

distance for a 10-min run) made them identify that reaching the desired goals was achievable and enjoyable. As to SMART goal setting, McDonald and Trost (2015) found that middle school students who received the SMART goal setting instruction were more likely to made significant progress in aerobic fitness. However, this did not resonate with the result of this study. In regard to the use of SMART goal setting, several students replied that they did not benefit from it because they did not fully understanding how use the SMART goal setting process. Based on the teacher responses in the interview, this discrepancy might result from insufficient instructions. He mentioned that more instruction was likely necessary to help student fully understand the concepts associated with the SMART acronym.

Along with goal-setting, the implementation of journaling and self-reflection contributed to students' efficacy beliefs in completing the running tasks. Ganzer and Zauderer (2013) stipulated that the process of self-reflection could significantly affect how individuals think, feel, and behave. In terms of self- reflection, people recall past experiences to understand results of current performances, and then use the connections between the two experiences to plan future desired goals (Lew & Schmidt, 2011). Both the teacher and students indicated that allowing the students to self-reflect on their previous performance and review the current task goal would help them modify any weakness and engage in the follow-up task. Næss, Säfvenbom, and Standal (2014) suggested that the use of a self-reflection exercise allowed teachers to know how students felt about running and understand the factors impacting their experiences in running. This was consistent with the teacher's suggestion on developing the full potential of self-reflection in this study. He suggested that the teacher should look over the students' reflection in the journal, give them immediate feedback about it, and provide them sufficient time to cultivate self-reflection as a habit in school PE.

Rowland (2007) suggested that employing journaling along with self-refection process in PE could strengthen adolescent students' engagement in the running activities. The process of writing the reflective journals could allow students to increase motivation and have positive attitude toward learning activities via tracing their past experiences and gaining more understanding about what made them become successful and how they overcome the challenges (Baleghizadeh & Mortazavi, 2014; O'Connell & Dyment, 2011). Similar findings are echoed in this study. Some students emphasized that writing a journal helped them feel happy and calm because it provided them with a way to review the previous accomplishment and recognize how to improve it at a later time. This is consistent with the finding by Fritson (2008) showing that the students who completed a journaling assignment had significantly increased their self-efficacy. Intriguingly, a small group of students commented that writing the journal did not serve as an effective way for them to achieve their learning comes due to the design of the journal and how it was implemented in class. This is consistent with the finding of two studies (Jenny & Armstrong, 2013; Wanless et al., 2014) that running-related program with a proper guide to writing a running journal could increase children's motivation to run or sustain their running involvement. With regard to the type of journaling, Baleghizadeh and Mortazavi (2014) clarified that the students who used the feedback-journal, which collaborated with teachers or peers, significantly increased their efficacy beliefs. This resonated with the teacher's suggestion in this study. He mentioned that if he could read the students' journals and give them immediate feedback on their previous performance, it might help and encourage the students to do the succeeding tasks. Additionally, some of the students highlighted the need to adapt the implementation of journaling and content of the journal. The high frequency of journal entries and the complex journal forms were the reasons that made the students feel stressed and annoyed

about writing the journal after each lesson. To increase engagement in writing the journal, the journal content and its implementation might need to be altered to match students' varied needs such as flexible writing time (e.g., no need to write it right after running), a lower frequency (e.g., once a week), and a simple writing format (e.g., fewer questions).

Comments from students in this study highlighted the effectiveness of the use positive self-talk as a self-empowerment strategy during the personalized running activities. The students tended to talk to themselves with positive language, which reflected their past performance and goals while running because it could stimulate them to put forth effort in the completion of a task. With regard to the effects of self-talk on self-efficacy, the findings of the current study confirmed the suggestion from previous research that self-talk could be an effective self-efficacy enhancing strategy (Bandura, 1997; Hardy et al., 2005; Hardy & Oliver, 2014; Hatzigeorgiadis et al., 2008). In accordance with the findings of these studies, students in this study commented that employing the goal-orientated and encouraging self-talk helped them become motivated and persistent in completing the desired running tasks. Interestingly, based on the participants' responses, the teacher commented that he gave the students very little instruction on the use of positive self-talk during the program. The students, however, identified self-talk as a very effective strategy to their PA performance.

As Rikard and Banville (2006) suggested, taking a variety of students' needs into account when conducting a high school PE fitness unit could positively affect students' attitude toward running. This resonates with the finding in this study. The personalized running activity provided those students who did not benefit from group learning activities (i.e., felt negative impact of social interactions) with a way to satisfy their needs so they would more likely enjoy running in the program.

In contrast to the personalized running practice, the interaction-focused activities in the *Run-Up* program including group running activities such as the rope-holding and chasing run demonstrated the positive relationship between the social interactions and PA behaviours. In accordance with Wentzel et al., (2010), the main sources of social support for teenagers are most likely from teachers and peers. The findings of this study highlighted that receiving social support from the teacher and peers had a very positive impact on the high school students' motivation to engage in running activities and enjoyment of running. Specifically, Allen (2003) and Weiss and Smith (2002) stipulated that peer support is the main source of teenagers' competence and positively associated with their enjoyment, intrinsic motivation, and commitment to engage in PA. Similar findings resonated in the comments made by the teacher and students in this study. The teacher suggested that students who have peer support such as running with a partner were more likely have smiles on their faces while running and express a desire to complete the run. This was consistent with Cooke et al.'s suggestion that running with a partner could be identified as emotional support that the students felt someone cared about them. In addition, the teacher emphasized that female students who run with a partner were more likely to enjoy running and view a distance run like a 3K run as an achievable task. This finding was consistent with results from Dishman et al. (2009), showing that adolescent girls who received social support from peers were more likely to increase their self-efficacy to overcome the barriers of PA engagement. Similarly, most of the students identified that receiving support from the teacher and peers stimulated them to put forth effort in and persist in accomplishing the desired task. In addition, a girl-specific program, *Girls on the Run* (DeBate, Zhang, & Thompson, 2007) in which girls participated in a series of running activities to prepare them to complete a 5K run without walking, was consistent with the 3K/5K run serving as the final task goal of the

Run-Up program. These authors indicated that providing social support (from peers and instructors) along with sufficient running practice during the progress-oriented program could increase the girls' PA efficacy. In line with the *Girls on the Run* program, the finding of this study highlighted the setting in the 3K/5K that students both received support as a runner and gave support as an observer as the positive social impact. In particular, students felt that giving their partner support during the final run was so meaningful because they noticed their encouragement helping their partner run better and happier. This support was consistent with one kind of social support, altruistic support, in Cooke et al.'s (2013) study that doing something for others is worthwhile. Comments from the student journal entries emphasized the importance and meaning of the both roles in the completion of the run.

The teacher and students alike highlighted positive feedback as a major avenue for students to perceive support from others. This feedback could be referred to one kind of social support, appraisal support, in Cooke et al.'s (2013) findings that providing with feedback about how the students were doing. As Beattie et al. (2016) suggested, people who received more feedback would be more likely to increase their self-efficacy and improve their performance. Bandura (1997), however, claimed that the feedback as an influence on efficacy beliefs could either enhance or weaken an individual's self-efficacy. With regard to positive feedback, Ashford, Edmunds, and French (2010) and Rajati et al. (2014) found that providing people with positive feedback is positively associated with self-efficacy and performance in PA. Similar findings emerged from this study. The use of positive feedback was highlighted to increase the students' efficacy beliefs to complete the challenging run. In addition, perceived self-efficacy via receiving positive feedback stimulated the students to persist in overcoming the physical fatigue and psychological barriers and put forth more effort to accomplish the task. Conversely,

comments from a student confirmed the possibility that the use of negative feedback (negative languages) might result in a positive impact on PA performance.

In addition to the pair practice, the teacher exemplified how the social interactions within two game-like group learning activities, rope-holding and chasing run, stimulated students to devote more effort to the running task and let them enjoy running. Accordingly, the support within group activities highlighted four kinds of social support in the study by Cooke et al. (2013). The four kinds of support are altruistic support that doing something for others is worthwhile, network support that sense a belonging to a group, appraisal support that providing with feedback about how the students were doing, and emotional support that feel being loved and cared about. Comments from the teacher and students emphasized that giving or receiving positive feedback during two group activities let the students feel affiliated and supported by peers. The teacher and students alike emphasized that allowing students to run with their teammates or have positive feedback from others during the runs helped them not only complete the task but also derive more pleasure than running by their own. Some students also highlighted the potential of the rope-holding run as "running with others let me feel not that exhausted" and "the feeling of working as a team was great." However, a few of the students responded that social interactions did not serve as an influential factor for their PA behaviours. They viewed their intrinsic intentions as the determination of their own behaviours instead of the external social influence. Further, social interactions within the group learning activities were viewed as a social pressure for several students in this study. They expressed a concern that that they may be a burden to others in the group. Consistent with Lubans et al.'s (2017) principle of providing a fair opportunity for success, grouping the students into four teams in rope-holding and chasing run in this program demonstrated the need for taking students' differences (e.g., running ability,

gender, preference) into account. Based on the students' previous running performance and gender differences, the teacher ensured all students being evenly matched and made sure they have been guided to a team. Most students liked the group activities because the grouping allowed them to enjoy the feeling of cooperation within the team and competition between four teams. Additionally, the teacher and students highlighted that students recognized the value of doing two different group activities because it allowed them to understand and experience how and why to use either a stable (via the rope-holding run) or changing speed (via the chasing run) in a distance run. In short, the interaction-focused learning activities provided students with the social support and rational grouping, which helped them persist in completing the desired tasks.

As part of the autonomy-supportive learning climate, students were offered the choice to use incentives and technology (e.g., running apps) to help achieve learning outcomes in the program. The implementation of the incentives was identified as a form of social persuasion (Bandura, 1997) for the teacher and students in this study. Strohacker et al. (2015) supported the effectiveness of using small monetary reward as an incentive to encourage university students to increase PA. However, their PA engagement declined dramatically a few weeks after the intervention. Furthermore, Charness and Gneezy (2009) and Patel et al. (2016) identified a concern that once people participate in an incentive program, participants who do regular exercise before the program might give up their exercise habits or do less exercise when the incentives are taken away. The findings of this study confirmed that the use of the incentives in exercising behaviour is controversial. The teacher indicated that there was no need to employ a material incentive in the *Run-Up* program because the program aimed to foster juvenile individuals' physical and psychological health through accomplishing a distance run instead of receiving an extrinsic reward. Similarly, some students highlighted that having an incentive

would not affect their intention to run because they run for stress relief, physical fitness, and enjoyment. It is notable that many of the students, however, expressed their desire to have an incentive such as a certificate or prize (e.g., an energy drink) from the teacher or peers as an acknowledgement of their accomplishment. Intriguingly, the teacher and the majority of the students have different opinions on whether employing an incentive should be included in the *Run-Up* program. For future study, it may be fascinating to examine the use of some sort of modest incentives on high school students' exercising behavior in the *Run-Up* program.

