Project No. 2010/0140 (Revised)

Title: Promoting Healthy Lifestyle and Biopsychosocial Wellness of Teachers in Hong Kong (身心健康並駕齊驅，教師共創美好生活)

Part C Project Details

(I) Goals and Objectives

Long-term Goals

1. To improve health and wellness of teachers in Hong Kong, enhance their quality of life in physical, psychological and social aspects, and form a supporting community among teachers
2. To improve teaching quality and student learning efficacy in Hong Kong

Short-term Goals

To develop and evaluate the effectiveness of an intervention program to help teachers develop a healthy lifestyle, and improve their physical, psychological and social wellness.

Aims and Objectives

We aim to develop an intervention program to improve teachers' health and wellness in Hong Kong which may be conceptualized as an extension of the current project entitled "Stress Management and Mental Health Promotion for Teachers in Hong Kong" (2008/0102). **This project has received encouraging feedback and positive outcomes on promoting teachers' awareness of their psychosocial stress and mental health in Hong Kong. Appendix II** reports the progress of the project up to December 2010. The objectives of this proposed project are:

(1) to promote awareness on the importance of health and wellness in the workplace in relation to their teaching career and quality of life

(2) to develop an innovative and novel intervention program to help teachers develop healthy lifestyle, and improve their physical, psychological and social wellness

(3) to recruit and train trainers who will serve as health ambassadors to promote and implement the intervention program with the assistance of the Project Leader at their own schools

(4) to evaluate the outcomes of the intervention program on improving physical, psychological health and social wellness and teaching efficacy

(5) to develop a system that schools will continue to implement this program after the proposed project is completed and form a supporting community among the teachers in each school

(II) Needs and Applicants Capacity

Health Profile of Teachers in Hong Kong

The physical and psychosocial health of teachers in Hong Kong is at risk (Apple Daily, 2007). A recent suicide committed by a primary school teacher on 21 November 2010 tells the problem behind (明報專訊, 2010). A survey conducted by the Hong Kong Federation of Education Workers in 2008 showed that 74.1% of teachers in Hong Kong suffered from general tiredness and 46.5% had insomnia (歐陽杏櫻, 2009). Another survey showed that 99.5% of teachers had experiences of job-related health problems such as vocal problem, constipation, chest pain, and contact dermatitis. More importantly, most of the

health problems listed in this survey lasted more than a week and constituted a chronic problem to the teachers.

First of all, disorders of the respiratory system are common among teachers which included voice problems, asthma, allergies, and chronic lung infections (Roy, Merrill, Thibeault, Parsa, Gray, & Smith, 2004; Verdolini & Ramig, 2001). One of the reasons is that teachers have to frequently deliver lectures and discuss with their students (Crute, 2004; 北京娛樂信報, 2004). A study showed that one in five teachers was absent from work simply because they had lost their voice and could not speak (Crute, 2004). Aetiological factors may involve chalk dust and poor ventilation in the classroom (Marcelino & Oliveira, 2005; Tavares & Martins, 2007).

Problems pertaining to the musculoskeletal system are alarming. A study conducted in Hong Kong among 3,100 secondary school teachers showed that the prevalence of neck pain (69.3%) and limb pain (35.8%) is high (Chiu & Lam, 2007). Pain around the neck, back, and limbs may be due to long hours of work, incorrect posture, lack of exercise, and poor ergonomic designs of the offices and classrooms in most of the schools in Hong Kong (Chiu, Lau, Ma, Yeung, & Cheung, 2006; Chiu & Lam, 2007; 北京娛樂信報, 2004). Other than physical factors, pain over the neck may be due to organizational and psychosocial factors such as high job demands, poor co-worker support, low job control, and low job satisfactions (Ariens, Mechelen, Bongers, Bouter, & Wal, 2001). Varicose veins and inflammation of the ankle are also common among teachers. This may be due to the fact that teachers have to stand for classes at least 4 to 5 hours a day (Crute, 2004; 北京娛樂信報, 2004).

Standing does not only present problems to the feet and legs, it may also cause elevated blood pressure and heart rate (Ritvanen, Louhevaara, Helin, & Halonen, 2003; Steptoe, Cropley, Griffth, & Joekes, 1999). Similar to insomnia, studies found that this may due to high job stress, heavy work load, and poor job satisfaction. Teachers who are exposed to these stressors for a prolonged period of time can develop serious cardiovascular diseases such as coronary artery disease (Bosma, Peter, & Siegrist, 1998; McDonald, Craig, & Hong, 2008; Ornish, et al., 1998).

Besides, teachers have reported serious gastrointestinal disorders such as stomach ache, stomach or duodenal ulcer, and constipation because they may skip meals and eat at irregular hours for finishing the tremendous workload (Constantin, Paun, Ciofoaia, Budu, & Socea, 2009; Crowel, Harris, Lunsford, & Dibaise, 2009).

Apart from the above physical disorders, our previous project has already reported that teachers' mental health is unsatisfactory because they need to face tremendous amount of stress at work. Teachers in Hong Kong have heavy workload, long working hours, and need to manage extra administration after education reform. Unfortunately, stress can lead to anxiety, depression, insomnia, and other mental disorders (Baoa, Meynen, & Swaab, 2008; Mäki, Vahtera, Virtanen, Elovainio, Keltikangas-Järvinen, & Kivimäki, 2007; Paykel, 2001).

Similar to the general population, many teachers do not perform regular exercises. Instead, they prefer sedentary ways of leisure activities such as consuming food at high cholesterol level, watching TV, and sleeping (Booth, 1994; Macht, Haupt, & Ellgring, 2005; Crute, 2004; 北京娛樂信報, 2004). In Chinese culture, some teachers like to play mahjong after work (Loh, 1993). More importantly, most teachers are not aware of the benefits of physical exercise and harmful effects of a sedentary lifestyle.

To conclude, there are two main personal reasons that may lead to such a poor health profile among teachers in Hong Kong. First, it is related to a lack of healthy style including regular physical exercise, balanced diet, and good time management. Second, it is because of the lack of appropriate stress coping ability.

It is therefore obvious that health of teachers in Hong Kong is unsatisfactory. This will not only affect their quality of life but also teaching efficacy. The Project Leader has already secured funding to deal with stress and stress management issues among teachers in Hong Kong. Based on the above review, it is clear that stress is not the only problem and stress management is not the only solution to the problems of their health in various domains. To improve the poor health profile of teachers in Hong Kong, another project that addresses in broader sense health in physical, psychological and social aspects and promotion of healthy lifestyle and wellness is urgently needed.

Conventional and Alternative Approaches to Developing Healthy Lifestyle and Improving General Health

Although health and wellness problems as reviewed above are alarming among teachers in Hong Kong, efforts to address them are limited. Our current project may be seen as the first step to make teachers be aware of and help them cope with their work-related stress. However, it is by no means comprehensive. An important task is to develop a more comprehensive program to make teachers aware of their health problems and thus teach them ways of improving their health in various aspects. This proposed project is to fill such gap by developing a program which integrates various evidence based techniques based on conventional and complementary and alternative medicine (CAM) approaches to improving health of teachers in Hong Kong.

According to World Health Organization (WHO), health is "a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity." "Health" is derived from the ancient English word "hal" which means "whole". It is the balance of different aspects of wellbeing to make us whole; and will be influenced by the area, air, food, job, and people with whom we interact. In view of this, healthy lifestyle is to achieve balance of wellbeing in the physical, mental, emotional, social, environmental, and occupational aspects (Ardell, 1985). To achieve physical wellness, we need to have a balanced diet, do regular exercises, get enough sleep, and refrain from harmful substances. People who are mentally well can think clearly and pick up concepts quickly. Being logical is the basic component of mental wellness. Along with this, emotional wellness can be attained when a person understand his own feelings, accept limitations, and achieve emotional stability. Social wellness refers to the competence of communicating with other people. Occupational wellness can be reached by performing one's job skillfully and effectively. Last but not the least, environment wellness refers to the ability to live in a clean and safe environment which is good for health. Both conventional and alternative approaches to achieving a healthy lifestyle will be covered in the proposed health program which constitutes the core element of this proposal.

