

**The Implementation of Occupational Safety and Health Legislation and Policies  
in Hong Kong Schools**

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## **Abstract**

It is widely acknowledged that Hong Kong teachers are suffering from work-related health and safety problems (HKPTU, 2005). Reviews of Occupational Safety and Health (OSH) research suggest that there is a wealth of scientific data on OSH to establish policy level interventions, yet the implementation of OSH legislation and policies is complex and multi-faceted. This thesis focuses on the macro level of OSH interventions in schools by studying the OSH policy implementation from the top-down and organisational perspectives.

This thesis begins with a systematic narrative review of the OSH policy and interviews with key stakeholders. These qualitative studies explore the background, context and implementation of the OSH legislation and policies that govern HK teachers' OSH. A subsequent quantitative study is conducted to examine the framework model of climate-behaviour-outcome relationship. The results of the qualitative studies present several issues of concerns in the current policy implementation, e.g. the ambiguity of the key terms in the legislation and the communication breakdown during the policy implementation process. The findings also give a hint to the factors which may affect the effectiveness of implementation; further investigations on these factors are carried out in a quantitative study. The results of the quantitative study present the climate-behaviour-outcome framework model with knowledge as the mediator and social capital as the antecedent. The implications of these results are discussed in the final chapter with the significant issues correspondence with the implementation of OSH legislation and policies in HK schools. It also discusses some recommendations in the practice such implementation.

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# Chapter 1: Introduction

## 1.1 Changing nature of work

Health at work and healthy work environments are among the most valuable assets of individuals, communities and countries. Occupational health and safety (OSH) can be an important vehicle not only to ensure the health of workers, but also to contribute positively to productivity, quality of products, work motivation, job satisfaction and thereby to the overall quality of life of individuals and society (WHO, 2002).

Most of the world's population (58%) spend one third of their adult life at work - work then is an important contributing factor to the well being of workers but also to that of their families and society (WHO, 2002). The officially registered working population constitutes 60-70% of the adult male and 30-60% of the adult female population of the world. These percentages are even higher when work at home and informal work are taken into consideration (WHO, 2002).

Since the development of steam power in the nineteenth century, the introduction of devices such as mechanical textile looms, which steam made possible and the increase in coal mining and iron ore smelting which steam demanded, there has been a rapid transformation of the working conditions of people in Europe, America and is still progress today in countries such as China (Taylor et al., 2004). Workers' health concerns drove a process of legislative change. However, for a long time OSH legislation was largely prescriptive and generally limited to specific areas of work such as mining, construction, factories, shops and warehouses. Another key feature was the development of compulsory workers' compensation insurance for the protection of workers' wages in the event of injury or ill health sustained at work. After World War II, the Scandinavian countries began to link industrial democracy with health and safety legislation. This was attached with a new emphasis on

self-regulation, and coverage of workers at all workplaces. This change later spread to Britain and some of the countries of the former British Common wealth (Taylor et al., 2004).

The nature of work has undergone sweeping changes in the past centuries, that concern the working population, work organisation and work life (Papdopoulos, et al., 2010; Leka et al., 2008a). One of the more notable changes concerns the process of globalisation, which has increased the international competition to which organisations are subjected to but also pressure for both organisations and workers. Global interdependency closely relates to this change in the nature of work. For example, in the late 1990's high technology sectors helped fuel job creation in Europe, however, when restructuring and downturn came in 2000, the interdependencies across economies put many people out of work. The US economy no longer accounted for 35% of the world economic activity, but moved back towards its historical place of about 16%, as the European and Japanese economies were rebuilt. Globalisation contributes to intense competition and economic pressures, technological innovations, and increased complexity of organisational structures and task interdependence. This growing competitive nature of the global market leads to the need of strategies implementation (McDaid, 2008). These strategies include increasing flexibility, outsourcing areas which are not core to the system, downsizing and using more temporary and other non traditional employment practices (Goudswaard, 2002; Sauter et al., 2002). The distribution of work has also been affected by these new strategies, such as a shift in the number of jobs in various sectors with fewer jobs in manufacturing and more jobs in service industries (Kompier, 2006). These new changes in work practices, such as lean production, total quality management, advanced manufacturing techniques and increased use of technology have increased the demands placed on employees and these demands can result in negative health effects on workers (Wall & Jackson, 1995; Sauter et al., 2002; WHO, 2005a), organisations and communities (Kompier & Cooper, 1999). These consequences have a direct and indirect impact on workers' OSH.

Employees are often exposed to new types of occupational hazards as a result of work changes, the most prevalent of which is psychosocial hazards in the work environment that

have been linked to ill health (e.g. Maina et al., 2009; Leka et al., 2008a). Work no longer focuses only on income but also on psychological well being needs, like satisfaction and happiness. This further leads to a consideration of both the positive and adverse effects of work on employee health. In the most favourable circumstances, work is a necessity of life and has a positive impact on social, psychological and physical health and well being. However, due to other objectives of work, for instance, material and economic output requirements, and poor working conditions for many occupations, it may result in reduced well being, working capacity and even the life span of working individuals (Tetrick & Quick, 2003).

## **1.2 Importance of OSH**

The International Labour Organization (ILO) estimates that each year around 2.3 million workers die as a result of occupational accidents and work-related diseases. The latest estimate data indicates that fatal occupational accidents are about 358,000 every year. Across the globe, there are some 337 million occupational accidents and 160 million occupational diseases each year, and fatal work-related diseases are around 1.95 million per year (Al-Tuwaijri et al., 2008).

The related economic costs place a considerable burden on the competitiveness of enterprises. The annual cost of accidents in the manufacturing sector of the United States is more than 190 billion US dollars. The direct cost of work accidents and diseases is estimated around 40 billion NOK in Norway and £19 billion in the United Kingdom. A study by the European Commission estimates that the costs of occupational accidents alone in the EU15 (15 European Union Member States) in year 2000 were €55 billion a year (European Commission, 2004). It is estimated that the annual losses resulting from work-related diseases and injuries, in terms of compensation, lost work-days, interruptions of production, training and retraining, medical expenses, and so on, routinely amount to over 4 per cent of the total gross national product (GNP) of all countries in the world (Alli, 2001). The loss of human lives and rate of injuries and ill health lead to an inevitable price to the social burden.

Reducing the toll of occupational accidents and diseases has obvious implications in terms of the alleviation of human suffering, it is therefore very important to take some actions to solve the problems. Hence, the field of OSH has received more attention in recent years; it has become more substantive and new needs for research and practice have been created.

In response to the profound changes in society and nature of work, knowledge-base economies should not ignore occupational safety issues that commonly exist in the industrial sectors but also consider the promotion of well being at work (Taylor et al., 2004). The current approach of OSH is broad and multidisciplinary in nature, it touches issues related to medicine, law, technology, economics and concerns specific to various industries. Alli (2001) identified some core principles, for example:

- Work should take place in a safe and healthy working environment;
- Conditions of work should be consistent with workers' well-being and human dignity;
- OSH policies must be established, and enforced;
- There is need for consultation with the social partners (that is, employers and workers) and other stakeholders;
- Prevention and protection must be the aim of OSH programmes and policies;
- Information is vital for the development and implementation of effective programmes and policies;
- Health promotion is a central element of occupational health practice;
- Occupational health services covering all workers should be established.
- Compensation, rehabilitation and curative services must be made available to workers who suffer occupational injuries, accidents and work-related diseases;
- Education and training are vital components of safe, healthy working environments. Workers and employers must be made aware of the importance and the means of establishing safe working procedures.