According to Ardipal (2014) and Karageorghis (2014), the application of technology through the use of exercise-related devices or music has become an effective strategy to promote PA engagement over the past decade. In this study, the use of the smartphone served as the tool for employing running apps and music, which aimed to help the students record their performance and enjoy running. The smartphone app offered some motivational functions such as real-time feedback to increase students' motivation to run. This is consistent with the finding of a study by Bort-Roig et al., (2014) where the smartphone was used as both a measurement tool and motivational tool. In addition, the authors suggested that employing technology in PE could help students improve the quality of learning, interest, and engagement in PA. This suggestion resonated with the findings of this study. The teacher indicated that the students showed their interest in using technology. Specifically, many students described that using a running app allowed them to "record the running laps" and "display the distance" so they were able to know their running performance and recognize their accomplishments.

In this study, listening to music while running was identified as two sides of the same coin due to some factors. On one side of the coin, the results emerged from of this study are in accordance with the findings of the research by Ardipal (2014) and Karageorghis (2014), in

which listening to in-task music strengthened individuals' positive feelings and helped them distract from unpleasant feelings (e.g., physical discomfort or fatigue) during performance. Some students highlighted that listening to music while running allowed them to overcome the feeling of physical fatigue, follow the musical rhythm, or feel relaxed. On the other side of the coin, some other students commented that listening to music while running was not helpful because it disrupted their rhythm of breathing and running pace. In addition, the teacher indicated that he did not teach the students how to select appropriate music. Therefore, the teacher suggested that the use of music in a running-specific event like the *Run-Up* should guide the students on how to choose proper music for their own use. This result is consistent with suggestions by Ardipal (2014), Karageorghis (2014), and Lubans et al. (2017) that a proper application of music, which is suitable for individuals' interests, might motivate them to exercise happily. Generally, the majority of the students identified the potential for the use of technology. However, it is important to note that only about one-quarter of the students employed the running apps or music while running. Based on the participants' responses, the factors, which diminished the employment, included the inconvenience of carrying a cell phone, the negative impact of listening to music, and the insufficient facilities and practical instructions. The teacher indicated that the students were not allowed to access school Wi-Fi so they could not download the apps in class. He further suggested that the use of technology in a running-specific event needed to be elaborated in a lesson-based environment, which allowed the students to have sufficient practice. Thus, due to the small number of students who used the technology, it is worth pointing out a need to have further examination of the effect of technology in the running activities.

To sum up, the findings of this study provided support for the value of employing the ten strategies carefully integrated throughout learning activities in the eight lessons of the *Run-Up*

program. Overall, these lessons met a variety of student needs and contributed to the students' achievement of self-efficacy and enjoyment of running. This result is consistent with the findings of Næss, Säfvenbom, and Standal (2014), in which they found that meeting students' different needs (based on ability, preference, past experience, etc.) and having proper context adaptions (choices of doing different levels of tasks, individuals' goals, and assessment of desired tasks) may reduce students' discomfort and increase the enjoyment of running in PE class. Relatively, mastering and goal-setting played a vital role in each lesson, helping the students to reach the task goals. Modeling was applied in learning running-relevant skills via consistently modifying individuals' own skills from observing the others' performance and increasing intrinsic motivation via knowing a coping model. Three strategies including self-reflection, journaling, and technology were highlighted that with some changes in implementation, these strategies could reach more students. Social support and positive feedback shared the powerful social impact on age-specific high school students. Positive self-talk allowed the students to have an inner power to stimulate them to persist in the desired task. Incentives were not systematically implemented in the program. However, the students expressed a desire to receive some modest incentives (e.g. certificates) in future running activities. Although the teacher and students did not value these multiple learning activities and strategies equally, they highlighted that each leaning activity along with the selected strategies contributed to the students' self-efficacy and enjoyment of running.

Interestingly, the findings of this study revealed that the teacher and students had a different perspective on the top priority among the five learning outcomes. The teacher viewed the enjoyment of running as the prior outcome, whereas the students identified self-efficacy as the most important outcome. This difference perhaps describes the complex relationship between

these two concepts. On one hand, the teacher wants student to develop an enjoyment for running first, which will in turn impact their efficacy beliefs. On the other hand, the students see their self-efficacy coming first and leading to enjoyment. Comments from the teacher and students provided the insight into the relationships between three psychological outcomes including self-efficacy, motivation to PA, and enjoyable experiences. In particular, the efficacy beliefs played the essential role in affecting the motivation to engage in a relevant task. The results highlighted that the students who increased their self-efficacy seemed more likely to display a higher motivation to participate in PA and enjoyment of running-related activities. This is consistent with the finding by Weiss (2004) showing that adolescents' intention to engage in PA was usually because of perceptions of physical competence (self-efficacy), social acceptance and approval, and enjoyable experiences.

Overall, the relationships between the five learning outcomes in Theme 3 are interactive and beneficial. However, self-efficacy was the most dominant concept throughout the *Run-Up* program. Whereas running skills and knowledge and physical fitness were identified as promising and practical outcomes of the program, participation in the *Run-Up* program allowed most of the students to acquire the relevant running abilities, which facilitated them to foster self-efficacy, increase motivation to run, and enjoy running.

The skills and knowledge of distance running served as the primary course content of the *Run-Up* program to improve students' running ability, which was associated with their beliefs to complete a challenging task. The teacher conveyed it to the students via several lectures and a sequence of learning activities, which integrated learning strategies such as mastering (for consistently modification and progress), modeling (for observing the correct performance), self-reflection (for self-referred learning), positive feedback (for performance enhancement and

modification), and technology (e.g., for feedback on pace). In addition, many students identified their achievement of the running skills and knowledge as a crucial contributor to physical fitness, which in turn positively associated with efficacy beliefs and enjoyment of running.

The teacher highlighted the importance of improving physical fitness for the students' enjoyment of running by commenting that if the students did not have sufficient physical fitness to complete the running tasks they could not enjoy running. Similarly, Xiang, McBride, and Bruene (2006) found that students were more likely to enjoy running because they noticed the improvement of physical health and fitness. Fitness-specific programs in PE are well accepted tools to help adolescents develop their overall physical fitness. Not surprisingly, the findings of this study showed that the participation in the *Run-Up* program helped the students improve their physical fitness. According to the findings of this study, the primary contributors to the promotion of physical fitness included the design of the learning activities and the application of the learning strategies. The teacher and students emphasized the use of mastering and goal-setting improved the students' physical fitness through gradually increasing the challenge via adding running time and distance in the personalized running practice. Conversely, some students explained the main reasons why their physical fitness remained the same during the program. They were not motivated to promote their fitness levels throughout the program because they felt bored, annoyed, physical discomfort, or inferior to others while doing running-related tasks. These statements suggested that the students would be more likely to improve their physical fitness if they could have fun, be good at, and feel comfortable with doing running activities. Along with this viewpoint, the bidirectional relationship between physical fitness and enjoyment of running was highlighted.

The results of this study provided evidence that the *Run-Up* program could motivate the

students to engage in running-related activities. As for the participation in future PA, however, only half of the students expressed the intention to sustain running activities or participate in a running race after the program. This result is a reminder that the achievement of learning outcomes including running skills, physical fitness, self-efficacy, and enjoyment of running is not a guarantee of future involvement. Ultimately, it is worthy to note that the achieved outcomes could serve as a contributor to the other outcomes. Specially, the fostered self-efficacy held the rapt attention of the students and provided them with a profound strength to face other challenges in their life. That is, the increased efficacy beliefs would stimulate these young adults to put forth more effort, be persistent in, and overcome the difficulties they encounter in their life. This resonates with the Taiwanese PE curricular goal that "students can cultivate a positive attitude and gain a substantial ability to deal with the pressure in life from the learning experiences" (KEAME, 2015, p. 374-375). The findings of this study highlighted the value of the program, which aimed to foster long-term impact on adolescents' self-efficacy'. With the considerable potential of this learning outcome to be transferred into the students' future life, self-efficacy stands out among the five learning outcomes of the program.

Conclusions and Future Considerations

The findings of this case study supported the *Run-Up* program as an effective PE unit for the development of adolescents' self-efficacy and enjoyment of running. Analyses of students' responses highlighted that the experience of participation in the *Run-Up* program could foster their running and generalized self-efficacy and overall enjoyment of running. The findings revealed that the *Run-Up* program embraced the SAAFE principles (Lubans et al., 2017) of supportive, autonomous, active, fair, and enjoyable in its design.

The findings of this study produced several practical implications and considerations for future research. First, in terms of practical implications, although the *Run-Up* program in this study was designed as an eight-lesson unit for the existing high school curricular schedule in Taiwan, the duration could be adapted for diverse circumstances. Both teacher and students highlighted a need for more lessons to implement all the activities and strategies of the program. Thus, consideration of either prolonging the duration of the program or reducing the program content such as integrating fewer strategies in the same duration should be considered. Accordingly, the application of the strategies has tremendous potential to be integrated into many PE units. It is worthy to note that most of the strategies could be implemented across units so integrating the strategies in the previous or following units may allow students to familiar with all the strategies in PE class.

Second, the findings identified a need for adjusting the teaching instructions on some strategies including self-reflection, journaling, incentives, positive self-talk, and technology. For example, the teacher suggested providing the students with a routine practice of self-reflection in each lesson, whereas the students highlighted a need for a flexible time, interval, and format in journal writing. The students also showed the desire to be offered incentives for their

achievements. Interestingly, the teacher mentioned it was difficult for him to observe the impact of positive self-talk on the students' performance, however, many of the students emphasized that using positive self-talk stimulated them to persist in completing the tasks. Thus, the influence of positive self-talk on teenagers' PA performance is worthy of further examination. As for the employment of technology in running, the teacher and students highlighted that it is necessary to provide sufficient access to Wi-Fi and instructions on the use of the apps and music. All in all, a deliberate adjustment of the integrated strategies may lead to a greater achievement of the desired outcomes.

Third, containing and nourishing the features of the motivation-orientated (e.g., novel, challenging, and game-like), task-value-focused (i.e., important, useful, and interesting), mastering/autonomy-supportive (i.e., personalized-progress/choice-orientated), interaction-related (e.g., pair or group activities) in a running program are essential to achieve the anticipated outcomes. The *Run-Up* program was comprised of learning activities and strategies that embraced these features. For example, both teacher and students highlighted the rope-holding run as their favorite because it was a motivation-orientated and interaction-related task. Alternately, some of the students emphasized the value of the personalized running practice because it served as a motivation-focused and mastering/autonomy-supportive activity, which could meet the students' diverse needs (e.g., interests and abilities). Therefore, it is worthwhile to consider these features as a guide to designing the learning activities of any supportable PE program.