Conventional approaches can be defined as interventions that are mainstream, orthodox, regular, scientific, evidence-based, and modern (Dalen, 1998). It refers to interventions that are introduced extensively at medical schools and generally used by physicians or allied health professionals. On the other hand, alternative approaches are defined as interventions that may not be widely available in hospitals. The most frequently used CAM approaches includes mind-body intervention, relaxation techniques, therapeutic massage, acupressure, and herbal/vitamin supplements (Eisenberg et al., 1998; Eisenberg, Kessler, Foster, Norlock, Calkins, & Delbanco, 1993). Although not regarded as mainstream, the benefits of CAM have been increasingly recognized within the research and clinical communities. Two surveys showed that CAM has been increasing employed by individuals for the recent years (Eisenberg et al., 1998; Eisenberg et al., 1993). Although CAM used to be defined as an approach that is unscientific and not evidence based, such interventions as qigong, yoga, acupressure, and oriental medicine have received more and more evidence as to their therapeutic benefits by a plethora of research efforts. The followings are conventional and CAM approaches that we will apply in this proposal.

Conventional Approaches

Physical exercise refers to regular, structured, leisure-time pursuit exercise that improves the physical functioning of the body (Salmon, 2001). It is well known to improve health by regulating blood pressure and heart rate (Fentem, 1994; Laatikainen, 1991; 北京娛樂信報, 2004). Exercise can tune muscles with high level of physical co-ordination. Studies showed that physical exercise such as jogging and aerobic dance can reduce stress, increase pain threshold and induce a sense of "feeling good" (Fentem, 1994; Laatikainen, 1991). This is supported by studies which reported that the risk of cardiovascular deaths decreased when the amount of weekly physical exercise increased (Blair, Kohl, Paffenbarger, Clark, Cooper, & Gibbons, 1989; Paffenbarger, Hyde, Wing, & Steinmetz, 1984).

Ergonomics strategies such as office design, size of classroom, work-rest regiments, and time scheduling measures could help reduce psychosocial stress and the capacity of the autonomic nervous system among employees (Ritvanen, Louhevaara, Helin, Vaisanen, & Hanninen, 2006; Spirduso, 1995). Inappropriate furniture arrangement and postures in the workplace on the contrary could lead to the emergence of musculoskeletal pain in the lower limbs, upper limbs, and back (Cardoso, Ribeiro, Araújo, Carvalho, & Reis, 2009). As applied to schools, classrooms should be designed in a way that promotes good ventilation and thus prevents teachers from inhaling too much chalk dust. This can prevent allergies and asthma. A study conducted among high school teachers in Hong Kong showed that posture having too much flexion of the head was the crucial cause for neck and upper limbs pain (Chiu & Lam, 2007). In addition, ergonomic strategies including appropriate office and classroom furniture, working posture, and working schedules are found to increase teachers' enjoyment at work and reduce their muscular pain in the workplace (Chiu & Lam, 2007; Ritvanen et al., 2006; Spirduso, 1995).

Nutrition and Diet: Nutrients are substances obtained from food that enhance and promote growth, maintenance, or repair the body. Nutrients are composed of six basic groups including proteins, fats, carbohydrate, vitamins, minerals, and water (Hoeger, Turner, & Hafen, 2007; Mathiessen, Fagt, Biltoft-Jensen, Beck, & Oversen, 2003). Food choices can pose negative or positive to the body (Glanz, Basil, Maibach, Goldberg, & Snyder, 1998; Marlatt, McBurney, & Slavin, 2002). Fruit and vegetable intake is important for health (Resnicow, et al., 1998; Havas et al., 1995) as fruits and vegetables have a lot of vitamins and other important nutrients to enhance health. In addition, fruits and vegetables can help control weight and prevent such chronic diseases as cardiovascular disease, diabetes and cancer (Hosler, Rajulu, Fredrick, & Ronsani, 2008; Terry, Terry, & Wolk, 2001; van Dam, Rimm, Willett, Stampfer, & Hu, 2002). Carotenoids, anthocynains, collage fractions and mussel extracts are suggested for treatment and prevention of cardiovascular disease, age-related macular degeneration and osteoarthritis (Pacchetti, 2009). Tea is common in oriental diet and has been found to have an anti-stress effect (Kurihara, et al., 2003; Steptoe, et al., 2007). In addition, teachers should also drink a lot of water to prevent sore throat after delivering long hours of lectures. Studies suggested that high fat food consumption is closely related to stressful situation (Kandiah, Yake, Jones & Meyer, 2006; O'Connor & O'Connor, 2004). We would invite TCM doctor and dietitian to be our guest speakers and give lectures to introduce the importance of a balanced diet to health.

People Skills: A study among Chinese teachers in Hong Kong suggested that social support is a protective factor for stress management (Chan, 2009). It is important for teachers to enhance their social skills so that they may make more friends and derive support from them in the workplace. As mentioned above, enhanced social skills can also improve teaching efficacy (Brouwers & Tomic, 1999; Ozdemir, 2007). Studies conducted by the PI suggested that communication and social skills are important predictors of vocational outcomes (Tsang, Lam, Ng & Leung, 2000; Tsang, Leung, Chung, Bell &

Cheung, 2010). Social skills can improve relationship with colleagues and family members. Literature points out that social support can improve both physical health and moods (Cohen & Willis, 1985; House, Landis, & Umberson, 1988). Social support has been defined as emotional, instrumental, and informational aid which is exchanged through social interactions. It may directly enhance well-being through increasing self-esteem, bolstering morale, and providing a sense of being affiliated and cared for (Heaney, Price, & Rafferty, 1995; House, 1981). Social support can act as resource that helps employee cope with stressful situations in the workplace (Heaney et al, 1995; Thoits, 1986). The Project Leader is an expert in this area that he had intensively studied studying the relationship between interpersonal skills in the workplace and conducted workshops to help those with emotional disorders improve their people skills in employment settings (Tsang, 2000; Tsang, 2001). He will deliver lecture on the importance of people skills in the workplace and how to use such skills in soliciting support from colleagues.

Complementary and Alternative Approaches

Mindful exercise is a kind of exercise with a focus on self-awareness and intrapersonal mind-body alignment to be accompanied by low-to-moderate muscular exercise and nonjudgmental meditation (Chow & Tsang, 2007; Tsang, Chan, & Cheung, 2008). It includes introspective meditation, proprioceptive awareness of bodily movement, breath-centering techniques, anatomic alignment postures, and contemplation of energy-centric flow (Tsang et al., 2008; Forge, 2005). It helps to manage symptoms of insomnia, pain, fatigue and stress (Chow & Tsang, 2007; DiStasio, 2007; Ng & Tsang, 2009; Tsang & Fung, 2008). Examples of mindful exercises include Qigong, Yoga, and Tai Chi. Our Project Leader is an experienced researcher and practitioner on mindful exercises and the application in health settings (Chow & Tsang, 2007; Tsang, Cheung, & Lak, 2002; Tsang & Fung, 2008; Tsang, et al., 2008; Tsang, Mok, Au Yeung, & Chan, 2003). The PI's group conducted a series of clinical trials (Tsang et al., 2002;2003;2006) and showed that older adults with depression and co-occurring chronic illness became less depressed and had better quality of life after practicing qigong persistently for a period of 16 weeks . Systematic review (Ng & Tsang, 2009) found that qigong had some effects on increasing numbers of white blood cells and lymphocytes, stroke volume, conversely, lowering of total cholesterol, systolic blood pressure, diastolic blood pressure, and depressive mood scores. Tai Chi and yoga also had similar physiological and psychosocial benefits (Tran, Holly, Lashbrook, & Amsterdam, 2001; Wang, Collet, & Lau, 2004). Similarly, Tsang and colleagues found that yoga can reduce stress levels or stress symptoms from a systematic review of eight RCT or clinical controlled trials (CCT) (Chong, Tsunaka, Tsang, Chan, & Cheung, in press).