According to the International Labour Organisation (ILO) (1986), work is among the fundamental people's rights. With this fundamental worker's right and the protection of life and health, work should enable workers to live a socially and economically productive life

(ILO, 1986). The achievement of rights at work is complex and consists of both legal and moral rights. The joint definition of occupational health by the World Health Organisation (WHO) and ILO explains its core principles, which are not merely concerned about the physical safety of workers, but also their well being.

WHO defines “occupational health” as the adaptation of work to man and of each man to his job, which should aim at the promotion and maintenance of the highest degree of physical, mental and social well being of workers in all occupations; the prevention amongst workers of departures from health conditions; the protection of workers in their employment from risk resulting from factors adverse to health; the placing and maintenance of the workers in an occupational environment adapted to their physiological and psychological capabilities (WHO, 2005b).

With the increased concerns in workers’ well being in the current approach of OSH, the less physical aspects of work, which relate to the psychological and social (psychosocial) work environment, are nowadays representing the most common challenges to workers’ health and safety. The term psychosocial hazard was first defined by the ILO (1986) as the imbalances in the psychosocial arena and interactions that prove to have a hazardous influence over employees’ health through their perceptions and experience. A simpler definition might be ‘those aspects of job content, work organisation and management, and of environmental, social and organisational conditions which have the potential for psychological and physical harm’ (Cox & Cox, 1993). Psychosocial factors have their most powerful impact through workers’ subjective perceptions and evaluations of their working conditions but do not refer to individual personality or behavioural or social factors such as extroversion, depression, coping style, hypochondria, family or class (Quick & Tetrick, 2003). The following table presents a list of most common psychosocial hazards (Leka et al., 2003).

**Table 1: Psychosocial Hazards (Adapted from Leka et al., 2003)**

<b>PSYCHOSOCIAL HAZARDS</b>	
<b>Job Content</b>	Lack of variety and short work cycles, fragmented or meaningless work, under use of skills, high uncertainty, continuous to people through work
<b>Workload &amp; work pace</b>	Work overload or under load, machine pacing, high levels of time pressure, continually subject to deadlines
<b>Work schedule</b>	Shift working, night shifts, inflexible work schedules, unpredictable hours, long or unsociable hours
<b>Control</b>	Low participation in decision making, lack of control over workload, pacing, shift working, etc
<b>Environment &amp; equipment</b>	Inadequate equipment availability, suitability or maintenance; poor environmental conditions such as lack of space, poor lighting, excessive noise
<b>Organisational culture &amp; function</b>	Poor communication, low levels of support for problem solving and personal development, lack of definition of, or agreement on, organisational objectives
<b>Inter-personal relationships at work</b>	Social or physical isolation, poor relationships with superiors, inter-personal conflict, lack of social support
<b>Role in organisation</b>	Role ambiguity, role conflict, and responsibility for people
<b>Career development</b>	Career stagnation and uncertainty, under promotion or over promotion, poor pay, job insecurity, low social value to work
<b>Home-work interface</b>	Conflicting demands of work and home, low support at home, dual career problems

A growing body of evidence demonstrates the association between work-related health complaints and exposure to psychosocial hazards, or to an interaction between physical and psychosocial hazards at both individual and organisational levels (Cox et al., 2000). The

problems of psychosocial hazards are exacerbated through reduced social support and participation at work, for example: work at home, increased tension between family and work demands, increase in unpredictable or unsociable schedules for those working in temporary agencies (Leka et al., 2008a). Nearly one in three of Europe's workers, more than 40 million people, report that they are affected by work-related stress (European Agency for Health and Safety at Work, 2002). The Fourth European Working Conditions survey (European Agency for Health and Safety at Work, 2002) found that one out of five workers from the EU15 and almost one in three from the 10 new member states believed their health was at risk due to work-related stress. The report also shows that work-related stress is among the most commonly reported causes of occupational illness by workers, it affects more than 40 million individuals across the European Union, costing an estimated 20 billion euros a year in lost time and health bills (European Agency for Health and Safety at Work, 2002). Several surveys conducted in the US also showed that work stress was serious psychosocial problems, for instance: one-fourth of employees viewed their jobs as the number one stressor in their lives (Northwestern National Life, 1991), St. Paul Fire and marine Insurance Company (1992) found that problems at work were more strongly associated with health complaints than life stressors, such as financial and family problems (St.Paul Fire and Marine Insurance Company, 1992).

The impact of work-related psychosocial hazards varies across different occupations. Some occupations are at greater risk of psychosocial problems than others, for example: a review of the international literature and secondary analysis of the Office of National Statistics Psychiatric Morbidity Survey show that people in certain occupations, such as teaching, have a greater risk of work-related mental illness (Stansfield et al., 2003). Reported work stress was also found in teachers, nurses and managers (Smith et al., 2000). Reasons suggested for high rates of psychological illnesses in particular occupations are associated with high levels of job demands combined with a lack of long term security and particularly high emotional demands when working with people (British Occupational Health Research Foundation, 2005).

At the global level, research has been conducted in different countries and demonstrated the impact of psychosocial risks in workplace. For instance, the negative impacts of workers' physical, mental and social health have been studied in Denmark (Bonde et al., 2009), Australia (Tennant, 2001), Canada (Niedhammer et al., 2008), Switzerland (Bauer et al., 2009), Brazil (Fischer et al., 2005), China (Chen et al., 2005), etc. In addition, a growing body of evidence in European countries (e.g. UK) indicates both a direct and indirect role of the psychosocial working environment on organisational health indices, such as absenteeism, sickness absence, productivity, job satisfaction and intention to quit (e.g. Kivimaki et al., 2003; van den Berg et al., 2009; Michie, 2002).

In short, there is a substantial body of research on the importance of OSH. In particular, with the results of work changes in the recent decades, research has demonstrated that occupational hazards (especially those related to psychosocial factors in the work environment) have impacted negatively on employees' health at both individual and organisational levels (e.g. Sauter et al., 1990; Leka et al., 2008a). In order to understand more about how academics and practitioners translate this research and knowledge into practice to resolve the problems, the following section presents the literature on different types of interventions for OSH.

### **1.3 Interventions for OSH**

The word 'intervention' in organisations is defined as the process of change set in motion within, and in regards to, work organisation (Oeij et al., 2006). It is also defined as a process of reduction of hazardous working conditions and the realisation of good preconditions with different stages that requires changes both in the work environment and in individuals (Leka et al., 2008c).

A substantial degree of diversity can be observed across strategies to prevent and manage OSH risks and their associated health effects. The two common distinctions in the literature

are between organisational and individual orientations; and between primary, secondary and tertiary prevention, while the important level of policy interventions on OSH risks at the macro level (national/European/international) has been largely ignored in the mainstream academic literature (Leka et al., 2010).