Finally, it is important to comment on the strengths and challenges associated with the design and implementation of this study. The data collection and participant recruitment of this study were conducted through a remote facility, BlueJeans network, which provided an online

conference for participant interviews, after-class discussions, and a recruitment presentation. The feedback about the use of the remote device from the participants and relevant research assistants was positive. Both two distant sites, the participant school and researcher's location, had access to appropriate technological support to conduct the study. In addition, the support from the relevant school teachers and research assistants who helped set up all the needed equipment and facilities played a critical role in this remote circumstance. Specifically, the constant and immediate communication with the teacher and research assistants in the distant site allowed the researcher to cope with the issues encountered during the process.

Self-reflection

Since I began my graduate program at U Vic, I have been asked about my research interests. As mentioned in the previous session, background of the researcher, I was a teacher with great passion for PE and found that teaching a program like the *Run-Up* was fascinating. Having a new role as a researcher allowed me to review my previous teaching career and provided me with a different perspective on what and how I teach. The process of being the designer and researcher of the *Run-Up* program has been challenging but fostered my efficacy belief to be a deliberate researcher and teacher who can make a valuable contribution to the development of adolescents.

This study allowed me to examine the self-designed program, which combined my practical teaching experience and academic knowledge. Within my15-year teaching career, I had seen the potential of high school PE impact adolescents' physical health but also their psychological well-being. Being a PE teacher, I have been amazed to see how the students changed their thoughts, beliefs, and behaviours through participation in PE. I was intrigued by why and how some units and activities could lead to the desired outcomes. Comments from

students like “I have never thought that I could achieve this goal” and “the learning experience in your PE class have encouraged me to face the challenges I have encountered in my life,” encouraged me to look more deeply into the content and structure of the *Run-Up* program.

As a researcher, consistently gaining relevant knowledge about the impact of a PA program on adolescents’ physical and psychological development during the process of the study fostered my determination and confidence to conduct this study. The more data I collected and analyzed, the more excited I became. The findings of this study not only confirmed my previous teaching observation that the *Run-Up* program could benefit students’ life through increasing their self-efficacy but also inspired me to gain more research knowledge and skills. As I both designed and taught previous versions of the *Run-Up* program, when I became the researcher, I had to find ways to minimize my bias! In my role as researcher, I had to find ways to explain the program to the teacher and students and accept criticism. Staying open-minded and positive has been my core principle when encountering the challenges throughout the process. Although the negative comments made by the teacher and students of the program might impact my previous thoughts and current emotion, I always tell myself, “embrace and appreciate what I have seen and heard” and “this is what and how I can make it be a better program.” Overall, their suggestions offered me crucial guidelines to continue to develop the *Run-Up* program as a better educational unit. As a researcher, I hope that my examination of the program might contribute some insights into the types of learning activities and strategies that positively impact adolescents’ self-efficacy.

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Appendices

Appendix A: Certificate of Ethics Approval

Appendix B: Student Consent Form

Appendix C: Feedback Form (Teacher and Student)

Appendix D: Sample Questions of Participant Interview Guide (Teacher and Student)

Appendix E: Teacher *Run-Up* Program Handbook

Appendix F: Student *Run-Up* Program Workbook

Appendix A: Certificate of Ethics Approval

University of Victoria | Office of Research Services | Human Research Ethics Board
Administrative Services Building Rm B202 PO Box 1700 STN CSC Victoria BC V8W 2Y2 Canada
T 250-472-4545 | F 250-721-8960 | uvic.ca/research | ethics@uvic.ca

Certificate of Approval

PRINCIPAL INVESTIGATOR:	**Shu-hua Wang**	**ETHICS PROTOCOL NUMBER** Minimal Risk Review - Delegated	**16-299**
UVic STATUS:	**Master's Student**	ORIGINAL APPROVAL DATE:	22-Aug-16
UVic DEPARTMENT:	**EPHE**	APPROVED ON:	22-Aug-16
		APPROVAL EXPIRY DATE:	21-Aug-17

PROJECT TITLE: **Exploring the Effects of a High School Running Program on Students' Self-efficacy and Motivation**

RESEARCH TEAM MEMBER Dr. Sandra Gibbons (Project Coordinator, UVic)

DECLARED PROJECT FUNDING: **None**

CONDITIONS OF APPROVAL

This Certificate of Approval is valid for the above term provided there is no change in the protocol.

Modifications
To make any changes to the approved research procedures in your study, please submit a "Request for Modification" form. You must receive ethics approval before proceeding with your modified protocol.

Renewals
Your ethics approval must be current for the period during which you are recruiting participants or collecting data. To renew your protocol, please submit a "Request for Renewal" form before the expiry date on your certificate. You will be sent an emailed reminder prompting you to renew your protocol about six weeks before your expiry date.

Project Closures
When you have completed all data collection activities and will have no further contact with participants, please notify the Human Research Ethics Board by submitting a "Notice of Project Completion" form.

Certification

This certifies that the UVic Human Research Ethics Board has examined this research protocol and concluded that, in all respects, the proposed research meets the appropriate standards of ethics as outlined by the University of Victoria Research Regulations Involving Human Participants.

Dr. Rachael Scarth
Associate Vice-President Research Operations

Certificate Issued On: 23-Aug-16

16-299 Wang, Shu-hua

Appendix B: Student Consent Form

University of Victoria School of Exercise Science, Physical and Health Education

Student Consent Form

Run-up: Exploring the Effects of a High School Running Program on Students' Self-efficacy and Motivation

You are invited to participate in a study entitled "Run-up: Exploring the Effects of a High School Running Program on Students' Self-efficacy and Motivation" that is being conducted by Shu-Hua Wang. The school, the principal, and the PE teacher are not conducting the study so your grades, relationships and standing will not be affected in any way whether you choose to participate or not.

Shu-Hua Wang is a graduate student in the department of Exercise Science, Physical and Health Education at the University of Victoria. You may contact her if you have further questions by email at shuhuawa@uvic.ca or by phone at +1-250-885-6057.

As a graduate student, I am required to conduct research as part of the requirements for a Masters degree in Physical Education. It is being conducted under the supervision of Dr. Sandra Gibbons. You may contact my supervisor at +1-250-721-8383 or by emailing sgibbons@uvic.ca.

Purpose and Objectives

The purpose of this research program is to examine the effects of a personalized running program in high school physical education on students' self-confidence and motivation. With integrating the designed program (based on the self-efficacy and motivation theories) into the regular PE class, students' perspectives, behaviours, and social interactions in class will be analyzed for understanding of the effectiveness of the program in adolescents' development of psychological health (e.g., self-confidence) and physical fitness, learning strategies (e.g., goal setting and positive self-talk), and the ability to make a personalized exercise program outside school life. A secondary purpose of this study is to understand the teacher's perceptions of the personalized running program as an effective teacher's resource. Ultimately, the results of the study may support that the program has a potential to contribute a practical and a meaningful running-specific program to the high school PE curriculum.

Importance of this Research

Research of this theme is important because the adolescents during high school can have the last chance to learn the knowledge and long-term learning strategies from physical education to promote their physical and psychological health. Previous research has proven that a well-designed fitness program with the characteristics of challenging process not only can promote adolescents' fitness health but also has the potential to positively affect adolescents' psychological well-being, such as self-confidence. However, few practical fitness programs in high school physical education, such as the personalized running program, have been examined.

Participant Selection

You are being asked to participate in this study because you are a senior student in high school in

Taoyuan Municipal Yong-Feng High School in Taiwan. Your experiences in the program will answer the research questions.

What is Involved

If you agree to voluntarily participate in this research, you will be expected:

(a) To participate eight designed program running lessons for approximately four weeks. Each lesson involves in the running-related learning activities and a written assignment which can be done during or after the class in ten minutes.

(b) To write down your observations, thoughts and feelings about the learning activities in your running journal (following a Students Running Guide) in ten minutes during or after a program lesson.

(c) To participate in the focus participants that each participant will have an on-line group interview at school during lunch break (approximately 30 minutes). The interview will be recorded with a digital videos recorder for data analysis and interpretation.

(d) To submit your written assignments including in-class worksheets, a running journal, and a feedback form for data analysis.

Inconvenience

Participation in this study may cause some inconvenience to you, including attending an on-line presentation with the researcher to know how to use the running workbook, participating in eight program lessons in PE classes, and writing a running journal in your workbook during the classes and one feedback form after the program fully accomplished. A review of the feedback form and an on-line group interview with the researcher will require approximately 30 minutes of your time on a date arranged by you and the researcher during your school lunch hour.

Risks

There are no known or anticipated risks to you by participating in this research. The possible emotional discomfort such as dissatisfaction with your fitness level or performance is minimized by the course design such as using positive feedback and individual assessment standards to reduce your potential pressure.

Benefits

The benefits that you can obtain from the participation in the program are not only promoting physical and psychological well-being but also learning practical learning strategies. You may promote your physical fitness such as the level of cardiovascular endurance and muscular strength in physical health via accomplishing the task goal (3K/5K run) and increase your self-confidence in psychological health via the experiences of progressing and success. In addition, the learning strategies (e.g., goal-setting and positive self-talk) you learned from the program may contribute to your future learning across subjects and help you enjoy running.

Voluntary Participation

Your participation in this research must be completely voluntary. If you decide to participate, you may withdraw at any time without any consequences or any explanation.

On-going Consent

To make sure that you continue to consent to participate in this research, I will outline the requirements of participation in the study before entering into a researcher-participant

relationship both verbally and through this consent form. I will also ensure that you are aware that you can withdraw from the study at any time with no consequence to you.

Anonymity
In terms of protecting your anonymity, pseudonyms will be assigned to you, your teachers and your school at the data collection stage. As well, the pseudonyms will be used in the dissemination of results. Anonymity is limited because of the nature of the focus groups as each participant is aware of each other's responses. Participants will be told to avoid discussing the nature of focus group responses with people outside the study.

Confidentiality
Your confidentiality and the confidentiality of the data will be protected by password for computer files, a locked cabinet for hard copies, and the destruction of data within five years after data collection.

Dissemination of Results
It is anticipated that the results of this study will be shared with others in the following ways: used for a Master's thesis to be available on the UVic library website for members of the public, presentation at scholarly meetings, or published articles.

Disposal of Data
Data from this study will be disposed of within five years of data collection. Electronic data will be erased, and paper copies will be shredded.

Contacts
Individuals that may be contacted regarding this study include the researcher, Shu-Hua Wang, and the researcher's supervisor, Dr. Sandra Gibbons. Contact information is listed at the beginning of this form.

In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Your signature below indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by the researchers.