Acupressure is a type of therapeutic massage that adopts the TCM theories of acupoints and meridian channels (Beal, 2000; Wu, Lin, Wu, & Lin, 2007). It is a kind of non-invasive therapy that simulates acupoints by means of pressure of hands or fingers to regulate life energy called "Qi" in the meridians. One obvious advantage of this intervention is that teachers may perform this technique themselves with appropriate and adequate training. It has been reported to be effective in reducing blood pressure, relieving pain, and alleviating stress and depressive symptoms. For instance, numerous studies showed that acupressure at PC6 can significantly reduce anxiety and pain (Chen, Chang, & Hsu, 2005; Harmon, Gardiner, Harrison, & Kelly, 1999). In a cross-sectional study, acupuncture has a mean effectiveness of 74.4% on reducing anxiety and pain (Ip, 1999). This proposed project will introduce acupoints which can improve general health, reduce insomnia and enhance emotional wellbeing to teachers and encourage them to perform acupressure and massage by themselves. Self-administration promotes effectiveness in a low cost manner.

Traditional Chinese Medicine (TCM) Approach on Promoting Wellness in the Natural Environment. TCM suggests that fostering a harmonious interaction with nature can promote mental well-being by integrating one's mind in the green environment (Catanzaro & Ekanem, 2004). Human and nature are closely interrelated to each other. In fact, human is considered a part of the nature based on TCM theories. Exploring nature enables an individual to develop a harmonious relationship with the

universe which is an important determinant of health. The above principle has important implication to the location of practice of the mind-body exercises. If these exercises can be practiced in nature, the therapeutic effects can be maximized (熊衛, 2002; 林大豐 & 劉美珠, 2003). In order to develop harmony with the nature, TCM encourages healthy lifestyles such as getting enough sleep, and avoiding smoking and drinking too much alcohol. This can facilitate an individual's ability to develop a harmonious relationship with the nature (王育杰, 關志雄, 湯偉奇, & 杜祖貽, 2006; 廖桂聲, 2003). These healthy lifestyle approaches are also supported by western literature on improving health (Hall, Buysse, Dew, Prigerson, Kupfer, Reynolds III, 1997; Rod, Grønbæk, Schnohr, Prescott, & Kristensen, 2009).

In this proposed project, we aim to develop a program which draws together conventional and alternative approaches to improving health among teachers. The approaches are cost effective which will not require intensive input from qualified professionals such as physicians, psychologist, or physical therapist, and occupational therapist. All the approaches will eventually be self-administered by teachers with appropriate training by the trainers which are themselves teachers. In turn, the trainers will be trained by the Project Leader and staff of the proposed project.

(III) Targets and expected number of beneficiaries

Our proposal can indirectly benefit 51,900 teachers at 540 primary schools and 498 secondary schools in Hong Kong (Hong Kong Education Bureau, 2010) in the long run. As this proposal aims to improve teachers' health and quality of life, their teaching efficacy is expected to improve. As a result, approximately more than 814,000 primary and secondary school students can also benefit from our proposed project with a better learning environment.

We adopt a two stage process to achieve the above aims. The **FIRST STAGE** uses the train-the-trainer approach to implement the proposed intervention program. In the **SECOND STAGE,** the trainers will be assisted by our experienced staff to promote the program to other teachers at their schools. In this proposed study, 10 primary and 20 secondary schools (including special schools) will be recruited to join our study.

Direct Beneficiaries: This proposed study consists of **FOUR PHASES.** Different numbers of schools and teachers will be involved at different phases which will be specified in section (V). After completion of this proposal, at least 400 teachers would have attended the educational talks and 1,200 teachers would have received the intervention. We will also put our intervention program in form of booklet and DVD which will be distributed to **ALL** primary and secondary schools towards the completion of this project. In order to avoid the situation of double benefit, the schools which have already participated in the QEF Project 2008/0102 are not allowed to join the current project. Given the fact that we sought for 2.5 million for this project, with 1600 direct beneficiaries, each teacher will cost $1560.

(IV) Extent of Teachers' and Principal's Involvement in the Project

The Principals of the thirty selected schools are expected to encourage and support the teachers at their schools to participate in the project. The 60 selected teachers will participate in the train-the-trainers program for three months. After completion of the trainer's program, the trained teachers will act as

health ambassadors at their own schools and will promote and implement the program among their colleagues. At this stage, all teachers of the selected ten primary and twenty secondary schools (including special schools) will be invited to join the program. The intervention programs will be conducted weekly. Some homework assignments will be provided to the teachers to consolidate their understanding of the program.

(V) Implementation plan with Time-line

The proposed project will consist of **FOUR PHASES** to be conducted over a period of 30 months from February 2012 to July 2014.

A. Phase I (Development Stage): February 2012 – May 2012

The "Trainers' Program on Healthy Life and Wellness for Teachers" (教師健康生活培訓員課程) will be developed. It will be a certificate course offered by the Department of Rehabilitation Sciences at The Hong Kong Polytechnic University and led by the Project Leader. The program consists of 12 sessions, with each session lasting for 2.5 hours. The sessions will be conducted weekly at The Hong Kong Polytechnic University. The certificate course will primarily be conducted by the Project Associates and Project Assistants under the supervision of the Project Leader. The sessions will mainly be conducted by the Project Leader and co-Is. Physicians, nutritionists, TCM doctors, and other experts will be invited to deliver lectures if needed. The program will include educational sessions and practical sessions for the intervention techniques. At the end of the program, teachers will be invited to attend a camp to practice the intervention techniques in the natural environment which is in line with the TCM approach described earlier in Section II. The intervention program consists of the following contents:

i) Physical exercises

ii) Ergonomics

iii) Nutrition and Diet

iv) Mindful exercise

v) Acupressure

vi) Traditional Chinese Medicine (TCM)

vii) Essential Stress Management Techniques (i.e., mind-body exercises, relaxation, aromatherapy, and cognitive behavioral techniques)

viii) People Skills in the Workplace

Item vii has already been developed in the current QEF project (2008/0102). As it has been demonstrated to be effective in reducing stress of teachers, it will be included in the proposed project as most of the target participants may not have been exposed to the techniques involved. This constitutes only 20% of this proposed program. Other items listed above are **novel aspects which consist of the remaining 80% of the program**. The tentative contents of the trainers' program are presented in **Appendix IV**.

B. Phase II (Promotion and Recruitment Stage): June 2012 to August 2012

We target at **ALL** primary and secondary schools in Hong Kong, except for the schools which have already participated in the QEF project 2008/0102. We will arrange a number of public lectures at PolyU and send invitations to all schools. The lectures aim to increase participants' awareness of their

physical health, emotional wellbeing and people skills in the workplace and attract them to take part in our intervention program. We target to deliver at least four lectures, with each accommodating 100 teachers. A total of 300 to 400 teachers will be expected to attend the lectures. The lectures will be conducted by the Project Leader.

After the lectures, invitations will be made to the teachers and their schools to take part in the subsequent phases of this study. Ten primary and twenty secondary (including special schools) schools will be randomly selected from those who reply positively to our invitation. For each recruited school, two teachers who have attended the lectures will be recruited to attend the course entitled, "Trainers' Program on Healthy Life and Wellness for Teachers". It is preferable that one of the two teachers at each school is the PSM (CD), Vice-Principal, or Principal. These people will be the potential leaders in promoting the wellness program in their own schools. Because of their experience in providing a network for their colleagues, they are suitable candidates to serve as our health ambassadors.

C. Phase III (Implementation Stage): September 2012 to April 2014

Phase IIIa (Train the Trainers) September 2012 – January 2013

The sixty teachers from the ten primary and twenty secondary (including special schools) schools will attend the trainers programs. Each program will accommodate 30 participants. Certificates will be given to the participants after they have passed the written and practical examinations. The two examinations will be held one week after the end of the program. The Project Leader, co-Is, and experienced staff will assess their performance in the course. At the end of the train the trainer program, the participants will invite to join a 3-day camp that they can practice the techniques they learned in the natural environment. The Quality Education Fund will subsidize 50% of expenses (i.e., $2,500 per teacher) for each teacher who joins the camp. The participated teachers are required to pay for the remaining 50% of expenses. The camp will be conducted in liaison with the Fujian TCM University in Wuyi Shan. This is a place rich in natural heritage which can enable the participants to practice the techniques in the natural environment following the principle of TCM for attaining good health. **Appendix V** shows the tentative program of the camp. An MOU has been signed between Fujian TCM University and the Neuropsychiatric Rehabilitation Laboratory at the Department of Rehabilitation Sciences, The Hong Kong Polytechnic University, which stipulated intention for collaboration in research and service projects. The PI is the in-charge of the Neuropsychiatric Rehabilitation Laboratory.