The distinction between primary, secondary and tertiary prevention concerns the stages of prevention. Primary interventions aim to prevent harmful effects or phenomena to emerge. They also create understanding within the organisation through preventive actions at the organisational level. In general, primary interventions are proactive by nature. Secondary interventions aim to reverse, reduce or slow the progression of ill-health or to increase individual resources. Tertiary interventions aim at reducing negative impacts and healing damages and they are rehabilitative by nature. Most interventions classified at the individual level are forms of secondary prevention and are coordinated as programmed activities at the employer/organisational level. At the organisational level, primary and secondary interventions are often adopted at the same time (Murphy & Sauter, 2004).

Despite of the burgeoning literature and overall growth in practitioner activity in the domain of OSH, especially psychosocial risk management (Kompier & Taris, 2005), the majority of these interventions are not systematically assessed or evaluated (Cox et al., 2000), resulting in a restricted evidence-base and limited knowledge on their effectiveness. Many of the reviews conducted in this area are limited by the small number of studies that can be included due to the heterogeneity of the studies (e.g. the diversity of outcome measures employed, duration of the intervention and its follow up period, selection bias, and small sample sizes). This makes it difficult to compare the interventions and draw clear conclusions as to the overall effectiveness of such interventions, the mechanisms which underpin the sustainability and longevity of observed effects, and the interventions' cost effectiveness (Leka et al., 2008c). Therefore, there are limited numbers of interventions that have been systemically evaluated (Bruinvels et al., 2007; LaMontagne et al., 2007).

Recently, LaMontagne et al. (2007) reviewed 90 interventions; approaches with an individual level (43 of them) were demonstrated to be effective only on a range of individual outcomes. Of these, interventions which also included organisational level outcomes in their evaluation did not demonstrate a favourable impact at the organisational level. However, of 47 organisational level interventions reviewed, favourable effects were not observed at both individual and organisational levels. Similar results have been observed in earlier reviews (Van der Hek & Plomp, 1997; Van der Klink et al., 2001). This review was not restricted by rigorous inclusion criteria, partly because there were limited numbers of intervention studies that would meet such traditional criteria and only limited conclusion can be drawn from such findings. Traditional inclusion criteria in this case may also lead to substantial restrictions on their generalisability (Leka et al., 2008c). Hence, the use and focus on such purely academic criteria might not necessarily promote practice in the area of OSH intervention research, and as such have an unfavourable effect on employees' OSH at both individual and organisational levels. Although evidence suggests that OSH interventions are effective (Bambra, 2009), the evidence-base is still ambiguous (Leka et al., 2010). To discuss further, recently Leka et al. (2008c) has conducted a comprehensive review of risk management approaches within the European context and an analysis of evidence based best practice interventions for the management and prevention of psychosocial risks. The key findings were supplemented by interviews with experts and showed that the pervasive gap in knowledge on which to guide evidence-based practice was one of the main challenges noted by the stress intervention experts in relation to intervention content. Several other challenges were also noted by the experts in the review, such as, the lack of evidence-based knowledge of how to design and develop a comprehensive stress management intervention; the applicability of interventions across occupational sectors; the lack of tailored programmes that continue to meet the needs of a wide spectrum of individual employees with a range of distress, illness or disease; and lack of knowledge to develop a psychosocial risk management toolkit that is comprehensive and user friendly to both employees and management. To summarize, the difficulties encountered by the experts are mostly questions of how (e.g. how to develop, implement and design interventions), but not the question of what (e.g. what are the interventions about). Therefore, it was concluded that although experts can identify what the best practice criteria

are, the problems of an insufficient evidence-base on which to guide practices and limited degree of efficiency in translating knowledge into practice are barriers to OSH interventions.

The failure of translating knowledge into practice is also reflected in the limited research at the macro level (national/international), such as the level of policy interventions, that has been largely ignored in the mainstream academic literature (Murphy & Sauter, 2004; Leka et al., 2008b). Policy level interventions in the area of OSH and the promotion of workers' health and safety can take various forms. These may include the development of policy and legislation, the specification of best practice standards at national or stakeholder levels, the signing of stakeholder agreements towards a common strategy, the signing of declarations at regional or international levels, and the promotion of social dialogue and corporate social responsibility in relation to OSH (Leka et al., 2010).

The key rationale of policy level interventions and primarily legislation, is to address the core principles of OSH (Alli, 2001). With appropriate implementation and education, OSH legislation can serve as the primary and effective way for behaviour change so as to protect workers' health and safety (WHO, 2005b). As mentioned, OSH policy level interventions are being formulated at different levels: international, national and regional. Various legislative bodies are responsible for establishing OSH laws at different levels: they are the United Nations, the ILO, the European Commission and the Governments in each country (and region).

In the development of OSH legislation, factories acts were first developed to improve poor working conditions in factories and mines that had developed during the Industrial Revolution. The original OSH legislation was based on the English Factory Acts (1833-1894) and the Workers' Compensation Act of 1897. In 1972 a new style of legislation was introduced in South Australia and in 1974 in the UK which placed more emphasis on prevention (Taylor et al., 2004). Nowadays, international, European and national policy level interventions cover a broader range of protection and promotion of workers' OSH, such as the ILO 188

Conventions and 199 Recommendations which deal with different elements of social aspects of work (Widerszal-Bazyl et al., 2008).

It appears that a number of legislative or public policy initiatives have been implemented over the years and these interventions lay minimum standards which are compulsory and applicable to everyone in the world. However, analysis and overall evaluation of these intervention initiatives are still lacking (Murphy & Sauter, 2004). The effectiveness of the implementation of various levels of OSH legislations remains unclear. In HK, for instance, even though key OSH legislation has been established for years, there were still 41 900 occupational injuries and 14 932 industrial accidents in 2008 (Labour Department HKSAR Government, 2009), and recently some occupations, such as the teaching profession, have received a lot of attention on OSH due to the negative impact of their psychosocial work environment. This indicates that the societal impact of existing interventions has not been significant and further efforts need to be made to communicate research findings to policy makers and the general public. In order to yield a greater breath of information regarding the effectiveness of OSH interventions, a broader framework for evaluating interventions is recommended (Cox et al., 2007). There is a calling for more studies of intervention effectiveness at the legislative, employer/organisational and job/task level. The following section further elaborates the situation of HK teachers, to explain why they have received a lot of attention in terms of OSH in the last decade.

#### **1.4 The situation of Hong Kong (HK) teachers**

As mentioned earlier, some occupations are at greater risk of psychosocial problems than others, such as teaching professions (Stansfield et al., 2003; British Occupational Health Research Foundation, 2005). Previous literature also demonstrates that teachers in the course of their career, experience a great deal of stress that may have obvious implications for their physical and mental health status (Vandenberg & Huberman, 1999; Guglielmi & Tatrow, 1998). Teachers' psychosocial problems also affect the learning environment and

interfere with the achievement of education goals as it may lead to teachers' detachment, absenteeism, and the decision to leave the profession (Jenkins & Calhoun, 1991; Maslach & Leiter, 1999). Teachers in Hong Kong (HK) are not an exception; work-related psychosocial hazards in schools have impacted directly and indirectly on teachers' health. Since 2001, research has shown that over 60 per cent of HK teachers who participated in different studies said that they were stressed or very stressed (Chan Kam Lam, 2002). In addition, the Foundation of Education Fund conducted research on HK teachers' psychological / mental health, and showed that there are up to 23 per cent of teachers suffering from psychological / mental problems, who were recommend to seek medical treatment immediately (Hon Lin Shan, 2008). A survey conducted by the Government published in 2007 also showed that 99.5 per cent of teachers were suffering from one or more kind of work-related health problems (Chung & Chan, 2007).