_____	_____	_____
Name of Participant	Signature	Date

A copy of this consent will be left with you, and a copy will be taken by the researcher

Appendix C: Feedback Form (Teacher and Student)

Teacher Feedback Form of the *Run-Up* Program

Date: _____ Time:_____

Process	Score list 1~10 (ineffective ~ effective)	Detailed explanation
Pre-activity	( ) Runner story ( ) Dynamic warm-up ( ) Grouping (teams and groups) ( ) Rope-holding run ( ) Chasing run	
Main activity	( ) Individual activities (e.g., skills learning and running practices) ( ) Pair activates (e.g., tactics practising, partner support, and modelling) ( ) Group activities (e.g., skill learning, team race) ( ) Content selection (skills and knowledge) ( ) Structure design (e.g., flow and logic)	
Post-activity	( ) Cool-down stretching ( ) Self-reflection ( ) Positive feedback ( ) Journaling ( ) Assignment (runner story, apps, SMART, journal)	

Use Strategies	( ) Mastering ( ) Modelling ( ) Goal setting (SMART) ( ) Self-reflection ( ) Journaling ( ) Incentives ( ) Social support ( ) Positive feedback ( ) Positive self-talk ( ) Technology (music and Apps) ( ) Autonomous support (own plan and choice) ( )Others_____	
Evaluation of the program	( ) Effective ( ) Acceptable ( ) Feasible ( ) Adjustable	
Suggestions and Notes		

Student Feedback Form of the *Run-Up* Program

Date: _____ Time: _____

Learning Outcomes	Feedback
Running skills (warm-up, cool-down, gestures, pace, breath, etc)	How do you feel about your skill learning of running in the program? What skills did you learn from it?
Task (running) value (interesting, important, and useful)	How do you feel about your knowledge learning of running in the program? What knowledge did you learn from it?
Physical fitness (endurance, strength, flexibility, etc)	How do you feel about your physical fitness after the program? What is the difference and why?
Psychological well-being (self-confidence, self-worth, etc)	How do you feel about your self-confidence after the program? What is the difference and why?
Enjoyment of Running	How do you feel about running before and after the program (have fun? enjoy?)? What is the difference and why?

Design of learning activities and strategies:

<table>
<tr><td>Do you think the learning activity and strategy is “effective” to help you attain the learning outcomes? Check list:</td><td>Explanation: Why? What?</td></tr>
<tr><td>☐Yes ☐ No Grouping (pair and team)
☐Yes ☐ No Dynamic warm-up
☐Yes ☐ No Post-running cool-down
☐Yes ☐ No The aim of running without walking

Learning strategies:
☐Yes ☐ No Autonomous support (make own exercise plan)
☐Yes ☐ No SMART goal setting (next goal)
☐Yes ☐ No Team work (competition, cooperation, etc)
☐Yes ☐ No Mastering (practicing and progressing)
☐Yes ☐ No Modelling (learning by observing own or others’ performance)
☐Yes ☐ No Self-reflection (self-evaluation and self-growth)
☐Yes ☐ No Journaling (record performance and feeling)
☐Yes ☐ No Positive feedback (for self and others)
☐Yes ☐ No Positive self-talk (speak in mind or out)
☐Yes ☐ No Social support (from teacher, peers or others)
☐Yes ☐ No Technology (music or Apps)
☐Yes ☐ No Incentives (certificate, reward, etc)
☐Others :_____</td><td></td></tr>
<tr><td>Learning Strategies (Mastering, Modelling, Goal setting, Self-reflecting, Journaling, Incentives, Social support, Positive feedback, Positive self-talk, and Technology.)</td><td>How have you felt about your learning of these strategies via the program activities?

What skills have you learned?

What are the impact of these strategies on your self-confidence and self-efficacy (the belief that you can performance successfully in a desired task)?</td></tr>
</table>

Appendix D: Sample Questions of Participant Interview Guide (Teacher and Student)

Questionnaires of the One-to-One Interview (PE teacher)

1. After reviewing your feedback form, what would you like to add or talk about it?
2. Talk about your running experience including the participating in running races and doing regular running.

Learning strategies: mastering, goal setting, modelling, self-reflection, journaling, incentives, social support, positive feedback, positive self-talk, technology (music or running apps).

3. According to each of the above learning strategies, which strategies do you identify as the effective strategies or successful learning strategies? Why?
   And, which strategies do you identify as the ineffective or unsuccessful learning activities? Why?

Learning outcomes: running skills learning, physical fitness, psychological well-being (self-confidence/self-efficacy), motivation to engagement in PA, and enjoyment of running.

4. According to each of the above learning outcomes, which outcomes do you think the students have achieved more? Why?
   And, which outcomes the students have achieved less? Why?
5. What are your expectations and goals when you teach a running-related unit in future? Why?
6. How do you feel about your students' self-confidence (the belief to perform a task successfully) on running and doing other things (genialized self-confidence) after the program? Why?
7. How do you think about your students' feeling of running? Would you think that they will sustain running activities after the program? Why?
8. Do you think that your students enjoyed running during the program? Why?
9. How do you think about learning activities in the program?
   What activities do you like and dislike most? Why?
10. Will you put this program in your future teaching curricular plan? Why?
11. What can you suggest for making the *Run-Up* program be a better PE course?
12. Lastly, is anything else you would like to talk about this program?

Questionnaires of the Focus Group Interview (Students)

1. After reviewing your feedback form, what would you like to add or talk about it?
2. Talk about your running experience including the participating in running races and doing regular running.

Learning strategies: mastering, goal setting, modelling, self-reflection, journaling, incentives, social support, positive feedback, positive self-talk, technology (music or running apps).

3. According to each of the above learning strategies, which strategies do you identify as the effective strategies or successful learning strategies? Why?
   And, which strategies do you identify as the ineffective or unsuccessful learning activities? Why?

Learning outcomes: running skills learning, physical fitness, psychological well-being (self-confidence/self-efficacy), motivation to engagement in PA, and enjoyment of running.

4. According to each of the above learning outcomes, which outcomes do you think that you have achieved more? Why?
   And, which outcomes do you think that you have achieved less? Why?
5. What are your expectations and goal setting for your physical and psychological wellbeing in future? Why?
6. How do you feel about your students' self-confidence (the belief to perform a task successfully) on running and doing other things (genialized self-confidence) after the program? Why?
7. How do you feel about running? Would you sustain running activities after the program? Why?
8. Did you enjoy running during the program? Why?
9. How do you think about learning activities in the program?
   What activities do you like and dislike most? Why?
10. What can you suggest for making the *Run-Up* program be a better PE course?
11. Lastly, is anything else you would like to talk about this program?

Appendix E: Teacher Run-Up Program Handbook

[ ] High School

Teacher *Run-Up* Program Handbook

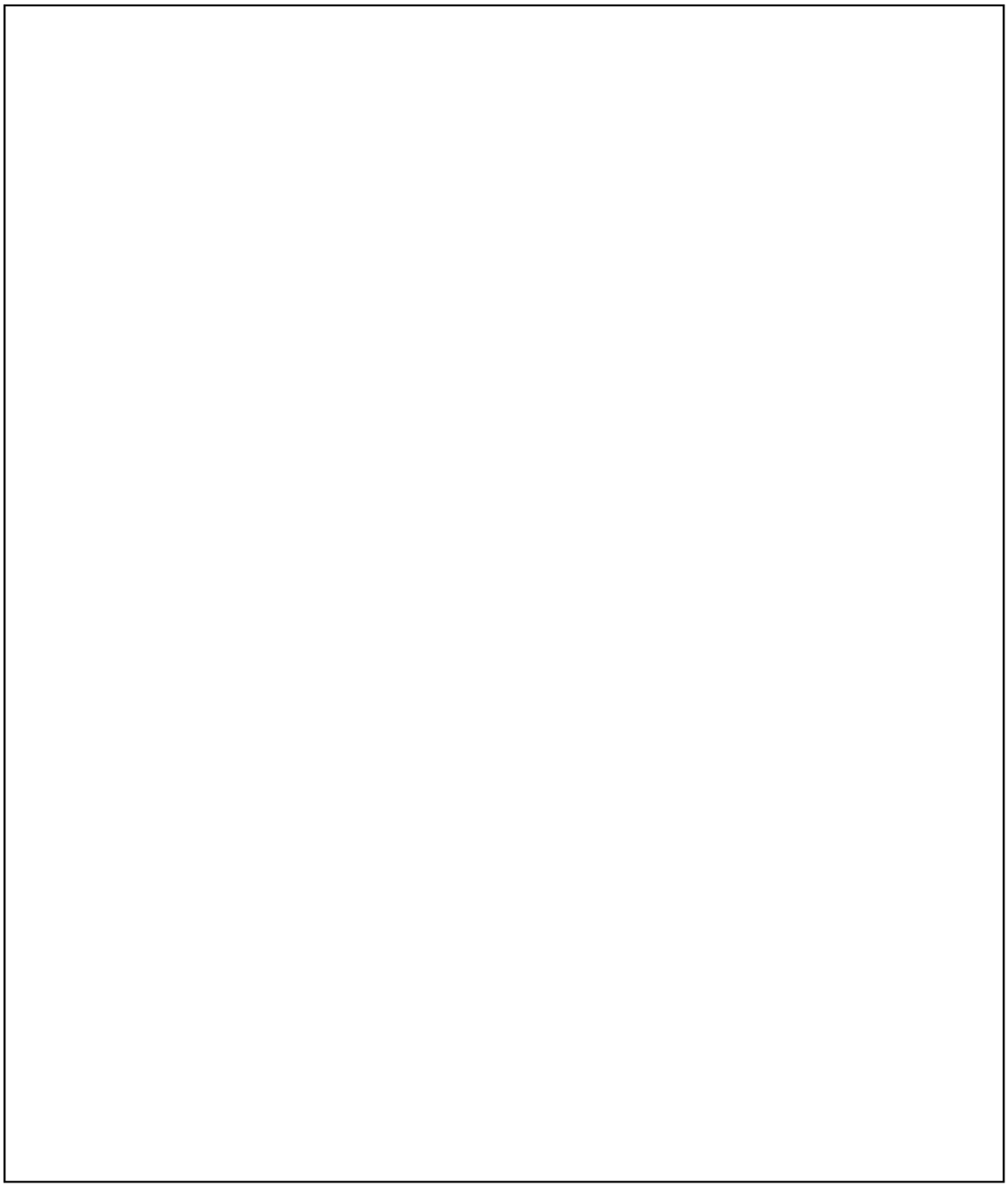

Table of Contents

Introduction

Dear the teacher whom it may concern,

This handbook applies to the teacher implementing a personalized running/*Run-Up* program in PE class. It provides a guide to what is expected of you on this programme, and the academic and personal support available to you. Please retain for future reference. The information provided in this handbook is accurate at time of preparation. Any necessary revisions will be notified to the teacher via email.