Phase IIIb (School Implementation) February 2013 – April 2014

After completion of the trainers programs, the health ambassadors will organize the "Promotion Program on Healthy Life and Wellness for Teachers" (教師健康生活課程) under the supervision of the Project Leader's team at their own schools. It is expected that 40 teachers will join the program at each school. A total of 1200 participants will therefore be recruited. At each school, six to eight sessions will be organized for each school depending on their specific needs. Based on the experience of the previous project, there should be flexibility in determining the number of sessions to be run at each school depending on its specific needs and circumstance. The sessions will be held weekly, with each lasting for 2 hours. At the end of the program, the schools will be encouraged to apply for funding from other sources to organize a camp at a suitable place in the Pearl River Delta where the participants may practice the techniques they have learnt in the natural environment following TCM principles. This experience will facilitate teachers to form a supporting community in each school.

D. Phase IV (Report Writing and Dissemination Stage): May 2014 – July 2014

Data collected in previous phases will be analyzed and interpreted to determine the efficacy and efficiency of the study. Reports and recommendations will be written up and disseminated in conferences,

press and journals. In addition, we will develop booklets and DVDs which summarize our health promotion techniques used in the program.

(VI) Evaluation Parameter and Method

Phase IIIa (Train the trainers) September 2012 – January 2013

In this phase, the 60 participating teachers are required to pass written and practical examinations before they can be granted the course certificate and act as the health ambassadors. The aim of the written examination is to make sure that the participants understand the basic theories of the program and the practical examination is to ensure they master the techniques of promoting healthy lifestyle and wellness.

Phase IIIb (School Implementation) February 2013 – April 2014

Design

Evaluations will be conducted at two levels. Level One evaluation will assess the psychological status, personal wellbeing, and teaching efficacy of teachers. Level Two evaluation will measure the physical and physiological aspects of teachers. All the teachers participating in the intervention program conducted by the trainers graduated from the "Train-the-Trainers" program will be assessed by Level One evaluation. In addition, ten out of 30 schools will be randomly allocated into intervention and controls groups and undergo both Level One and Level Two evaluations. If 40 teachers of each school will join the school implementation, at least 400 teachers (40 teachers x 10 schools) will participate in the RCT. Eventually 5 schools will belong to the intervention group which will receive intervention described earlier. The remaining 5 schools will belong to the control group. There will be no intervention for this group. To comply with the ethical principles, the control group will be given the intervention after the completion of the evaluation. The followings describe the instruments that will be used. **Appendix VII** shows the details of the evaluation design.

Instruments

All of the instruments have been translated into Chinese and showed good psychometric properties. They are ready to be used in Hong Kong.

Level One Measurements (General health, personal wellbeing and teaching efficacy):

1. The General Health Questionnaire- 12 (GHQ-12; Goldberg & Williams, 1998) contains 12 items to detect the psychological and general health. Chan and Chan (1983) have reported good reliability and validity of the Chinese version of the GHQ.
2. The Personal Well Being Index (PWI; Lau, Cummins, & Mcpherson, 2005) is a validated and reliable scale to measure subjective well being of participants. The PWI score is the mean of the seven life domains among 11 items.
3. The Teacher' Sense of Efficacy Scale (TSE; Tschannen-Moran & Hoy, 2001; Tschannen-Moran, Hoy & Hoy, 1998) will be used to investigate the teaching performance and efficacy. The following three factors are found in TSE: efficacy in student engagement, efficacy in instructional strategies and efficacy in classroom management. The Chinese version of TSE was confirmed to be valid and reliable (Kennedy & Hui, 2006).

Level Two Measurements (Physical and physiological):

4. Heart rate and blood pressure will be measured as an indicator of the effect of intervention program on the autonomic system and parasympathetic output. Number of heart beats per minute for 5 minutes will be measure by cardiac monitor. The first 2 minutes of heart rate

will be discounted for allowing the subject's heartbeat to stabilize from previous activities. Then the remaining 3 minutes measurement will be averaged and recorded (Chlan, 1998; Pawlow & Jones, 2005). The systolic blood pressure and diastolic blood pressure will be measure by automatic blood pressure machine. (Ferrell-Torry & Glick, 1993; Tang, Harms, Speck, Vezeau, & Jesurum, 2009).

5. Sit-and-reach flexibility test will be use to determine the Trunk flexion and hamstrings flexibility (Acuflex sit & reach machine, Fitness Giant, GA).
6. Handgrip test provides an objective assessment of the subjects' general level of muscle strength (Boadella, Kuijer, Sluiter, & Frings-Dresen, 2005). A Jamar hydraulic dynamometer (Bolingbrook, IL) will be used to test the maximum handgrip strength of both hands of each subject (Tsang, Wong, Fu, & Hui-Chan, 2004).
7. Step test for physical fitness level will be used to evaluate the cardiorespiratory fitness. Standardized 3-minute step test (step height of 35 cm and frequency of 24 steps per minute) will measure the cardiorespiratory endurance by assessing the heart rate recovery with the following formula: cardiorespiratory endurance index = duration of exercise (seconds) x 100/sum of heart beats during the recovery period/2 (Chen, Chuang, & Wu, 2008; Wu, Chien, Chen, & Uen, 2000).
8. Salivary immunoglobulin A (s-IgA) will be collected as an indication of the status of immune system. Salivary immunoglobulin A concentration was measured by enzyme-linked immunosorbent assay and expressed as the absolute concentration (s-IgAabs), s-IgA relative to total protein concentration (IgA-Pro), and the secretion rate of IgA (s-IgArate) (Moreira, Arsati, Cury, Franciscon, Oliveira, & Arauio, 2009).
9. Fasting saliva samples will be collected in salivette tubes (Sarstedt, Leicester, U.K.). The sample will be kept refrigerated before test. Cortisol is found to be stable in saliva for several days (Kahn, Rubinow, Davis, Kling & Post, 1988). The salivary cortisol assays will be performed according to the manufacturer's instruction. (ALPCO Diagnostic, NH, USA) In brief, each sample will be incubated with the cortisol horseradish peroxidase conjugate for 45 minutes in the anti-cortisol rabbit antibody precoated microplate at room temperature. After washing three times with buffer, tetramethylbenzidine (TMB) will be added to the wells. The plate will be then incubated at room temperature for 15 minutes to allow the color to develop. This reaction will be stopped by the addition of hydrogen chloride (HCl). Each plate will be read at 450 nm with a microplate reader (BioTek Instruments, Inc., VT, USA). The cortisol concentrations will be determined from a calibration curve.

Data Collection

Ethical approval will be obtained from the schools and the participants before data collection begins. Pre-, mid-, post, and follow-up assessments will be conducted to assess the personal well-being, general health, physical health and salivary cortisol and immunoglobin of all the participating teachers in the intervention and control groups. In the pre-, mid-, post, and follow-up assessments, all the mentioned instruments will be completed and saliva sample from the participants will be collected. The Project Leader will train an independent and blind research assistant to administer the instruments. The collection and analysis of the saliva will be conducted by another project assistant with an expertise in biochemistry, or medical laboratory science.

Before randomization, teachers of the 10 selected schools in RCT will be arranged to complete Level One assessments. After the randomization, the participants who belong to the intervention group will have their mid-Level One assessment after the fifth session of the program and complete the post-

Level One assessment immediately after the program. As the participants in the intervention group have learned to construct tailor-made intervention which complies with their own needs in the program, we will examine the prolonged effect of our program by a follow-up Level one assessment four weeks after the completion of the program. The participants in the control group will also need to undertake the Level One mid-assessment, post-assessment, and follow-up assessment at the same period as the intervention group. Forty eight teachers with 24 teachers from the control group and 24 teachers from the intervention group (f^2= 0.35, power $\geq$ 0.85 and α = 0.05 obtained from Gaab et al., 2003) will be randomly selected and invited to participate in the Level Two assessments. Pre- and post- assessments will be conducted for the Level Two assessments. Pre-assessment will be carried before the first session of intervention control while the post-assessment will be conducted immediately after the last session.