The most serious work-related health and safety problems among teachers are associated with their psychosocial work environment. Unlike other professions, in the teaching profession in HK long working hours are prevalent, since a teacher's day typically starts early in the morning and comprises an average of around five lessons, plus extra-curricular activities and other teaching duties, like assessments and reports. Marking exercise books consumes a considerable amount of non teaching time, as many teachers are judged by the objective results that marks can provide for assessment purposes (Morris et al., 1999). Students seem to be increasingly unruly, and discipline has become a concern, especially for new teachers. It has been argued that teachers see themselves as having little influence over the curriculum.

Different cultural settings may also influence teachers' perceptions of their job and affect their psychosocial well being. Compared with other cultural settings, individualists' perception of teachers is different from collectivists. In Confucianism, teachers rank highly in the hierarchical order of respect. There is a saying: once you are my teacher, you are my father for life. Particularly in HK, teachers' psychosocial working environment and well being have received increasing attention in recent years due to various educational reforms and

innovations since 1990s, and the Educational Reform in 2000 particularly has raised a lot of public concerns and debates. Reform policies were introduced within a short period of time, albeit with limited resource commitment by the local government. Under the influence of collectivism, HK teachers' expectations of their jobs and status may lead them to avoiding the acceptance of these changes and to avoid revealing their health problems. From 2000 to 2009, there were 18 teachers that attempted to commit suicide due to work-related stress, 17 of them passed away (Cheung, 2006; Cheung, 2009). The main reasons behind these suicides were depression, worries about the teachers' assessments and education reform and job insecurity due to the reduction of aid schools (Cheung, 2006). The teachers' work-related health and safety problems in HK, are therefore, embedded in the HK culture and education system. The following section provides a brief description of the profile of HK.

### **1.5 Profile of HK**

HK is a special administrative region of People's Republic of China, it is located in southern China. Dating back thousands of years, there were only few settlements that took place in the region, until the engagement of Imperial China and the British Colony in the territory. HK is one of the most densely populated areas in the world, with land mass of 1,104 km<sup>2</sup> (426 sq mi) and a population of seven million people (Russell, 2006).

HK was a British colony since the 1800's (So et al., 2001). On the 1<sup>st</sup> of July, 1997 HK was officially handed over to the PRC of China by the United Kingdom, and was characterized by the concept of "One Country, Two Systems" proposed by Deng Xiaoping. This political concept allowed HK to retain many of its existing characteristics, including its legal, financial and educational systems. The Basic Law stipulates that HK shall enjoy a "high degree of autonomy" in all matters except foreign relations and military defence (Basic Law Promotion Steering Committee, 2010). While China remained officially socialist, HK remained officially capitalist, and this system is guaranteed for at least 50 years beyond the 1997 handover. The first Chief Executive of HK, Tung Cheehua was elected in December 1996 by a selection

committee with members appointed by the PRC government (The Government of Hong Kong SAR, 2010b).

### *1.5.1 Education reform in HK*

HK is a very special place; it represents one of the greatest success stories of the second half of the twentieth century, a triumph for hard work, adaptability and good sense over very limited natural advantages, in the face of an absence of good neighbourliness and a scarcity of international good will. Both praise and prejudice frequently point to assumptions about how the success of the economy is linked with the characteristics of the education provided (Sweeting, 1995). With the distinctive historical context of HK, education has contributed in various ways; and the education system started to emerge since the 1940s. Since then, the education system has undergone a lot of changes and the most controversial one in recent years is the Education Reform.

After the handover, education was incorporated into the Education and Manpower Bureau (EMB) in 2003 which promoted ill defined Asian values. In order to strengthen HK students' identification with the mainland, the civics curriculum was introduced (Agelasto & Adamson, 1998). In the celebration of the inauguration of the HK SAR on 1<sup>st</sup> July 1997, Tung CheeHua, the first Chief Executive of the HK SAR made a speech which identified education as the "key to the future", which "should encourage diversification and combine the strengths of the east and the west" (Tung, 1997). Later in 1997, in Tung's first policy address, he announced the development of information technology (IT). HK\$5000 million of the Education Fund would be allocated for school initiatives and research projects, and other measures including benchmarking of teachers' linguistic and pedagogical competence. The latter has an impact on minority English Language teachers, who had to find alternative employment (Tung, 1997).

The education reform was suggested in 1998 to "keep up with the global trend" and hopefully help students master a life-long learning skill (Cheung, 2010). The Curriculum Development Council started to review the HK education system, curriculum and assessment system. The

main aim of the education reform is to equip students with the ability to think, explore and create; instead of wasting all the time to prepare for exams without learning how to learn. Beside the curriculum and assessment, another focus in this education reform is to support the frontline workers and raise their profession (Education Commission, 2000).

Within the reformed education system, schools have greater managerial responsibility, which became subject to quality assurance inspections. Broadly speaking, the reform had seven major initiatives; they are curriculum reform, assessment mechanisms, language education, support for schools, professional development, student admission systems and increase in post-secondary education opportunities (Education Commission, 2006), with the reform of the curriculum being the most controversial issue for educators.

The reform of primary school curriculum encourages primary school students to learn actively through diversified curriculum and co-curricular activities, while the Secondary School Places Allocation (SSPA) mechanism has been reviewed with the introduction of Territory-wide System Assessment (TSA) to the Primary 3, 6 and Secondary 3 levels since 2004 (Education Commission, 2006). The New Senior Secondary (NSS) curriculum is also introduced to prepare senior secondary students to explore their aptitudes and expertise for future studies and employment through project based learning. The nine years compulsory education system which is characterised by the one-off public examinations has changed to school based continuous assessment. The HKCEE and HKALE will be replaced by a new public examination at the end of the three-year NSS programme (Education Commission, 2000).

On the other hand, the medium of instruction (MOI) which was first introduced in 1998 has been reviewed by the EC in 2005 (Education Commission, 2006). Under the policy framework embodied in the Medium of Instruction (hereafter MOI) Guidance for Secondary Schools (Guidance) published in 1998, schools were segregated into English- and Cantonese-medium streams, with only 112 of the more than 400 government-funded secondary schools designated as English-medium in which they were allowed to conduct classes in English. The rest of the 300 schools were forced to adopt Cantonese as their language of instruction and to

teach English as a second language. After years of wrangling, the government announced in The Review of Medium of Instruction for Secondary Schools and Secondary School Places Allocation 2005 that it was reviewing the mother-tongue policy. In 2009, the Education and Manpower Bureau (EDB) presented a proposal about “fine tuning” the MOI Policy in the 2010-11 school year where the limits on teaching in English in the junior forms will be relaxed (Legislative Council Secretariat, 2009).