The *Run-Up* is a running program aiming to help high school students learn skills, knowledge of a running unit that has been approved to be positive associated with promoting their physical health. In addition, by focusing on the specific strategies in the program learning activities, students may have more effective and enjoyable learning experiences that can foster their self-efficacy and motivation to engage in physical activity. Ultimately, they can become physical active and foster their psychological well-being through the participation in the program.

Contacts

Researcher/designer of the Program:

Shu-hua Wang

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University of Victoria
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Victoria, BC V8W 2Y2
Canada

The Guideline of the *Run-Up* Program

The *Run-Up* is designed as a running unit in high school PE curriculum in Taiwan. The course content was designed by the researcher which based on the Taiwan high school PE curriculum and her own personal teaching experiences. In high school curriculum, one PE unit is conducted between 4 to 8 classes (two classes a week). The high school norm for the number of PE unit over one academic year is 10-12 units.

The assessment of the learning outcomes depends on the teacher's decisions which are based on the assessment of curriculum (e.g., running test and class observations) and students' performances during the classes reflect to their PE grade and a certification as a reward or their accomplishments of the task goal (3K/5K run).

Program aims / outcomes:

Aims-

To provide an effective and feasible running program in PE curriculum.

To provide effective instructions, practices and appropriate activities in the fundamentals of running by demonstrating safety, teamwork, discipline, leadership, respect and fun for students and teachers.

Outcomes-

Students become physical active through participating the lessons (skills, knowledge, and motivation).

To foster students' psychological development through learning experience (self-efficacy and enjoyment of running).

Program structure and content:

Structure:

1) Time and date of the program: under the curriculum of the regular high school PE class- the October of the last academic year in senior high school (October, 2016)
2) Classes: 8 PE classes (2 classes/ week for 4 weeks)
3) Place: outdoor (track and field); indoor (gym)
4) Equipment: teaching materials showed on the lessons description
5) Placement school information: school type: senior high schools (age 14-17)

Content:

Unit: distance running (girl for 3K run; boys for 5K run)

Cardiovascular endurance: individual/group; distance/time; running activities

Musculoskeletal fitness: resistance training

Body composition and flexibility: health information and stretch

Learning skills: goal-setting, positive self talk, personal planning, team working

The different themes of the course content (motivations or self-efficacy)

Lesson Information

Brief lesson title and aims:

Week one- warming up and setting up

Week two- building up

Week three- catching up

Week four- wrapping up

Learning outcomes:

Students are able to run the aiming distance with walking (girls for 3km and boys for 5 km)

Students are able to know how to set up a personal running plan

Students become more physical active

Students have higher self-efficacy (they believe that they can performance successfully in future tasks)

Teaching information:

Primary lessons instructor

1) The PE teacher-

2) E-mail:

3) Telephone:

Amount of class hours and expected learner guided hours

Class hours: 50minutes ×8

Teaching guided hours:1hour×2

List of teaching methods employed- demonstration and practice in the field

List of strategies in the program learning activities including the positive learning environment

Coursed based strategies:

- Mastering, Modeling, Goal setting, Journaling, Self-reflection and Incentives.

Occasion based strategies:

- Social support, positive feedback, self-talk, running apps, and music

Assessment methods and submission/exam dates

Running test (3K for girls /5K for boys)

Observation in classes

Description of the lessons (8 lessons)

Instruction Date: [Days] and [Days] in [ ], 2016, Time: [ ] – [ ]

Lessons	Topic
Lesson One "Run from Here"	Runner Story/Dynamic warm up/Personal information
Lesson Two "Run to Next"	Running Skills Goal setting
Lesson Three "Run and Run"	Group running (holding a rope) Technologies (music/apps)
Lesson Four "Run for Fun"	Running strategies
Lesson Five "Run to Fight"	SMART goal setting Group running (chasing)
Lesson Six "Run away Sick"	Using multiple strategies and last running practice(endurance)
Lesson Seven "Run toward Line" Part A	Running race (teams and pairs)/Positive feedback/Social support
Lesson Eight "Run toward Line" Part B	Running race (teams and pairs)/Positive feedback/Social support In class discussion and shout out Post-program wraps up (journal and feedback form

Description of the Lesson One "Run from Here"

Instruction Date: [Day], [Date], 2016 Time: [ ] – [ ]

Goals of the lesson:

1. Learn from the story of a runner- ask to find a story of a runner/ modeling
   - Motivation
2. Know the benefits of running- ask to write down few of personal priority/ task values
   - Motivation
3. Set the own goal for running- ask to write down their original goal (class, weekly, whole, process) /goal setting
   - Motivation
4. Learn health consideration and the warm up and cool down for running- dynamic warm up and stretching cool down (group and individual basic warm up and cool down) /demonstrating- the knowledge of the health issue, self-protection and personal fitness skills
   -Skill and knowledge of exercise and running learning

Equipment:

Indoor projector with internet- for showing the video (story) and PowerPoint (benefit and goal)

Outdoor- pencils and running journal (distribute it at the begging of the class and collect it back at the end of the class)

Pre- activity warm-up:

1. Tell students to stay at the classroom for doing the presentation of the story and the benefits of running
2. Distribute the Running Journal and fill up the basic information and initial goal setting

Main activity:

1. Bring students to the track and field with their journal and pens
2. Teach the dynamic warm up (Group activity)
3. 5 minutes non-walking run (Individual activity)- ask students to calculate the distance
4. Teach the stretching cool down.

Post-activity wrap-up:

1. Review the key concept of the class (story, own goal, warm up, cool down)
2. Students record their running distance and feeling on their running journals.
3. Remind of the assignment (runner story) and preview the next lesson content (running skills)

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Teaching note **Lesson One "Run from Here"**

Date: Time:

Process	Check list	Detailed explanation
Pre-activity	☐Play a story of a runner ☐Distribute the running journal ☐Fill the basic information and their initial goals	
Main activity	☐Teach the dynamic warm up ☐Conduct 5-minute run ☐Teach the cool down stretching	
Post-activity	☐Review the key concept ☐Positive feedback to students ☐Let students write down their running distance and feeling ☐Remind the assignment	
Use Strategies	☐Modelling ☐Goal setting	
Evaluation of the lesson	☐Effective ☐Acceptable ☐Feasible ☐Adjustable	
Suggestions and Notes		

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Description of the Lesson Two "Run to Next"

Instruction Date: [Day], [Date], 2016 Time: [ ] – [ ]

Goals of the lesson:

1. Mastering with the basic protection, dynamic warm up, stretching cool down
   - Enhancing learning and efficacy
2. Learning the running skills including gestures, steps, and breathing
   - Skill learning
3. Learning and discussing the learning skills including modelling, positive self-talk (connecting with personal goal, need and benefits of running)
4. Experiencing the progress: review the running performance with the previous 5' run
   - Enhancing the efficacy, physical fitness

Equipment:

Outdoor- pens and running journals (distribute them to students at the part of the class and collect them back after they finish their writing)

Indoor (raining day) – use an available space to conduct the course

Pre- activity warm-up:

Review and revise the dynamic warm up/ mastering

Main activity:

1. Group activity- Teach and practice the skills of running (steps, gestures and breathing) while discuss and apply learning skills including modelling, positive self-talk, feedback, and social support (way, timing, content…)
2. Pair / Individual activity- The second 5 minutes non-walking run - one student runs and the other calculates the distance (students recall the previous distance and the goal) and also give the partner positive feedback while discussing

Post-activity wrap-up:

1. Cool down stretching and review the course content including running and learning skills
2. Distribute the workbook to students for group discussing and self-reflection (Was I progressing? Did I use positive talk? How was I doing the running skills? ...etc.) including recording the running performance, writing down own feeling and setting a goal for the next class on the journal
3. Announce the alternative assignment (students can bring their own music and use apps during running) and preview the next lesson content (technology)

Teaching note Lesson Two "Run to Next"

Date:_____ Time:_____

Process	Check list	Detailed explanation
Pre-activity	☐Review and modify dynamic warm up	
Main activity	☐Teach the running skills in group activity ☐Discuss and practice learning skills including modelling, positive self-talk, feedback, and social support (circle it) ☐Conduct 5 minutes running practice in pair activity	
Post-activity	☐Cool down and review the key concept ☐Group discuss and give positive feedback to students ☐ Let students self-reflect including recording their running distance, feeling, and goal of next class ☐Announce the assignment (music and Apps) and the content of next class	
Use Strategies	☐Modelling ☐Goal setting ☐Positive feedback ☐Positive self-talk ☐Social support (Teacher or classmates) ☐ Others	
Evaluation of the lesson	☐Effective ☐Acceptable ☐Feasible ☐Adjustable	
Suggestions and Notes		

Description of the Lesson Three "Run and Run"

Instruction Date: [Day], [Date], 2016 Time: [ ] – [ ]

Goals of the lesson:

1. Mastering with the running skills- steps, gestures, and breathing
   - Enhancing learning and efficacy
2. Learning the social skills- communication, cooperation, leadership, positive support
   - Team work
3. Experiencing running with technology (music and apps)
   - Joy, goal orientation, immediately feedback
4. Experiencing the challenge and learning to deal with it (via 10' run)
   - Goal orientation, positive feedback, self-talk, social support
5. Review the running performance with the previous 5' run
   - Enhancing mastering and efficacy

Equipment:

Outdoor- pens and running journals (distribute them to students at the part of the class and collect them back after they finish their writing)

Indoor (raining day) – use an available space to conduct the course

Pre- activity warm-up:

1. Dynamic warm up/ mastering and personalized
2. Randomly group students into four teams based on the record of the previous fitness running test to make **fast runners evenly be in each team**.
3. Holding group running activity: every team holds a rope run for 3 laps (600m)

Main activity:

1. Group activity- Discuss the connection between the application of technology (music and apps) and learning skills including modelling, positive self-talk, feedback, and social support (way, timing, content…)
2. Group/Individual activity- Play music with a CD player or let students use their own cell phone and apps during the first 10 minutes non-walking run (students calculate the distance by themselves

Post-activity wrap-up:

1. Cool down stretching and review the course content including technology (music and Apps) and the connection with the learning skills
2. Distribute the workbook to students for group discussing and self-reflection (Was I progressing? What I learn from the rope running? What Did I think of using apps or listening music? Did I use positive talk? ...etc.) including recording the running performance, writing down own feeling and setting a goal for the next class on the journal
3. Announce the choices that students can listen music and use apps during individuals running and preview the next lesson content (running strategies)

Teaching note Lesson Three "Run and Run"