Data Analysis

Demographic data of the participants, their scores of the assessment instruments, cortisol and immunoglobin level in their saliva at different intervals will be summarized by using descriptive and frequency statistics. The change in scores on measures of general health, physical assessments and personal welling will be tested by using repeated measures MANOVA with post hoc analysis. The principle of intention-to-treat will be applied to the dropped out participants (Montori & Guyatt, 2001).

(VII) Expected Deliverables and Outcomes

1. A group of 60 teachers from 10 primary and 20 secondary (including special schools) schools will be trained to serve as health ambassadors who will initiate training at their own schools
2. An evidence-based intervention program will be in place to help teachers develop healthy lifestyle and improve their general health and wellness. This package may be used by the 51,900 teachers in Hong Kong with guidance and facilitation from the Project Leader's team.
3. Reports on the Randomized Clinical Trial will be written up and disseminated at local and overseas conferences and in academic journals to promote importance of being healthy among teachers with the endorsement of QEF.
4. Promotion materials in form of DVDs and booklets about the health program will be distributed to ALL schools in Hong Kong which encourage them to take part in this program.
5. A manuscript based on the project will be submitted to an international peer-reviewed journal to disseminate our results.
6. Supporting communities among teachers in the participating schools
7. The results will be presented at an international conference on a relevant field

(VIII) Sustainability of the Outcomes of the Project

1. This stage (STAGE ONE) only serves as the pilot of the entire newly developed intervention program. With experience gathered from this stage of the proposal and further funding, the intervention program may be implemented to ALL primary and secondary schools in Hong Kong with minimal supervision from the Project Leader's team provided that minimal funding is available.
2. The health and quality of life of the teachers in Hong Kong will be improved in the long-run as they live on a healthy lifestyle and implement our health intervention program.
3. The teacher efficacy and thus students' learning will be enhanced across ALL schools in Hong Kong.

4. Supporting communities in the participating schools will help teachers sustain their healthy lifestyle developed in this project.

Budget plan

Item	Description	Cost (HKD)
Staff salary		
Project Associate (Full-time)	Qualifications: experience in professional practice in a relevant field, experiences in managing a project in relation to health of teachers, and a master degree in a relevant discipline such as psychology, education, nursing, occupational therapy, and physical therapy. Duty: The role of this Project Associate is to be the project manager in assisting the Project Leader to manage, conduct, and oversee the program implementation and budget, and supervise staff. He/she will liaise with schools and teachers and invite them to participate in the project and ensure smooth implementation and adequate communication between the Project Leader and participants. He/she will also participate as lecturer in the program on topics related to his/her expertise. He/she will be as a leader in the nature camp in China at the end of the program. He/she will also complete the progress and final reports by the deadlines and ensure their qualities. Number: 1 Basic Salary: HKD 26,735 x 30 months = $802,050 MPF: HKD 1,000 x 30 months = $30,000	832,050
Project Associate (Full-time)	Qualifications: experiences working in an educational and health setting and a master degree in a relevant discipline such as psychology, education, nursing, physical therapy and occupational therapy. Duty: This Project Associate will assist to develop intervention program and implement the program. He/she will maintain the quality assurance of program and assist to monitor the budget. In addition, he/she will assist to supervise the Project Assistants to complete their duties such as implementing the project, contacting schools and teachers and data collection. Number: 1 Basic Salary: HKD 20,000 x 30 months= $600,000 MPF: HKD 1,000 x 30 months= $30,000	630,000
Project Assistant (Full-time)	Qualifications: preferably experiences working in education and health projects and a degree in a relevant discipline such as psychology, education, nursing, physical therapy and occupational therapy	409,500

	Duty: The Project Assistant will assist the Project Associate (Project Manager) in promoting the project, implementing the program, and performing administration tasks such as contacting schools and teachers by emails and phone, poster designing, preparing invitation letters, postage, copying lecture documents and assessments and data collection, and preparing and distributing dissemination products. Number: 1 Basic Salary: HKD 13,000 x 30 months= $390,000 MPF: HKD 13,000 x 30 months x 5%= $19,500	
Project Associate (Part-time)	Qualifications: preferably experiences working in a laboratory setting on performing saliva cortisol and immunoglobin A master degree in relevant discipline such as biochemistry, medical laboratory science, etc. Duty: The Project Associate will conduct laboratory experiments examining the level of saliva cortisol and immunoglobin A of the 48 teachers selected from RCT. He/she will also perform data collection and data analysis. Number: 1 Basic Salary: HKD 82 per hour x 500 hours= $41,000 MPF: HKD 82 per hour x 500 hours x 5%= $2,050	43,050
Project Associate (Part-time)	Qualifications: preferably experiences working in a physiotherapy setting and familiar with the physical assessments of the proposed project. Possess a Master or a good honor degree with working experiences in relevant discipline such as physiotherapy and physical education Duty: The Project Associate will collect data of the physical assessments, conduct the physical assessment and perform data analysis with the 48 teachers selected from the RCT. Basic Salary: HKD 82 per hour x 500 hours= $41,000 MPF: HKD 82 per hour x 500 hours x 5%= $2,050	43,050
	Subtotal	**1,957,650**
Services		
Guest Lecturer of Train the Trainers Program	Guest lecturers such as Renowned academics, Occupational Therapist, Doctors, Chinese Doctors, and Nutritionist will be invited to provide lectures in the train the trainers program. Number:8 (8 renowned academics or professionals in the fields of occupational therapy, physiotherapy, nutrition, general practice, psychology, traditional Chinese medicine will be invited to	6,400

	provide guest lectures in the train the trainers program.) Salary: HKD 800 per hour x 8 lecturers	
Guest Lecturer of School Implementation Program	Guest lecturers who are experts in the fields of occupational therapy, physiotherapy, nutrition, general practice, psychology, traditional Chinese medicine will be invited to provide guest lectures to 30 selected schools in the stage of school implementation. This can help to enhance the teachers of the 30 schools to understand the knowledge of the program Number: 30 (Guest lecturers will be needed to provide one lecture to each of the selected 30 schools in the stage of school implementation) Salary: HKD 600 per hour x 30 lecturers	18,000
	Subtotal:	**24,400**
General expenses		
Photocopying	Invitation letters to 1566 schools for promoting public lectures, letters to teachers and schools who are interested to join the program Acceptance letters and consent forms for 60 selected teachers and 30 schools Pre-, mid-, post- and follow- up assessments Report reprints for 60 selected teachers and 30 schools	10,000
Travelling	Traveling of Project Associates and Project Assistants to the selected 30 schools to implement the program	30,000
Postage	Postage of invitation letters to 1038 all primary and secondary schools in Hong Kong for the public lectures. Postage to the interested teachers and schools to invite them to the train the trainers program and the school implementation intervention program. Return envelopes with postage will be provided to the 1038 schools and teachers to submit application forms by post to join the program Return envelopes with postage for teachers to return the pre-, mid-, post-, and follow up Level One assessments	15,000
Laboratory gowns and cleaning fee	General expenses for purchasing laboratory gowns and cleaning fee for the implementation of laboratory tests	3,000
Booklet and DVD Production	Booklet and DVD will be produced and disseminated to all schools in Hong Kong to introduce our program after we complete our study. They will include videos on acupressure, mindful and	8,000

	physical exercises	
Camp	Subsidy (50% of expenses) for camp to the nature in China for 60 participants of the train-the-trainer program HKD 5,000 x 0.5 x 60 teachers	150,000
	Consultancy fee for the Fujian TCM university for organizing the camp	20,000
Audit Fee	Fee for external auditor's report on the expenses	20,000
Miscellaneous: Workshop expenses	Equipments and materials (aromatherapy stands, containers, essential oil, CD with relaxation music CD player, stationery such as markers, name labels, posters, banners, yoga mats) for promoting and implementing the intervention program Advertisement fee for staff recruitment Related general expenses on consumables or equipment and other expenses for the funded project	170,950
	Subtotal:	**426,950**
Equipments		
Equipments for examining salivary cortisol and immunoglobin A	Laboratory equipments (Elisa kit, pipette, gloves, etc.) for providing analysis services of examining the salivary cortisol and immunoglobin A level from Part-time Project Associate	85,000
Desktop computer	To carry out administration work such as preparing invitation letters, consent forms, analysis data, and reports Quantity: 1	6,000
	Subtotal:	**91,000**
	Total:	**2,500,000**