In recent years, the education reform has led to various organisational changes in schools that have had an impact on teachers’ OSH. A lot of complaints have been made by the public and therefore teachers’ health and well being, have received much attention. The following section presents the recent research conducted in HK concerning teachers’ well being.

#### *1.5.2 An overview of the education system in HK*

Education is the priority of the HK Government since it came to power in 1997. It is also perceived as the “key to the future” (Tung, 1997) of HK. The HK education system aims to provide a balance and diverse school education; help them build up knowledge, values and skills for further studies and personal growth; enhance students’ biliterate and trilingual abilities; enhance teaching quality and effectiveness in learning; improve the learning environment; and enhance the quality, flexibility and accountability of school administration (The Government of Hong Kong SAR, 2010a). For these objectives, there are generally three sectors in the education system at present: pre-school education, primary school education (6 years) secondary school education (3+2+2 years) and higher education (3 years). In 2003, the Education Commission (EC) proposed to change the system to three years of junior secondary, three years of senior secondary, and four years of degree studies.

It is of general understanding that different levels and types of schools have different organisational/managerial structures. In order to study teachers’ OSH with an organisational

approach, it is essential to understand different levels and types of schools in HK and their relationship with OSH in schools.

### *1.5.3 Levels of schools in HK*

#### Pre-school education

Pre-primary Services in HK refers to provision of education and care to young children by kindergartens and child care centres. Kindergartens, registered with the Education Bureau, provide services for children from three to six years old. Child care centres, on the other hand, are registered with the Social Welfare Department and include nurseries, catering for children aged two to three, and crèches, looking after infants from birth to two. The aim of pre-primary education in HK is to provide children with a relaxing and pleasurable learning environment to promote a balanced development of different aspects necessary to a child's development such as the physical, intellectual, language, social, emotional and aesthetic aspects (The Government of Hong Kong SAR, 2010a). Most parents consider kindergarten education to be the pre-requisite for primary school entrance.

#### Primary Education

All children in HK who have reached the age of 5 years 8 months or older are eligible to participate in Primary One Admission Scheme provided that they have not been allocated a Primary One place previously. They can be admitted to government or aided primary schools according to this system (Education Bureau, 2010). Children enter primary school at age six, after the large majority have already attended kindergarten for three years. There are six years in primary schooling. The curriculum is subject based, with a common core to seven constituent subjects: Chinese Language, English Language, Mathematics, General Studies, Music, Art & Craft and Physical Education.

In the 2008/09 school year, there are 601 primary schools. Except for a few schools, nearly all primary schools have been converted into a whole day operation or agreed to the plan of such a system. The Government planned to phase in whole day schooling with the remaining bi-sectional schools with a pragmatic and flexible approach.

## Secondary Education

Until 2009, there were seven forms in secondary schooling, with exit points at Secondary 3, Secondary 5 and Secondary 7, although exceptional students may leave at the end of Secondary 6 to enter university. This system broadly reflects the one that was prevalent in England and Wales in the 1950s. In the curriculum, there is a dominance of Chinese Language, English Language and Mathematics. In the post handover policy, curriculum expansion establishing key learning areas was proposed, which included merging several formerly independent subjects into integrated humanities and integrated science for the junior forms (Adamson & Li, 2004). In the 2008/09 academic year, there were 527 secondary schools in HK. Under the previous 3+2+2 system, public examinations took place at Secondary 5 (HK Certificate of Education Examinations) and at Secondary 7 (HK Advanced Level Examinations). The system is essentially selective, which allows for more horizontal integration across schools, and thus creates competition for entrance to what are perceived as more successful schools at each stage. Although these examinations are based on syllabuses that are largely standardized, success is limited to the top 20 to 30 per cent of students.

The secondary school curriculum underwent some major revision both before and after the turnover. In the 2003 proposal, it was proposed to move the secondary school and standard first degree structure from a 3+2+2+3 system to a 3+3+4 system, i.e. three years of junior secondary, three years of senior secondary, and four years of degree studies. The main official rationale for this was first that the three year senior secondary structure would facilitate a more flexible cross disciplinary curriculum, and second that it would reduce the number of

public examinations and thereby enable students to spend more time on enhancing their language proficiency and important generic skills (Education Commission, 2003).

## Higher Education

HK has 11 degree awarding higher education institutions, eight of which are funded by the University Grants Committee (UGC). The Academy for Performing Arts (APA) is also publicly funded, but not through the UGC. The Open University of HK and Shue Yan College are self financing. Alongside these institutions are various post secondary bodies offering diplomas and associate degrees. They include Chu Hai College, the Institute of Vocational Education and a group of community colleges. In 2002, the UGC funded institutions provided places for about 18 per cent of the 17-20 age group, on top of which a further 24 per cent of people in the same age group had access to higher education in other form, including subject degree programmes and vocational training, or went to universities overseas (Hong Kong , 2003).

### *1.5.4 Types of schools in HK*

At present, primary schools are generally divided into four main types: government schools, aided schools, schools under the Direct Subsidy Scheme (DSS) and private schools. The same system is applied in secondary schools but with an extra type of aided school, namely as CAPUT.

Government schools are managed by the EDB directly. Subsidy of aided schools is mostly provided by the government. However, they are managed by the school incorporated management committees or the management committees, most of them are run by charitable and religious (Christian, Buddhist, Taoist, and others) organisations. DSS schools are managed by their own incorporated management committee/school management committee. They can charge school fees and receive government subsidy based on the number of

eligible pupils in the school. Private schools are solely financed by their sponsoring bodies and managed by the management committees of private organisations.

With the implementation of education reform since the handover of HK to China, the education system has undergone an enormous change. These changes of work have both direct and indirect impacts on teachers' work-related health and safety, for instance, the increase on teachers' assessments and reduction of aid schools have affected teachers' work-related psychological health (Cheung, 2006c). Therefore, in recent years teachers' health and relevant issues have received a lot of attention by academics. Recent research on teachers' health is summarized in the following section.

## **1.6 HK teachers' health research**

General public and researchers' concerns for teachers' work-related health problems (especially work-related stress) is reflected in the amount of related studies conducted in HK. In 2005-2006, there were already 5 comprehensive studies concerning teachers' stress conducted by different teachers' unions, universities and the government. Other studies have examined the field of job satisfaction (Cheng, 1994; Hui & Chan, 1996; Cheuk et al., 2000), coping strategies (Chan, 1994; Chan, 1998), burnout (Cheuk et al., 1994; Tang & Au, ; Lau, 2002; Chan, 2003; Lau et al., 2005; Leung & Lee, 2006), psychological health symptoms (Chan & Hui, 1998; Tang & Au, ; Chan, 2002b), and even suicidal beliefs (Leung, 1994a; Leung, 1994b; Chan, 2002a; Chan, 2002a). Some studies were concerned with organisational health, for instance: turnover (Cheuk et al., 2000; Leung & Lee, 2006; Leung & Lee, 2006) and commitment (Cheuk et al., 2000; Pang & Watkins, 2000). Table 2 provides a summary table of recent teacher research in HK.