Date:_____ Time:_____

Process	Check list	Detailed explanation
Pre-activity	☐Dynamic warm up ☐Group students into 4 teams (based on the previous of fitness test evenly) ☐Conduct a Group-holding running with a rope for 600m	
Main activity	☐ Discussion the connection between the use of technology (music and apps) and running and learning skills ☐ Playing music when practicing 10-minute running practice and remind the application of learning skills including modelling, positive self-talk, feedback, and social support (circle it) ☐Conduct 10-minute running practice (record the distance by self)	
Post-activity	☐Cool down and review the key concept of the class ☐Group discuss and give positive feedback to students ☐ Let students self-reflect including recording their running distance, feeling, and goal of next class ☐Announce own choice of using music or Apps and the content of next class	
Use Strategies	☐Team work ☐Technology (music and Apps) ☐Modelling ☐Goal setting ☐Positive feedback ☐Positive self-talk ☐Social support (Teacher or classmates) ☐ Others_____	
Evaluation of the lesson	☐Effective ☐Acceptable ☐Feasible ☐Adjustable	
Suggestions and Notes		

Description of the Lesson Four "Run for Fun"

Instruction Date: [Day], [Date], 2016 Time: [ ] – [ ]

Goals of the lesson:

1. Learn the running strategies including steps and tempo, speed, following, modelling
   - Enhancing learning and efficacy
2. Mastering the social skills- communication, cooperation, trust, positive support
   - Team work
3. Designing a personalized running model including goal setting and the use of running skills and strategies, and learning skills (including the use of technology)
   - Autonomic support
4. Mastering the endurance of physical challenge such as increasing running distance and learning skills such as goal orientation, positive feedback, self-talk, social support
   - Enhancing learning and efficacy
5. Review the running performance with the previous 10' run
   - Enhancing mastering and efficacy

Equipment:

Outdoor- pens and running journals (distribute them to students at the part of the class and collect them back after they finish their writing)

Indoor (raining day) – use an available space to conduct the course

Pre- activity warm-up:

1. Dynamic warm up/ mastering and personalized
2. Holding group running activity: every team holds a rope run for 1000m (non-walking and finishing with whole team member)

Main activity:

1. Group activity- Introduce and demonstrate the running strategies (steps, pace, tempo, following) –pair running for 2 laps (400m)
2. Group/Individual activity- The second 10 minutes non-walking run (students can calculate the distance by themselves or using Apps) and remind of pre-set goal and the use of learning skills such as positive self-talk

Post-activity wrap-up:

1. Cool down stretching and review the course contents including the running strategies, the application of learning skills and the change of physical fitness
2. Distribute the workbook to students for group discussing and self-reflection (Was I progressing? What I learn from running strategies? What learning skills did I use? ...etc.) including recording the running performance, writing down own feeling and setting a goal for the next class on the journal
3. Announce the next lesson content (SMART goal setting)

Teaching note **Lesson Four "Run for Fun"**

Date:_____ Time:_____

Process	Check list	Detailed explanation
Pre-activity	☐Dynamic warm up ☐Conduct a Group-holding running with a rope for 1000m	
Main activity	☐Teach and discuss the running tactics and pair practice for 2 laps ☐Conduct 10 minutes running practice and remind the application of learning skills and running tactics (record the distance by self)	
Post-activity	☐Cool down and review the key concept of the class ☐Group discuss and give positive feedback to students ☐ Let students self-reflect including recording their running distance, feeling, and goal of next class ☐Announce the content of next class	
Use Strategies	☐Autonomous support ☐Team work ☐Technology ☐Mastering ☐Modelling ☐Goal setting ☐Positive feedback ☐Positive self-talk ☐Social support (Teacher or classmates) ☐ Others_____	
Evaluation of the lesson	☐Effective ☐Acceptable ☐Feasible ☐Adjustable	
Suggestions and Notes		

Description of the Lesson Five "Run to Fight"

Instruction Date: [Day], [Date], 2016 Time: [ ] – [ ]

Goals of the lesson:

1. Mastering the running strategies including speed tempo and following
   - Enhancing learning and efficacy
2. Mastering the social skills- communication, cooperation, trust, positive support
   - Team work
3. Learning the SMART goal setting by designing the own plan
   - Autonomous support
4. Building up the endurance of physical challenge by increasing the distance and running time for 15'/20' run and mastering the learning skills
   - Enhancing learning and efficacy
5. Review the running performance with the previous goal setting
   - Enhancing mastering and efficacy

Equipment:

Outdoor - pens and running journals (distribute it at the end of the class and collect it back after students finishing their writing)

Indoor (raining day) – use an available indoor space to conduct the course

Pre- activity warm-up:

1. Personalized dynamic warm up (let students so their own warm up)
2. Group students into four teams based on the record of the previous fitness running test to make **fast runners** evenly be **in one team** (i.e., Team A would be a quarter of the fastest runners in the class)

Main activity:

1. Group activity- Review the running strategies (steps, pace, tempo, following) and introduce and demonstrate the connection with the chasing running and conduct for a 4+1 laps (1000m) group chasing running practice
2. Introduce and demonstrate how to design own plan with SMART goal setting
3. The 15(f)/20(m) minutes non-walking run with the SMART goal setting, chasing run strategy and learning skills (remind students to find a target to chase or follow and record the running distance)

Post-activity wrap-up:

1. Cool down stretching and review the course contents including chasing run, and SMART goal setting
2. Distribute the workbook to students for group discussing and self-reflection (Was I progressing? What I learn from chasing run? What learning skills did I use? ...etc.) including recording the running performance, writing down own feeling and setting a SMART goal for the next class on the journal
3. Announce the next lesson content (last practice of all the skills)

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Teaching note **Lesson Five "Run to Fight"**

Date: Time:

Process	Check list	Detailed explanation
Pre-activity	☐Personalized dynamic warm up ☐ Groups students into four teams (based on the fitness test and the fast running in the same team)	
Main activity	☐Teach and discuss the connection between the running tactics and the chasing run and conduct a Group-chasing running for 4+1 laps (1000m) ☐ Teach how to design own plan with SMART goal setting ☐Conduct the 15(f)/20(m) minutes non-walking run and remind the connection with the SMART goal and the use of the running tactics and learning skills (record by self)	
Post-activity	☐Cool down and review the key concept of the class ☐Group discuss and give positive feedback to students ☐ Let students self-reflect including recording their running distance, feeling, and goal of next class ☐Announce the content of next class	
Use Strategies	☐Goal setting (SMART) ☐Autonomous support ☐Team work ☐Technology ☐Mastering ☐Modelling ☐Positive feedback ☐Positive self-talk ☐Social support (Teacher or classmates) ☐ Others_____	
Evaluation of the lesson	☐Effective ☐Acceptable ☐Feasible ☐Adjustable	
Suggestions and Notes		

Description of the Lesson Six "Run away Sickness"

Instruction Date: [Day], [Date], 2016 Time: [ ] – [ ]

Goals of the lesson:

1. Mastering the running tactics and learning skills
   - Enhancing learning and efficacy
2. Mastering the social skills- communication, cooperation, trust, positive support
   - Team work team and social support
3. Mastering the SMART goal setting
   - Autonomous support
4. Building up the endurance of physical challenge by increasing the distance and running time for 20'/30' run and mastering the learning skills
   - Enhancing learning and efficacy
5. Review the running performance with the previous goal setting
   - Enhancing mastering and efficacy

Equipment:

Outdoor - pens and running journals (distribute it at the end of the class and collect it back after students finishing their writing)

Indoor (raining day) – use an available indoor space to conduct the course

Pre- activity warm-up:

1. Personalized dynamic warm up (let students so their own warm up)
2. Group+ individual running activity- chasing running for 2+1 laps (600m)

Main activity:

1. Review running skills and statics and learning skills and personal goal
2. Group activity the 20(f)/30(m) minutes non-walking run (remind students to find a target to chase or follow or use apps to pace and record the running performance)

Post-activity wrap-up:

1. Cool down stretching and review all the course contents including rope-, chasing run, running skills, tactics, learning skills, and designing own exercise plan
2. Distribute the workbook to students for group discussing and self-reflection (Was I progressing? What running tactics and learning skills did I use? ...etc.) including recording the running performance, writing down own feeling and setting a SMART goal for the final running race on the journal
3. Announce the next lesson content (running race: 5km for male, 3km for female) and remind to bring personal optional supplements (water, clothes, and cell phones…etc.)

Teaching note Lesson Six "Run away Sickness"

Date:_____ Time:_____

Process	Check list	Detailed explanation
Pre-activity	☐Personalized dynamic warm up ☐ Group chasing running for 2+1 laps (600m)	
Main activity	☐Review running skills and statics and learning skills and personal goal ☐Group activity the 20(f)/30(m) minutes run and remind to find a target to chase/ follow or use apps to pace and record the running performance	
Post-activity	☐Cool down and review review all the course contents ☐Group discuss and give positive feedback to students ☐ Distribute the workbook to students for group discussing and self-reflection including writing down running distance, feeling, and goal of the final running race on the journal ☐Announce the content of next class (running race: 5km for male, 3km for female) and remind to bring personal optional supplements such as cellphone	
Use Strategies	☐Goal setting (SMART) ☐Autonomous support ☐Team work ☐Technology ☐Mastering ☐Modelling ☐Positive feedback ☐Positive self-talk ☐Social support (Teacher or classmates) ☐ Others_____	
Evaluation of the lesson	☐Effective ☐Acceptable ☐Feasible ☐Adjustable	
Suggestions and Notes		

Description of the Lesson Seven "Run toward Line" Part A

Instruction Date: [Day], [Date], 2016 Time: [ ] – [ ]

Goals of the lesson:

1. Conduct own running plan (Run-Up) and strategies (pace, technology, self-talk…)
   - Mastering the personalized running and learning skills
2. Mastering the social support- pair and group (cheering, positive feedback…)
   - Team work team and social support
3. Experiencing the accomplishment and joy of running through the running (race reaching the goal: 3k/5k running without walking)
   - Promoting physical fitness and self-efficacy, and enjoying running
4. Review the running performance with the previous goal setting
   - Self-refection and self-growth

Equipment:

Outdoor - pens and running journals (distribute it at the end of the class and collect it back after students finishing their writing)

Indoor (raining day) – use an available indoor space to conduct the relative course and postpone the running race to next class

Pre- activity warm-up:

1. Personalized dynamic warm up (let students so their own warm up) and review running skills and statics and learning skills and personal goal
2. Pair up students that one runs the race and the other one records the running distance and give the support (using a pen and the note of laps to record the distance)

Main activity:

Pair Activity- Conduct the race of the first half of female and male students and other half of students calculate the running distance and finishing time and support to the running partner (reminding tactics and skills)

Post-activity wrap-up:

1. Individually cool down stretching and the partner gives the runner feedback
2. Class discuss and shock out activity- open to students to shut out others (speck out positive things)
3. Self-reflection (How do I feel? Was I progressing? What strategies did I use? Did I use apps or listening music? ...etc.): record the distance and feeling on the journal
4. Students who finished the running test can bring their own journal for having sufficient time to write down more details and the feedback form.
5. Announce the next lesson content- the second half of running race