Assets Usage Plan

Category (in alphabetical order)	Item / Description	No. of Units	Total Cost ($)	Proposed Plan for Deployment (Note)
computer hardware	Desktop computer	1	6,000	Upon the project completion, the computer will be kept at the Department of Rehabilitation Sciences, The Hong Kong Polytechnic University for the use in other research and teaching projects.
Others	Equipments for examining salivary cortisol and immunoglobin A	1	85,000	The equipments and consumables will be placed in the laboratory of The Hong Kong Polytechnic University for conducting laboratory analyses. Consumables such as Elisa kit and gloves, etc. will be consumed upon project completion. Laboratory equipments such as pipette could be kept for the usage in other laboratory tests at the Department of Rehabilitation Sciences, The Hong Kong Polytechnic University.

Note: for use by school / organization / in other projects (please provide details of the department / centre to which the asset will be deployed and the planned usage of the asset in activities upon project completion).

Report Submission Schedule

I / My school / My organization commit(s) to submit proper reports in strict accordance with the following schedule :

Project Management		**Financial Management**	
Report Type and Covering Period	**Report due date**	**Report Type and Covering Period**	**Report due date**
Progress Report 1/2/2012 – 31/7/2012	31/8/2012	Interim Financial Report 1/2/2012 – 31/7/2012	31/8/2012
Progress Report 1/8/2012 – 31/1/2013	28/2/2013	Interim Financial Report 1/8/2012 – 31/1/2013	28/2/2013
Progress Report 1/2/2013 – 31/7/2013	31/8/2013	Interim Financial Report 1/2/2013 – 31/7/2013	31/8/2013
Progress Report 1/8/2013 – 31/1/2014	28/2/2014	Interim Financial Report 1/8/2013 – 31/1/2014	28/2/2014
Final Report 1/2/2012 – 31/7/2014	31/10/2014	Final Financial Report 1/2/2014 – 31/7/2014	31/10/2014

Appendix I

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Appendix II

Progress of Current Quality Education Fund Project entitled "Stress Management and Mental Health Promotion for Teachers in Hong Kong" (2008/0102)

1. Project activity

This project attracted altogether 239 participants from September 2009 to June 2010 in 5 public lectures. The details of the schedule and number of participants in each public lecture are as follows (Table 1):

Table 1
Summary of Public Lectures

Date	Activities	Number of Participants
30-10-2009	Public Lecture 1 - Stress Management and Psychosocial Health Promotion for Teachers	42
14-11-2009	Public Lecture 2 - Stress Management and Psychosocial Health Promotion for Teachers	32
20-11-2009	Public Lecture 3 - Stress Management and Psychosocial Health Promotion for Teachers	18
5-3-2010	Public Lecture 4 - Stress Management and Psychosocial Health Promotion for Teachers at Yuen Long School District Primary School Teachers' Development Day	89
11-6-2010	Public Lecture 5 - Stress Management and Psychosocial Health Promotion for Teachers at a secondary school	58
	Total	239

Two Trainers' Program was conducted. The 1st Trainers' Program recruited 23 teachers from 17 primary schools. The 2nd Trainers' Program attracted 20 teachers from 9 primary schools. One of the teachers in the 1st Trainers' Program quitted the program after six sessions because of medical reasons. The majority of the participants (n=37; 86%) complied to the rule of at least 80% of attendance, passed the examination, and were certified as mental health ambassadors at their own schools. Six participants (14%) had attendance less than 80%. They finally quitted the program and did not attend the written and practical examinations. The main reason for attrition

was because of other commitment at schools. Summing up, there were 36 teachers and 26 schools in the two Trainers' Programs. Table 2 shows the summary of the two Trainers' Programs.

Table 2
Summary of Trainers' Program

Trainers' Program	**No. of Participants**	**No. of Participated Schools**
1st series (21 January to 8 April 2010)	22	17
2nd series (24 April to 10 July 2010)	14	9 (Did not count the same school who had participants in the 1st series Trainers' Program)
Total	36	26

In addition, a pilot study to assess the outcomes and effectiveness of the stress management program was conducted using participants in the second stage. The results would be reported later.

The third stage of the project would be the implementation of the stress management program at individual schools. All of the certified ambassadors in the two Trainers' Programs show interest and readiness to promote the program to teachers at their own schools. At least 10 schools would be involved in the research to evaluate the effectiveness of the program following the protocol described in the proposal. To summarize, five schools with at least 15 teachers from each would be randomly assigned to the stress implementation program (treatment group), and five schools with more or less the same number of participants would be randomly assigned to the control group. Due to ethical reasons, the teachers in the control group would be given the stress implementation program after the research has been completed. Ten schools have already shown interest to participate in the research program.

Considering the practical needs of the schools, the stress management program would consist of six sessions, with each lasting around 2 hours. The following table shows the content of the six sessions (Table 3).

Table 3
Summary of School Implementation

Sessions	Content
1	Lecture: Introduction to stress and its impacts on health Practice: Progressive muscle relaxation, diaphragm breathing, visualization
2	Lecture: Introduction to mind-body exercise Yoga Practice: Yoga
3	Lecture: Introduction to mind-body exercise Qigong Practice: Qigong
4	Lecture: Introduction to Acupressure Practice: Self-acupressure
5	Lecture: Self-management and Managing changes Practice: Revision on mind-body exercise
6	Lecture: Introduction to Cognitive Behavioral Therapy and Aromatherapy Practice: Class assignments and revision on mind-body exercises

At least 40 teachers (20 from the intervention group and 20 from the control group) would participate in the physiological assessments to measure their salivary cortisol level. The first school started the implementation in August 2010. As of 7 Dec 2010, 5 schools from the intervention group and 1 school from the control group have finished the implementation, 3 schools from the intervention group are undergoing the intervention, and 1 school from the intervention group and 2 schools from the control groups will undergo intervention early next year. Respectively, 193 and 53 teachers from the intervention and control groups have participated in the intervention until 7 Dec 2010 (Table 4).

Table 4
Summary of School Implementation

	Intervention	Control
No. of schools that have finished intervention	5	1
No. of schools that is/are implementing intervention	3	0
No. of schools that have confirmed to implement intervention	1	2
No. of teachers that have participated in intervention	193	53

2. Self-evaluation of project effectiveness

a) According to the evaluation forms collected after the 5 public lectures, 205 out of 239 teachers (85.8%) felt satisfied, and 185 out of 239 teachers (77.4%) agreed that they knew more about stress after the lecture. 202 teachers (84.5%) stated that the lectures allowed them to understand more stress management techniques. 202 out of 239 (84.6%) would promote similar stress management program to other teachers. 214 out of 239 (89.6%) agreed that the public lectures meet the needs of the society. The data showed that our public lectures were successfully conducted to enhance their awareness of job stress as teachers and willingness to promote stress management at their own schools. Based on the evaluation forms, the three main sources of stressors among the teachers were heavy workload (86.6%), school external assessment (84.6%) and managing students' misbehaviors (83.6%). Table 5 shows the summary of the evaluations from the five public lectures.

Table 5
Summary of the Evaluation of the Five Public Lectures.