**Table 2: Summary table of recent teacher research in HK from 2004 to Feb 2010**

<b>Research Area</b>	<b>Researcher / Year</b>
<i>Individual health</i>	
Work stress	(Hui & Chan, 1996; Hui & Chan, 1996; Chan, 1998; Chan & Hui, 1998; Cheuk et al., 2000; Tang & Au, ; Lau, 2002; Lee, 2002; Yu, 2002; Chan, 2002b; Chan, 2003; Jin et al., 2008; Cheung & Sachs, 2006a)
Burnout	(Cheuk et al., 1994; Tang & Au, ; Lau, 2002; Chan, 2003; Lau et al., 2005; Leung & Lee, 2006; Cheuk & Hatch, 2007; Chan, 2007; Chan, 2006; Leung & Lee, 2006)
Psychological health symptoms	(Chan & Hui, 1998; Tang & Au, ; Chan, 2002b) (Chan, 1994; Chan, 1998)
Physical health symptoms	(Chiu & Lam, 2007)
Suicidal beliefs	(Leung, 1994a; Leung, 1994b; Chan, 2002a; Chan, 2002a; Siu, 2008)
Subjective strength and well being perceptions	(Chan, 2009)
<i>Organisational health</i>	
Job satisfaction	(Cheng, 1994; Hui & Chan, 1996; Cheuk et al., 2000)
Turnover	(Cheuk et al., 2000; Leung & Lee, 2006; Leung & Lee, 2006)
Commitment	(Cheuk et al., 2000; Pang & Watkins, 2000)
Social support	(Cheuk et al., 1994; Chan & Hui, 1998; Chan, 2002b; Leung & Lee, 2006)
Leadership	(Pounder, 2009; Pounder, 2008; Cheuk & Hatch, 2007; Cheung & Sachs, 2006b)
School management	(Lam, 2006)
<i>Education Policy</i>	
Teacher appraisal programs	(Chow et al., 2002; Mo et al., 1998)
Teacher Assessment Scheme (TAS)	(Yung, 2001; Coniam & Falvey, 2002; Davison, 2004; Cheung & Yip, 2004; Davison, 2005; Glenwright, 2005)
Medium of instruction (MOI)	(Tse et al., 2001; Wannagat, 2007; Tung et al., 1997; Cheng & Wang, 2007d; Lau, 2006)
Whole School approach	(Hui, 2002)
Curriculum model	(Hui, 2003; Leung, 2004; Keung & Ho, 2004; Li, 2006)

Education reform in general	(Lam & Law, 2008; Yuen, 2008; Cheung & Sachs, 2006a)
Overseas immersion programme	(Lee, 2009)
Project based learning	(Lam et al., 2009)
Immersion Education	(Regan, 2009; Sharma et al., 2008; Cheuk & Hatch, 2007)
<i>Others</i>	
Thinking style, perceptions and teaching	(Zhang & Sternberg, 2002b; Zhang, 2004; Zhang & Sternberg, 2002a; Cheung et al., 2003; Yuen & Ma, 2008; Hoare et al., 2008; Zhang, 2009; viar-Martin et al., 2008; Chan, 2008b; Cheung & Sachs, 2006a; Cheng & Wang, 2007c; Cheuk & Hatch, 2007; Cheuk & Hatch, 2007; Luk-Fong, 2006b; Dash, 2006; Leung, 2006; Barkhuizen & Feryok, 2006)
Self efficacy	(Tang & Au, ; Watkins, 2000; Chan, 2002b; Yuen et al., 2003; Chan, 2005b; Pang & Watkins, 2000; Chan, 2008c; Chan, 2008a; Chan, 2008b; Cheuk & Hatch, 2007; Chan, 2007)
Conceptions of counselling	(Chan, 2005a; Chan, 2005b; Chan, 2008d; Hue, 2008)
Management style of discipline	(Kwok, 1997)
School guidance	(Hui, 1998; Hui, 2003; Hui, 2002; Hui & Chan, 1996; Luk-Fong, 2006a; Yuen, 2002; Luk-Fong, 2006a)
Perceptions of gifted students	(Zhang & Sternberg, 1998; Chan, 2001)
Special education	(Pearson et al., 2003; Poon-McBrayer, 2003)
Teaching concepts and strategies	(Yu, 2009; Kong et al., 2009; Li & Wong, 2008; Cheung & Sachs, 2006a; Cheung & Sachs, 2006a; Cheung & Sachs, 2006a; Wannagat, 2007; Cheng & Wang, 2007b; Cheng & Wang, 2007a; Luk-Fong, 2006b; Luk-Fong, 2006b; Luk-Fong, 2006b; Cheung & Sachs, 2006b; Cheung & Sachs, 2006b; Hyland & Lo, 2006; Leung & Kember, 2006)
Teaching as a career	(Cheung, 2005; Trent & Gao, 2009; Bottery et al., 2008)
New teachers	(Cheng & Pang, 1997; Bodycott et al., 2001; Chan & Elliott, 2002; So & Watkins, 2005; Barkhuizen & Feryok, 2006)
Beliefs about HK media	(Chu, 2009)

As listed in the table above, teachers' research conducted in HK can mainly be divided into four areas, they are individual health, organisational health, education policy and other such as teachers' thinking style and teaching concepts. The first two areas (individual and organisational health) are more relevant to teachers' health and the latter ones are related to the development and improvement of teaching.

In the individual level, the majority of the studies have focused on the teachers' work-related stress, burnout, and health symptoms. Most of the studies conducted in this area have found out that HK teachers were suffering from high work-related stress (Hui & Chan, 1996; Chan, 1998; Chan & Hui, 1998; Cheuk et al., 1994; Tang & Au, ; Lau, 2002; Lee, 2002; Yu, 2002), and work-related stress have further led to burnout (e.g. Tang & Au, 2001; Chan, 2003) and other health symptoms (e.g. HKPTU, 2005).

In particular, Yu (2002) used the Teacher Stress Inventory (TSI) to find the major sources of stress for teachers and the level of teacher stress. The results showed that all five types of stressors were identified, in decreasing level of severity: they were work-related stressors, time management, discipline and motivation, professional distress, and professional investment. These stressors among HK teachers were all higher than the means of the TSI normative data.

Recently, due to massive complaints about teachers' work stress from the public, the HK government set up The Committee on Teachers' Work. The Committee aimed to review the current work situation of teachers and report HK teachers' sources of stress. The Committee visited schools 14 times and concluded that HK teachers are suffering from four major sources of work stress: 1) management problems; 2) heavy workload; 3) students' defiant behaviour; and 4) the educational reforms. They also presented the nature of teachers' stress in several sub-categories, they were: job-related stress, anxiety and emotional disturbance, professional job related stress, time management stress, teacher-student relationship, workload related stress, individual inability, and individual professional development (Education Bureau, 2006).