Teaching note Lesson Seven "Run toward Line" Part A

Date:_____ Time:_____

Process	Check list	Detailed explanation
Pre-activity	☐Personalized dynamic warm up and review running skills and statics and learning skills and personal goal ☐Set up the test of pairs	
Main activity	☐ Pair Activity- Conduct the first race	
Post-activity	☐ Let students individually cool down stretching and ask the partner gives the runner feedback ☐ Class discuss and shock out activity- open to students to shut out others (positive things) ☐ Group discuss and give positive feedback to students ☐ Distribute the workbook to students for group discussing and self-reflection including writing down running distance, feeling, and goal of the final running race on the journal ☐Announce the content of next class- the second half of the running race	
Use Strategies	☐Goal setting (SMART) ☐Autonomous support ☐Team work ☐Technology ☐Mastering ☐Modelling ☐Positive feedback ☐Positive self-talk ☐Social support (Teacher or classmates) ☐ Others_____	
Evaluation of the lesson	☐Effective ☐Acceptable ☐Feasible ☐Adjustable	
Suggestions and Notes		

Description of the Lesson Seven "Run toward Line" *Part B*

Instruction Date: [Day], [Date], 2016 Time: [ ] – [ ]

Goals of the lesson:

1. Conduct own running plan (Run-Up) and strategies (pace, technology, self-talk…)
   - Mastering the personalized running and learning skills
2. Mastering the social support- pair and group (cheering, positive feedback…)
   - Team work team and social support
3. Experiencing the accomplishment and joy of running through the running (race reaching the goal: 3k/5k running without walking)
   - Promoting physical fitness and self-efficacy, and enjoying running
4. Review the running performance with the previous goal setting
   - Self-refection and self-growth

Equipment:

Outdoor - pens and running journals (distribute it at the end of the class and collect it back after students finishing their writing)

Indoor (raining day) – use an available indoor space to conduct the relative course and postpone the running race to next class

Pre- activity warm-up:

1. Personalized dynamic warm up (let students so their own warm up) and review running skills and statics and learning skills and personal goal
2. Pair up students that one runs the race and the other records the running distance and give the support (using a pen and the note of laps to record the distance)

Main activity:

Pair activity- Conduct the race of the second half of female and male students and the other half of students calculate the running distance and finishing time and support to the running partner (reminding tactics and skills)

Post-activity wrap-up:

1. Individually cool down stretching and the partner gives the runner feedback
2. Class discuss and shock out activity- open to students to shut out others (speck out positive things)
3. Self-reflection (How do I feel? Was I progressing? What strategies did I use? Did I use apps or listening music? ...etc.): record the distance and feeling on the journal
4. Students who finished the running test can bring their own journal for having sufficient time to write down more details and the feedback form.
5. Giving students the last feedback for the performance in the whole Run-Up program

Teaching note Lesson Eight "Run toward Line" Part B

Date:_____ Time:_____

Process	Check list	Detailed explanation
Pre-activity	☐Personalized dynamic warm up and review running skills and statics and learning skills and personal goal ☐Set up the test of pairs	
Main activity	☐ Pair Activity- Conduct the second race	
Post-activity	☐ Let students individually cool down stretching and ask the partner gives the runner feedback ☐ Class discuss and shock out activity- open to students to shut out others (positive things) ☐ Group discuss and give positive feedback to students ☐ Distribute the workbook to students for group discussing and self-reflection including writing down running distance, feeling, and goal of the final running race on the journal ☐ Giving students the last feedback for the performance in the whole Run-Up program	
Use Strategies	☐Goal setting (SMART) ☐Autonomous support ☐Team work ☐Technology ☐Mastering ☐Modelling ☐Positive feedback ☐Positive self-talk ☐Social support (Teacher or classmates) ☐ Others	
Evaluation of the lesson	☐Effective ☐Acceptable ☐Feasible ☐Adjustable	
Suggestions and Notes		

Student Performance Evaluation

(PE Teacher can use their own evaluation)

Subjective observation 50% + Objective assessment 50%

Subjective assessment 50%:

- Running journal 25% (accomplishment journal writing)
- Class observation 25% (participation, attitude, progress)

Objective assessment 50%:

- Running test (male: 5km; female: 3km)
- The scale is divided into three different assessment levels by their genders and BMI

Male 5K Run			Score	Female 3K Run		
A 20< BMI>22	B 18<BMI>20 22<BMI>25	C BMI < 18 BMI >25	0-100	A 22< BMI>24	B 20<BMI>22 24<BMI>27	C BMI< 20 BMI >27
~ 22'	~25'	~27'	**100**	~ 14'	~15'	~16'
22'~25'	25'~26'	27'~28'	**95**	14'~15'	15'~16'	16'~17'
25'~26'	26'~27'	28'~29'	**90**	15'~16'	16'~17'	17'~18'
26'~27'	27'~28'	29'~30'	**85**	16'~17'	17'~18'	18'~19'
27'~28'	28'~29'	30'~31'	**80**	17'~18'	18'~19'	19'~20'
28'~29'	29'~30'	31'~32'	**75**	18'~19'	19'~20'	20'~21'
29'~30'	30'~31'	32'~34'	**70**	19'~20'	20'~21'	21'~22'
30'~31'	31'~32'	34'~36'	**65**	20'~21'	21'~22'	22'~23'
31'~32'	32'~34'	36'~38'	**60**	21'~22'	22'~23'	23'~24'
32'~34'	34'~36'	38'~40'	**50**	22'~23'	23'~24'	24'~25'
34'~36'	36'~38'	40'~42'	**40**	23'~24'	24'~25'	25'~26'
36'~38'	38'~40'	42'~44'	**30**	24'~25'	25'~26'	26'~27'
38'~40'	40'~42'	44'~46'	**20**	25'~26'	26'~27'	27'~28'
40'~42'	42'~44'	46'~48'	**10**	26'~27'	27'~28'	28'~29'
42'~50'	44'~46'	48'~50	**0**	27'~28'	28'~29'	29'~30'

Appendix F: Student Run-Up Program Workbook

[ ] High School

Student *Run-Up* Program Workbook

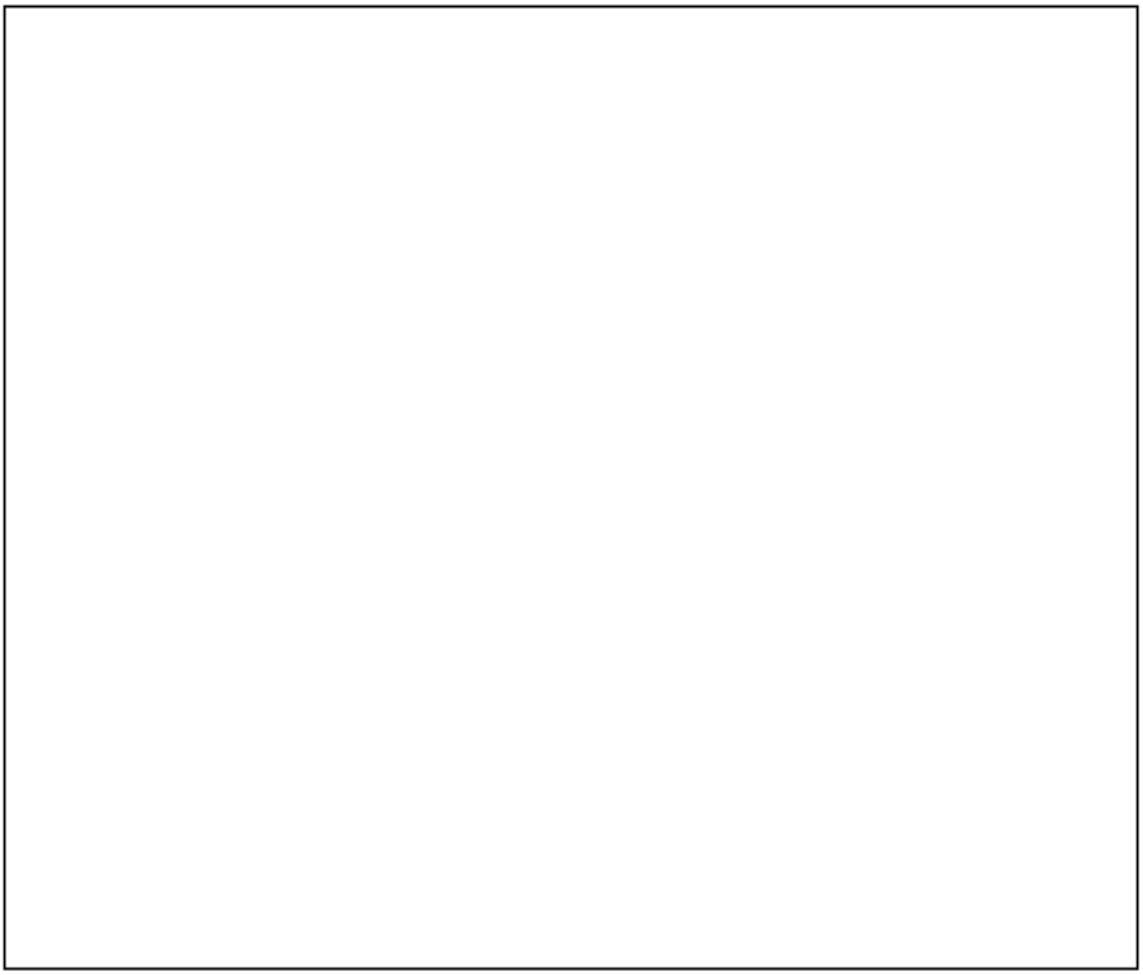

Table of Contents

Introduction

For students,

This running book including running journal help students learn a personalized running/Run-Up program in PE class. It provides a guide to what is expected of you on this programme, and the academic and personal support available to you. Please retain for future reference.

The information provided in this journal is accurate at time of preparation. Any necessary revisions will be notified to the teacher via email.

The Run-Up is a running program aiming to help high school students learn skills, knowledge of a running unit that has been approved to be positive associated with promoting their physical health. In addition, by focusing on the specific strategies in the program learning activities, you may have more effective and enjoyable learning experiences that can foster your self-efficacy and motivation to engage in physical activity. Ultimately, you may become physical active and foster your psychological well-being through the participation in the program.