Factors	Percentage
% of teachers felt satisfied of the public lecture	85.8
Agreed knew more about stress after the lecture	77.4
Would promote similar stress management program to other teachers	84.6
Agreed our public lectures comply with the needs of the society	89.6
Agreed heavy workload was a stressor	86.6
Agreed school external assessment was a stressor	84.6
Agreed managing students' misbehaviors was a stressor	83.6

b) 87 out of 181 primary school teachers (48%) showed interest to join the Trainer's Program. In fact, 43 out of the 181 teachers (24%) joined the Trainer's Program after the lectures. This exceeded our original goal to recruit 40 teachers to join the Train-the-Trainer's Program.

c) The 43 teachers who joined the Train-the-Trainer's Program came from 32 primary schools. Although only 26 became trainers at the end, this has exceeded our original plan to train trainers in 20 primary schools.

d) In our first Trainers' Program, 23 participants completed an evaluation form of lectures 1 to 5 while 22 participants completed an evaluation form of lectures 6 to 9. According to the evaluation of lectures 1 to 9, more than 80% of the participants agreed that the lecture and practical sessions increased their knowledge on stress reduction and assisted them to reduce stress. In Lecture 4 on Taichi, only half of the participants knew more about Taichi and approximately 50% agreed Taichi could reduce stress. These figures were acceptable but lower than other lectures. We received feedback from participants that Taichi was difficult to learn. We therefore deleted this lecture in the 2nd series of Trainers' Program and extended cognitive behavioral therapy to two lectures. Cognitive behavioral therapy was extended in 2nd series because it received very satisfactory feedback (90.9%) in the 1st Trainers' Program and participants commented that one more lecture on discussion was preferred as it was important to further enhance their knowledge on it. Table 6 is the summary of evaluation of 1st series of Trainers' Program

Table 6
Summary of Evaluation of 1st Trainers' Program

Lecture	Factors		
	Lecture could enhance knowledge on stress and lecture theme (% of Agree)	**Practical session could reduce stress (% of Agree)**	**Practical session could be promoted to other teachers at school (% of Agree)**
1 (Introduction to stress, breathing, progressive muscle relaxation and visualization)	86.9	87	78.2
2 (Yoga)	82.6	91.3	78.3
3 (Qigong)	82.6	86.9	87.3
4 (Taichi)	65.2	47.8	65.2
5 (Acupressure)	91.3	86.9	91.3
6 (Aromatherapy)	86.4	90.9	86.3
7 (Cognitive Behavioural Therapy)	90.9	81.8	86.3
8 (Self-management)	77.3	86.4	77.3
9 (Manage change)	77.3	77.3	72.7

e) **Based on** the evaluation forms (N=16) of the 2nd series Trainers' Program, most of the lectures acquired more than 80% and some made up to 100% of satisfaction. Table 7 shows the summary of evaluation of the 2nd series of Trainers' Program. To conclude, the two Trainers' Programs were successful to enhance teachers' knowledge on stress management techniques and assist them to reduce stress.

Table 7
Evaluation of Lectures 1 to 5 of 2nd Series Trainers' Program

Lecture	Factors		
	Lecture could enhance knowledge on stress and lecture theme (% of Agree)	**Practical session could reduce stress (% of Agree)**	**Practical session could be promoted to other teachers at school (% of Agree)**
1 (Introduction to stress, breathing, progressive muscle relaxation and visualization)	87.5	75.1	81.3
2 (Manage change)	56.3 (43.8% chose average)	68.8 (31.3% chose average)	49.8 (43.8% chose average, 6.3% didn't answer because of absence)
3 (Yoga)	62.6 (18.8% chose average, 18.8 didn't answer)	68.8 (12.5% chose average, 18.8 didn't answer)	81.3
4 (Qigong)	100	100	93.8
5 (Acupressure)	81.3	87.5	100
6 (Aromatherapy)	100	78.6	85.7
7 (Self-management)	85.7	71.4	85.7
8 (CBT I)	92.9	92.8	92.9
9 (CBT II)	92.9	92.9	92.9

f) Significant interaction effects between group and time interaction were found in Stress Level Score ($F1,36=9.205$, $p=0.004$), Anxiety Level Score ($F1,36=6.617$, $p=0.014$), Physical Calmness ($F1,36= 8.743$, $p=0.005$), Physical well-being ($F1,36= 6.510$, $p=0.015$), Managerial role ($F1,36= 4.844$, $p=0.034$), and Support Coping ($F1,36= 5.823$, $p=0.021$) respectively for pre- and post-assessments between intervention and control groups. The intervention group had smaller mean differences than the control group in terms of Stress Level Score and Anxiety Level Score which implied that the intervention group was less stressed and less anxious than the control group. The intervention group had greater mean differences than the control group in terms of Physical Calmness, Physical well-being, and Support Coping which showed that the intervention group had better physical calmness, physical well-being, and receiving more supports. The intervention group was found to have significant higher

managerial stress than the control group. This could be explained by the fact that we had more principals who took more management duties in the intervention group (Intervention group N=7, Control group N=3). Peace of Mind (F1,36=4.838, p= 0.034) was found to have significant better score in the control group than intervention group among the group and time interaction in repeated measures ANOVA. Because of this, independent T-test between differences of peace of mind scores between pre and post test was further conducted to confirm this result. The Levene's Test finally found that there was no significant differences between the two groups (t=-1.974, df=19.442, p=0.063). No significant differences were observed in other variables between groups. There was a trend that the intervention group had better scores than the control if more subjects were participants according to the small power of group x time effect and small power of group effect. The pilot repeated measures ANOVA results complied with our hypothesis that the stress management program could reduce stress and anxiety, and improve physical well-being. Table 8 shows the findings of the repeated measure ANOVA in pre-and post- assessments.

Table 8

The Findings of the Repeated Measures ANOVA in Pre- And Post Assessments

	Pre-Ax				Post-Ax				Repeated Measures ANOVA				
	Intervention group		Control group		Intervention group		Control group						
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	F-value	Group x Time P-value	Power of Group x Time	Group Effect p-value	Power of Group Effect
Total score in Teaching Efficacy	75.05	13.051	72.25	18.113	66.32	24.496	67.44	20.591	0.264 (1, 36)	0.610	0.079	0.872	0.053
Stress Level Score	19.09	8.524	15.63	10.911	13.64	6.344	17.38	10.850	9.205 (1, 36)	0.004*	0.839	0.960	0.050
Anxiety Level Score	10.91	8.502	8.75	7.861	7.27	6.158	10.88	9.770	6.617 (1, 36)	0.014*	0.707	0.765	0.060
Depression Level Score	9.27	8.631	7.75	9.176	6.82	5.577	8.75	11.145	2.552 (1, 36)	0.119	0.343	0.938	0.051
Job Satisfaction Of The Job Itself	22.95	5.753	25.94	5.434	24.73	4.516	26.44	5.489	0.718 (1, 36)	0.405	0.131	0.144	0.307
Job Satisfaction Of The organization	20.36	5.251	23.63	5.976	22.18	5.133	23.31	7.218	2.589 (1, 36)	0.116	0.347	0.23	0.221
Contentment	16.50	4.738	17.44	5.513	15.45	3.363	17.00	4.885	0.272 (1, 36)	0.605	0.080	0.379	0.140
Resilience	11.41	2.754	11.75	4.187	10.50	1.766	12.37	3.575	2.655 (1, 36)	0.112	0.354	0.223	0.227
Peace of Mind	10.77	2.742	10.88	3.964	9.82	2.500	11.75	2.817	4.838 (1, 36)	0.034*	0.572	0.261	0.199
Mental well-being	38.68	7.680	40.06	12.119	35.77	6.179	41.13	9.646	3.141 (1, 36)	0.085	0.407	0.218	0.231

Table 8 (continued)