Teachers' psychosocial problems (especially work-related stress can also lead to problems like burnout and other physical and psychological symptoms, for instance, Lau et al (2005) found that HK teachers score much lower in depersonalization of the burnout scores than North American teachers, which may be due to the cultural differences between the two places. The Foundation of Education Fund conducted research on HK teachers' psychological / mental health, and showed that there were up to 23 per cent of teachers who suffered from psychological / mental problems, and were recommend to seek medical treatments immediately (Hon Lin Shan, 2008). Another survey conducted by the Government published in 2007 also showed that 99.5 per cent of teachers reported that they were suffering from one or more kinds of work-related health problems (Chung & Chan, 2007).

More recently, the HK Professional Teachers' Union (HKPTU) studied 2579 teachers from 783 primary schools, 454 secondary schools and 79 special education schools. Results showed that 28% of the teachers "always" found themselves having 5 or more symptoms of emotional exhaustion; these symptoms included physical fatigue, anxiety, muscle pain, depression, sleeping problems and headache. There were more physical and psychological complaints made by more experienced teachers. Also, there was serious overtime work among teachers, 14% of the teachers who worked 31 hours extra in average per week after classes. 35.6% worked 21 hours extra and 14.7% worked less than 4 hours extra (Hong Kong Professional Teachers Union, 2005b).

Apart from the individual focused of teachers' health research, some studies started to look into the organisational consequences of teachers' health problems. The study conducted by HKPTU in 2005 also suggested that teachers' individual health problems have affected the organisation in various ways, including absenteeism. Some teachers on sick leave did not apply for medical sick leave because of the heavy workload and pressure from upper management. Besides, more than half of the teachers perceived their work stress as unsolvable (Hong Kong Professional Teachers Union, 2005). There were also studies showing the turnover problem in the field of education, for example, Leung & Lee (2006)

studied the factors related to teachers' intention to quit, the results showed that the management support has a direct effect on teachers' intention to quit and emotional exhaustion of burnout has an indirect effect. In contrast to the findings in the West, the effect of colleagues' support was shown to be minimal. Further, some researchers attempted to compare HK teachers with teachers from other countries in an organisational perspective, for instance Lee et al (1999) studied teachers' workload with 1623 primary school teachers. The findings showed that HK teachers spent 60 hours at work every week. Compared with teachers from New Zealand and Scotland and Canada, HK teachers had heavier workload (Lee et al., 1999).

Apart from teachers' health research, the effectiveness of HK education policy has also received a lot of attention in recent years, research in this area concerned much about the education reform. For example, Hui (2003) examined the implementation of developmental guidance as a formal curriculum in a Hong Kong secondary school. The study found that teachers perceived the curriculum exerting positive effects on teachers' attitudes and management style. It was also found that teachers' acceptance of the curriculum and support from the school system were crucial in the process of implementation.

Other HK teachers' studies were more related to teachers' perception of students and teaching, their self-efficacy and teaching concepts, these studies were less relevant to teachers' health but more emphasis on teaching concepts and theories. Chan (2005), for instance, studied the counselling training for teachers, in which the findings showed that teachers' self-efficacy towards helping was also predictable from endorsing values related to inter-personal relationships and diversity in counselling practice.

Similar to the results of the general review of psychosocial work and health by Kompier and Taris (2005), the majority of the previous teachers' health research focused mainly on models and consequences of stress, burnout and other physical and psychological distress (Kompier & Taris, 2005). As shown in Table 2, it is obvious that recent research conducted on HK teachers has mainly focused on the individual and organisational consequences of

psychosocial work hazards in schools, individual level of interventions (such as problems of burnout, work stress and individual coping strategies); and general analysis of the education policy and teaching. However, the root of teachers' work-related health and safety problems is mainly found at the organisational level (e.g. management problem, heavy workload and students' defiant behaviour) and macro level (e.g. OSH impacts of education reform) (Education Bureau, 2006). It is undeniable that teachers' psychosocial hazards at work are still existing and seriously affecting the health and safety of HK teachers. With the effort of different levels of OSH intervention initiatives, there is a need for a broader framework to evaluate these interventions, in order to yield a greater breath of information regarding to their effectiveness (Cox et al., 2007). Policy level of interventions, in particular, has been largely ignored in the mainstream academic literature (Murphy & Sauter, 2004). In HK, several policy initiatives have been developed in the past decades (which will be discussed further in the policy review chapter), it will be rewarding to review the content, implementations and outcomes of these initiatives. To discuss further, the following chapter conceptualizes the key elements of the study of HK teachers' OSH at the macro level (policy level interventions) by reviewing OSH policy implementation with different perspectives.

## Chapter 2: Conceptualization of key elements

### 2.1 The implementation of legislation and policies

The previous chapter suggests that there is a burgeoning literature and overall growth in practitioner activity in the domain of OSH (Kompier & Taris, 2005), however due to the lack of systematic evaluation of the OSH interventions, doubts remain regarding the effectiveness of the translation of knowledge into practice. It has also been widely acknowledged that initiatives aiming to promote workers' health have not had the impact anticipated, and the main reason for this has been the gap that exists between policy and practice (Levi, 2005). In order to address and minimize this gap, it is important to have both an increase of national capabilities of OSH knowledge and a systematic evaluation of policies focusing on OSH; in particular the evaluation of the implementation of the policy plan is a crucial step (Leka et al., 2010). Therefore, a good understanding of the implementation of OSH policies is essential for systematic evaluation of OSH policies.

There are three levels of OSH legislation and policy: international, national and institutional. In the case of HK, it is governed by both international and national (regional) OSH standards, and there is a list of international treaties that are applicable in HK, these treaties will be discussed in greater detail in the following chapters. Ideally, the three levels of legislation and policy should be consistent in principles. However, due to different cultures and OSH practices, economic backgrounds, and sector specific characteristics, there are variations in the implementation of legislation and policies in different countries and institutes. A difference has been identified in the effectiveness of national systems of labour inspection and law enforcement (European Foundation for the Improvement of Living and Working Conditions, 1997). The implementation of OSH legislation and policies, therefore, is complex. Organisational and human behavioural factors also contribute to the success of OSH legislation and policies.

The process of policy making can be divided into the stages of problem identification and issue recognition, policy formulation, policy implementation and policy evaluation. It also includes testing the agenda, specifying alternatives to choose from, making an authoritative choice from those alternatives, and implementing the decision. The policy process is often a process of negotiation, bargaining, and adjusting among different interest groups who aim to influence policy choices and alternatives. Policies are intertwined together with their aims, objectives, and implementation to avoid conflicts (Kingdon, 1984).

In particular, it is important to study policy implementation because it is a key feature of the policy process and is related to other parts of the policy cycle, such as design, problem definition, formulation, and evaluation. Learning from implementation problems can foster learning about better ways to structure policies to ensure that they have the effects that designers of these policies seek (Birkland, 2005). The study of policy implementation begins with a formal definition of implementation:

Mazmanian & Sabatier (1989) defined implementation as the process of carrying out the basic policy decision, which usually is incorporated in a statute but which can also take the form of important executive orders or court decisions. It normally runs through a number of stages beginning with passage of the basic statute, the policy outputs (decisions) of the implementing agencies, followed by the compliance of target groups with those decisions. The actual impacts, both intended and unintended of those outputs and the perceived impacts of agency decisions are also part of the implementation process (Mazmanian & Sabatier, 1989).