Contacts:

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School of Exercise Science,
Physical and Health Education
University of Victoria
PO Box 1700 STN CSC
Victoria, BC V8W 2Y2
Canada

Personal Information

Name: _____ Gender: F/ M

Birthday: _____ yy/mm/dd Age: _____

Physical information form

Date	Weight(kg)	Height(m)	BMI(kg/m²)
Pre-Test			
Post-Test			

Health history and limitation :

_____

_____

_____

_____

Pre-test of the fitness running (male 1600m; female 800m): _____ Seconds

Group in class: based on the previous physical fitness running test performance

Rope-holding run and 3K/5K run (Performance Average): _____

Chasing run (Performance Level): _____

Assessment group: according to the BMI assessment scale (page 10)

Assessment group: _____

Student Journal Lesson One *"Run from Here"*

Date: _____ Time: _____

Process	Check list	Explanation
The story of a runner	Do you ☐**Like** ☐**Dislike** the activity? Why? What?	
Personal information	Are you ☐**Satisfied** ☐**Dissatisfied** your physical fitness level? Why? What?	
Benefits and outcomes	Do you think that the activity ☐**Can** ☐**Cannot** help you promote your physical fitness level? Why? What?	
Personal Goals (What benefits)	1._____ 2._____ 3._____	
What you think that the learning strategies in helping your learning?	☐**Yes** ☐ **No** Modelling (runner story) ☐**Yes** ☐ **No** Task Value (interesting, important, useful) ☐**Yes** ☐ **No** Goal setting (goal for next class) ☐**Others**_____	
Self-assessment	My initial time of the 5-minute run is _____m Am I ☐**Satisfied** ☐**Dissatisfied** my running performance? Why? What? My goal for next run (5'run) is _____ m	
Assignment: Runner story	Post a runner's story and tell why you choose him/her and what you learn from him/her?	

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Student Journal **Lesson Two *"Run to Next"***

Date: _____ Time: _____

Process	Check list	Explanation
The story of a runner	Do you ☐**Like** ☐**Dislike** the activity? Why? What?	
What you think that the learning strategies in helping your learning?	☐**Yes** ☐ **No** Mastering (warm up and running skills) ☐**Yes** ☐ **No** Modelling (runner, teacher, peers) ☐**Yes** ☐ **No** Goal setting ☐**Yes** ☐ **No** Positive feedback ☐**Yes** ☐ **No** Positive self-talk ☐**Yes** ☐ **No** Social support (teacher or peers) ☐**Others**_____	
Self-assessment	My time of the second 5 minutes run is _____m Am I ☐ **Satisfied** ☐**Dissatisfied** my running performance? Why? What? My goal for next run (5'run) is _____ m	
Assignment Technology	Search music and apps that you think would be appropriated to you while running.	

Student Journal **Lesson Three *"Run and Run"***

Date: _____ Time: _____

Process	Check list	Explanation
Rope-holding Run (600m)	Do you ☐**Like** ☐**Dislike** the activity? Why? What?	
What you think that the learning strategies in helping your learning?	☐**Yes** ☐ **No** Modelling ☐**Yes** ☐ **No** Positive self- talk ☐**Yes** ☐ **No** Positive feedback ☐**Yes** ☐ **No** Peer support ☐**Yes** ☐ **No** Team work ☐**Yes** ☐ **No** Goal setting ☐ **Others** _____	
Self-assessment	My time of the first 10-minute run is _____m Am I ☐**Satisfied** ☐**Dissatisfied** my running performance? Why? What? My goal for next run (10'run) is _____ m	
Assignment: Technology	Do you ☐**Like** ☐**Dislike** use music or apps while running? Why? What? Do you think using music or apps ☐**Can** ☐**Cannot** help you learn running? Why? What?	

Student Journal **Lesson Four *"Run for Fun"***

Date: _____ Time: _____

Process	Check list	Explanation
Holding the rope running	Do you ☐**Like** ☐**Dislike** the activity? Why? What?	
What you think that the learning strategies in helping your learning?	☐**Yes** ☐ **No** Autonomous support (make own decision as pace, goal, tactics...) ☐**Yes** ☐ **No** Team work (Rope-holding run: communicate, cooperate...) ☐**Yes** ☐ **No** Technology (music or Apps) ☐**Yes** ☐ **No** Mastering (running tactics) ☐**Yes** ☐ **No** Modelling (pair activity) ☐**Yes** ☐ **No** Goal setting ☐**Yes** ☐ **No** Positive feedback ☐**Yes** ☐ **No** Positive self-talk ☐**Yes** ☐ **No** Social support (teacher or peers) ☐**Others**_____	
Self-assessment	My time of the second 10-minute run is____m Am I ☐**Satisfied** ☐**Dissatisfied** my running performance? Why? What? My goal for next run (15'/20'run) is ____ m	
Tactics of running	Do you think using tactics (pace, following) ☐**Can** ☐**Cannot** help you learn running? Why? What tactics did you would like to use while running? Why? What?	

Student Journal **Lesson Five *"Run to Fight"***

Date: _____ Time: _____

Process	Check list	Explanation
Groups Chasing Run (1000m)	Do you ☐**Like** ☐**Dislike** the activity? Why? What?	
What you think that the learning strategies in helping your learning?	☐**Yes** ☐ **No** SMART goal setting (next class) ☐**Yes** ☐ **No** Autonomous supportmake own decision of goal and strategies) ☐**Yes** ☐ **No** Team work (Chasing run: competition, cooperation...) ☐**Yes** ☐ **No** Technology (music or Apps) ☐**Yes** ☐ **No** Mastering (SMART and tactics) ☐**Yes** ☐ **No** Modelling ☐**Yes** ☐ **No** Positive feedback ☐**Yes** ☐ **No** Positive self-talk ☐**Yes** ☐ **No** Social support (teacher or peers) ☐**Others**_____	
Self-assessment	My time of the 15/20-minute run is _____m Am I ☐**Satisfied** ☐**Dissatisfied** my running performance? Why? What? My goal for next run(20'/30'run) is ____ m	
SMART Goal setting	Do you think using SMART ☐**Can** ☐**Cannot** help you learn running? Why? What is your SMART goal setting? S: M: A: R: T:	

Student Journal Lesson Six *"Run away Sickness"*

Date: _____ Time: _____

Process	Check list	Explanation
Groups Chasing Run	Do you ☐**Like** ☐**Dislike** the activity? Why? What?	
What you think that the learning strategies in helping your learning?	☐**Yes** ☐ **No** SMART goal setting (3K/5K) ☐**Yes** ☐ **No** Autonomous support (make own Exercise plan) ☐**Yes** ☐ **No** Team work (Chasing run: competition, cooperation...) ☐**Yes** ☐ **No** Technology (music or Apps) ☐**Yes** ☐ **No** Mastering (SMART and tactics) ☐**Yes** ☐ **No** Modelling ☐**Yes** ☐ **No** Positive feedback ☐**Yes** ☐ **No** Positive self-talk ☐**Yes** ☐ **No** Social support (teacher or peers) ☐ **Others**_____	
Self-assessment	My time of the 20/30-minute run is _____m Am I ☐**Satisfied** ☐**Dissatisfied** my running performance? Why? What? My goal for next run ((3K/5K run) is _____ m	
SMART Goal setting	Do you think using SMART ☐**Can** ☐**Cannot** help you learn running? Why? What is your SMART goal setting? S: M: A: R: T:	

Student Journal Lesson Seven and Eight *"Run toward Line"*

Part A and Part B "Runner and Recorder/Supporter"

Date: _____ Time: _____

What running tactics and learning skills did you use while running 3K/5K? Check list:	Explanation: Why? What?
Tactics and Preparation: ☐**Yes** ☐ **No** Autonomous support (make own exercise plan) ☐**Yes** ☐ **No** Dynamic warm up ☐**Yes** ☐ **No** Post-running cool down ☐**Yes** ☐ **No** Running without walking ☐**Yes** ☐ **No** Following or chasing(tactics) ☐**Others:** _____ Learning skills : ☐**Yes** ☐ **No** SMART Goal setting (3K/5K) ☐**Yes** ☐ **No** Team work (competition, cooperation...) ☐**Yes** ☐ **No** Mastering (practicing and progressing) ☐**Yes** ☐ **No** Modelling (learning by observing own and others' performance) ☐**Yes** ☐ **No** Self-reflection (self-evaluation and self-growth) ☐**Yes** ☐ **No** Journaling (record performance and feeling) ☐**Yes** ☐ **No** Positive feedback (shout out for others) ☐**Yes** ☐ **No** Positive self-talk (speak in mind or out) ☐**Yes** ☐ **No** Social support (teacher, peers or others) ☐**Yes** ☐ **No** Technology (music or Apps) ☐**Yes** ☐ **No** Incentives (certificate, reward,...) ☐**Others:**_____	
Self-assessment: My **final finishing time** of the 3km/5km run is _____minute_____ second My **initial goal of finishing time** of 3km/5km was _____minute_____ second Am I ☐**Satisfied** ☐**Dissatisfied** my running performance? Why? What?	

How did you feel?

As a **"Runner"** How did you feel?	Before the race?
	During the race?
	After the race?
As a **"Recorder /Supporter"** How did you feel?	Before the race?
	During the race?
	After the race?

Student Performance Evaluation

(PE Teacher can use his/her own evaluation scale)

Subjective observation 50% + Objective assessment 50%

Subjective assessment 50%:

- Running journal 25% (accomplishment journal writing)
- Class observation 25% (participation, attitude, progress)

Objective assessment 50%:

- Running test (male: 5km; female: 3km)

The scale is divided into three different assessment levels by their genders and BMI

Male 5K Run			Score	Female 3K Run		
A 20< BMI>22	B 18<BMI>20 22<BMI>25	C BMI < 18 BMI >25	0-100	A 22< BMI>24	B 20<BMI>22 24<BMI>27	C BMI< 20 BMI >27
~ 22'	~25'	~27'	100	~ 14'	~15'	~16'
22'~25'	25'~26'	27'~28'	95	14'~15'	15'~16'	16'~17'
25'~26'	26'~27'	28'~29'	90	15'~16'	16'~17'	17'~18'
26'~27'	27'~28'	29'~30'	85	16'~17'	17'~18'	18'~19'
27'~28'	28'~29'	30'~31'	80	17'~18'	18'~19'	19'~20'
28'~29'	29'~30'	31'~32'	75	18'~19'	19'~20'	20'~21'
29'~30'	30'~31'	32'~34'	70	19'~20'	20'~21'	21'~22'
30'~31'	31'~32'	34'~36'	65	20'~21'	21'~22'	22'~23'
31'~32'	32'~34'	36'~38'	60	21'~22'	22'~23'	23'~24'
32'~34'	34'~36'	38'~40'	50	22'~23'	23'~24'	24'~25'
34'~36'	36'~38'	40'~42'	40	23'~24'	24'~25'	25'~26'
36'~38'	38'~40'	42'~44'	30	24'~25'	25'~26'	26'~27'
38'~40'	40'~42'	44'~46'	20	25'~26'	26'~27'	27'~28'
40'~42'	42'~44'	46'~48'	10	26'~27'	27'~28'	28'~29'
42'~50'	44'~46'	48'~50	0	27'~28'	28'~29'	29'~30'