	Pre-Ax				Post-Ax				Repeated Measures ANOVA				
	Intervention group		Control group		Intervention group		Control group						
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Group x Time F-value	Group x Time P-value	Power of Group x Time	Group Effect p-value	Power of Group Effect
Physical Calmness	11.23	2.266	12.31	3.260	12.59	2.364	11.31	2.726	8.743 (1, 36)	0.005*	0.820	0.900	0.052
Energy	8.95	2.104	10.06	3.021	10.09	1.571	10.06	2.144	1.652 (1, 36)	0.207	0.240	0.354	0.150
Physical well-being	20.18	3.813	22.38	5.965	22.68	3.228	21.38	4.410	6.510 (1, 36)	0.015*	0.700	0.724	0.064
Patience	11.50	2.345	11.63	2.419	11.32	1.937	11.44	2.874	0.000 (1, 36)	0.991	0.050	0.870	0.053
Drive	10.14	2.624	9.56	1.896	9.55	1.896	8.88	1.962	0.025 (1, 36)	0.875	0.053	0.334	0.159
Work Locus of Control(External)	29.23	1.152	29.19	1.276	28.73	1.453	29.31	1.250	1.150 (1, 36)	0.291	0.181	0.383	0.138
Workload	26.86	4.109	28.25	3.173	26.14	3.256	27.81	4.308	0.054 (1, 36)	0.818	0.056	0.156	0.291
Relationships	32.64	6.551	35.19	5.741	32.36	5.104	34.19	4.460	0.163 (1, 36)	0.689	0.068	0.179	0.266
Home/Work balance	23.45	6.674	23.87	5.227	23.00	3.716	25.44	4.661	1.850 (1, 36)	0.182	0.263	0.362	0.147
Managerial role	14.77	4.070	16.44	2.898	15.05	2.751	14.94	4.171	4.844 (1, 36)	0.034*	0.572	0.478	0.107
Personal responsibility	17.59	3.096	19.06	3.065	17.05	2.257	18.25	3.022	0.180 (1, 36)	0.674	0.070	0.139	0.314
Hassles	17.05	2.935	16.69	2.983	16.14	1.726	17.00	2.582	1.620 (1, 36)	0.211	0.236	0.719	0.064

Table 8 (continued)

	Pre-Ax				Post-Ax				Repeated Measures ANOVA				
	Intervention group		Control group		Intervention group		Control group						
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	F-value	Group x Time P-value	Power of Group x Time	Group Effect p-value	Power of Group Effect
Recognition	14.73	3.844	16.06	3.193	14.27	2.963	15.63	3.442	0.000 (1, 36)	0.988	0.050	0.166	0.280
Organization climate	16.77	2.927	17.06	2.932	16.27	2.229	17.50	2.852	1.581 (1, 36)	0.217	0.232	0.358	0.148
Control Coping	26.18	2.403	27.50	3.559	26.18	3.172	27.13	3.344	0.149 (1, 36)	0.702	0.066	0.214	0.234
Support Coping	17.41	2.667	17.75	3.435	18.00	2.928	16.87	3.324	5.823 (1, 36)	0.021*	0.651	0.684	0.068

*$p < 0.05$

g) From the evaluation forms collected up to 7 Dec 2010 of implementation at 4 schools, most of the lectures acquired more than 70% of satisfaction from participating teachers. Table 9 shows the summary of evaluation of the implementation. To conclude, the school implementation is well-received from the participating teachers and is effective in assisting them in coping with stress from work.

Table 9

Evaluation of School Implementation

Lecture	Factors					
	Lecture could enhance knowledge on stress and lecture theme (% of Agree)	**Lecture could enhance knowledge on stress and lecture theme (% above Average)**	**Practical session could reduce stress (% of Agree)**	**Practical session could reduce stress (% above Average)**	**Practical session could be promoted to other teachers at school (% of Agree)**	**Practical session could be promoted to other teachers at school (% above Average)**
1 (Introduction to stress, breathing, progressive muscle relaxation and visualization)	80	100	78.5	100	73.8	98.5
2 (Yoga)	78.9	98.2	77.2	98.2	71.9	100
3 (Qigong)	79.7	98.1	78.5	100	63	98.1
4 (Acupressure)	94.8	100	91.1	98.3	82.8	100
5 (Self-management and Managing changes)	54.9	100	/	/	/	/
6 (CBT)	65.3	98	/	/	/	/

h) Participants from school implementation commented highly of the project. Many participants remarked that the lectures were easy to understand and were effective in improving their knowledge of stress and enhancing their overall health as well as the way to cope with it (e.g. "The lectures are complemented by practical sessions, which allows participants to easily understand the concepts and theory of stress and the ways to cope with it"; "Different videos and materials are provided with different mind-body exercises, which allows participants to practice the exercises after the project). Many participants opined that that the content of the program was interesting (e.g. "The content like Qigong, Yoga and Acupressure are interesting"; "The practice of mind-body exercises truly allows participants to enjoy the workshops"). Above all, participants in general agreed that the implementation was able to help them relieve stress from their work (e.g. "The 1.5 hour workshop is really a stress relieve from work"; "The various topics are useful in assisting teachers to better deal with stress").

i) Many participants expressed the need for having another project that cover more advanced skills in stress management and other aspects that may contribute to their development of a healthy lifestyle.

Appendix IV

Outline of Trainers' Program on Healthy Life and Wellness for Teachers

Session	Topic	Content
1	Introduction	1. Introduce the program 2. Describe skills and attitudes need to be a trainer 3. Review health status among teachers in Hong Kong 4. Introduce Common methods to improve health
2	Physical exercises	1. Introduce the importance of physical exercises on health 2. Introduce simple physical exercises suitable for teachers 3. Practice selected physical exercises 4. Encourage participants to keep a daily log on practicing physical exercises
3	Mind-body Exercise I	1. Introduce mind-body exercise and its importance on health 2. Introudce yoga as a mind-body exercise 3. Practice basic yoga 4. Encourage participants to keep a daily log on practicing yoga
4	Mind-body Exercise II	1. Introduce health qigong 2. Practice health qigong 3. Encourage participants to keep a daily log on practicing qigong
5	Traditional Chinese Medicine and Health	1. Introduce basic concepts of Traditional Chinese Medicine 2. Introduce TCM approaches to improving health
6	Acupressure I	1. Introduce acupoints that can improve physical health 2. Demonstrate basic acupressure techniques 3. Practice acupressure techniques to improve own physical health 4. Encourage participants to keep a daily log on practicing exercise and acupressure
7	Acupressure II	1. Introduce acupoints that can improve psychological and emotional health 2. Demonstrate basic acupressure techniques 3. Practice acupressure techniques to improve own psychological and emotional health 4. Encourage participants to keep a daily log on practicing exercise and acupressure
8	Nutrition and diet	1. Introduce importance of balanced diet and health 2. Introduce basic strategies of maintaining a balanced diet
9	People skills in workplace	1. Introduce the importance of people skills and social support 2. Demonstrate essential people skills in the workplace 3. Practice people skills under role play situations
10	Ergonomics	1. Introduce the importance of ergonomics in schools and its relationship with health 2. Introduce simple techniques of improving ergonomics in schools
11	Putting things together to develop a healthy lifestyle	1. Revise techniques learned in previous sessions and integrate them into the development of a healthy lifestyle 2. Discuss strategies of implementation at own schools
12	Written and practical examination	1. Written examination on the basic knowledge to improve health 2. Practical examination on physical exercise, mindful exercise, and acupressure techniques

Appendix V

Tentative Program of Camp in Wuyi Shan

	Day 1 (Arrive Wuyishan at 22:30pm in the previous day by flight)	**Day 2**	**Day 3**
7:00-8:00		Practice breathing + health qigong + acupressure in the natural environment	Practice breathing + health qigong + acupressure in the natural environment
8:00-9:00	Breakfast		
9:00-10:00	Lecture on Lifestyle and Health	Breakfast	Breakfast
10:00-11:00		Lecture on Traditional Chinese Medicine and healthy lifestyle	Lecture on Promotion of Healthy Lifestyle at own schools
11:00-12:00	Practice breathing + Health Qigong in the natural environment		
12:00-13:00	Lunch (Balanced diet includes food which can promote health and good mood)	Lunch (Balance diet ncludes food which can promote health and good mood)	Lunch (Balance diet and practice tea drinking which can improve mood)
13:00-14:00			
14:00-15:00	Hiking at Wuyi Shan to experience the nature	Trip to visit tea farm and practice the art of tea drinking	Discussion on forming a supportive community in schools and strategies of promotion of training program at school
15:00-16:00			
16:00-17:00			
17:00-18:00			Depart Wuyishan
18:00-19:00	Dinner (Balance diet which includes food which can promote health and positive mood)	Dinner (Balance diet which include food which can promote health and positive mood)	
19:00-20:00	Practise meditation and acupressure	Practice meditation and acupressure	
20:00-21:00	Review on today's experience	Review on today's experience	Arrive Hong Kong
21:00-22:00	Bedtime	Bedtime	

Appendix VII

Detail of Evaluation