With reference to social scientists' interests in human behaviours and social organisations, policy implementation is also defined as the study of change, how change occurs and how it may be induced. It is a study of how organisations outside and inside the political system conduct their affairs and interact with one another and how they motivate each other (Jenkins, 1978).

Understanding policy design and ways of structuring policy implementation enhance the benefits of successful implementation include favourable behavioural changes. There are generally different approaches in studying policy implementation process, for example: top down, bottom up, and organisational.

### *2.1.1 Top-down approaches to implementation*

According to Birland (2005), the top-down perspective on policy implementation involves first understanding the goals and motivations of the highest level initiators of policy, and then tracking the policy through to its implementation at the lowest level. These studies focus on the gaps between the goals set by a policy's drafters and the actual implementation and outcomes of the policy. It is based on a set of assumptions, such as clear goals and policy tools are presented in the policies to measure performance; the policy contains a single statute or other authoritative statement of policy, etc.

There are problems with this approach to study policy implementation due to the emphasis on clear objectives or goals of the policy and the policy is contained in a single statute or other authoritative statement. It also assumed that a single national government that structures policy implementation and underestimate the ability of local actors to ignore messages from the top.

### *2.1.2 Bottom-up approaches to implementation*

As it is difficult for some policies to meet the assumptions of the top-down approach (e.g. well-structured policy), researchers started to look at the people who implemented policies at the point of contact with the policy's target population, also known as "street level bureaucrats" (Lipsky, 1971). They exercise professional discretion in the delivery of services and can significantly influence the extent to which policy goals are met. The bottom-up approach is to study policy implementation begins with understanding the goals, motivations, and

capabilities of the lowest level implementers and then follows the policy design upward to the highest level initiators of policy. Richard Elmore calls this approach “backward mapping”, in which the implementation process and the relevant relationships are mapped backwards from the lowest level of implementers to the top most policy makers (Elmore, 1979).

This approach contrasts the implicit assumptions of the top-down approaches. While the top down approach places emphasis up on compliance, the bottom-up approach recognises the importance of bargaining and compromising these conflicts. There are, however, criticisms of the assumptions of the bottom-up approaches, for example there is an overemphasis on the ability of the street level bureaucrats to frustrate the goals of the top policy makers, however, the street level bureaucrats are not entirely free agents, and they have their professional norms and obligations. Also the bottom-up approach assumes that groups are active agents in the implementation process, which this is not always the case. There are policies that emphasised on compliance and highly technical.

### *2.1.3 The debate of the best approach*

The relative strengths and weaknesses of the top-down and bottom-up approaches have led researchers to suggest that the best approach to implementation is when the two approaches are combined into one model or synthesis. This synthesis should address both the structuring of policy from the top and the likelihood of its subversion or at least its alteration at the ultimate point of implementation. The combination of “backward mapping” and “forward mapping” was identified by Elmore (1979), he suggested an approach that we can understand that top policy makers can make choices of policy instruments or tools to structure implementation while realizing that the motivations and needs of lower level implementers must be taken into account.

A conceptual framework should be developed to combine the best of the top-down and bottom-up approaches (Sabatier, 1986). The top-down approach is best where there is

dominant legislation or policy that is well-structured and where the researcher's resources for studying the implementation are limited. On the other hand, the bottom-up approach is best where one is interested in the dynamics of local implementation and where there is no single dominant programme.

The debate over the best approach to study the implementation of policies continues, Birkland (2005) commented that since the design of policies is to do something about a problem in the first place, as long as policies fail, or appear to fail, implementation studies will remain important to policy makers and to students of the policy process. The debate over the best approach to study the implementation of policies continues and remains inconclusive (Birkland, 2005).

With a notable absence of studies of legislative or public policy initiatives in relation to OSH (Sauter, 2004), it will be a significant attempt to study teachers' OSH at the macro level, particularly the investigation of the policy level interventions. Therefore, it is important to choose an appropriate approach to study the OSH policy implementation and evaluate the issues correspondingly.

As mentioned, the study of the implementation plan is a key step in the evaluation of OSH policy level interventions (Leka et al., 2008b), and the role of key stakeholders in the process of implementation is significant. From Leka (2008)'s review on psychosocial risk management policies, it is recognized that trade unions, employers organisations, government agencies, researchers and academics play a key role in the area of psychosocial risk management at the policy level. The findings of the study demonstrated that the involvement and commitment from key stakeholders were key factors for the success in the implementation of policy level interventions. Key stakeholders' hindered communication and collaboration by the conflict/competition between different government departments was also found to be a barrier to the development of policy level interventions (Leka et al., 2008b). In addition, the failure of OSH policy initiatives is often associated with the gap that exists between policy and practice (Levi, 2005). The top-down approach aims to identify the gaps

between the goals set by a policy's drafters and the actual implementation and outcomes of the policy (Birkland, 2005), the roles of different levels of key stakeholders are also significant in the top-down implementation process. In the case of HK, there is a clear structured of the international and national (regional) OSH legislation, in which the legislation is relatively single dominant (which will be discussed in the policy review chapter), it is appropriate to adopt the top-down approach to study the OSH policy implementation in HK by reviewing the policy and exploring the views of different key stakeholders.

Further, as mentioned previously, social scientists' interests in policy implementation is more to do with its impact on human behaviours and social organisations (Jenkins, 1978).

Therefore, behavioural changes in organisations are also closely associated with the implementation success from the organisational perspective. The following section presents this organisational perspective in studying policy implementation and how it is applicable to the current research.

#### *2.1.4 Organisational perspective in studying policy implementation*

There is no definite approach to studying policy implementation and the factors influencing the process varied. Different disciplines, for instance, policy makers, policy researchers and bureaucrats can conduct implementation analysis, but there are differences between the focus and approaches. In the social scientists' (e.g. applied psychologists) perspective, they are sensitive to the fact that much of what occurs in the course of an implementation effort cannot be changed by policy makers and implementers. We are, hence, captives of social, economic, and political circumstances that may, with concerted effort over time, be mitigated but never fully erased (Mazmanian & Sabatier, 1989).

The major focus of the organisational perspective in studying policy implementation has been the issue of how organisations behave, or of how people behave in organisations (Mazmanian & Sabatier, 1989). However, if we accept that implementation is a process

which involves a 'network' or multiplicity of organisations the question arises as to how organisations interact with one another. Therefore, there is a need to study the broad picture and search for general propositions about human behaviours and social organisations, rather than the specific levers that policymakers manipulate in the particular situation (Mazmanian & Sabatier, 1989); and how organisations outside and inside the political system conduct their affairs and interact with one another and how they motivate each other (Jenkins, 1978).

The organisational exchange approach (Landry, 1997; Mazmanian & Sabatier, 1989), for instance is to take the position to organisations or sub-units of an organisation work with one another so as to exchange what is to their mutual benefit. The power dependency model explains that organisational relations are based on dominance and dependence, interaction based on exchange is structured by mutual interests (Bish, 1978; Tuite et al., 1972; White, 1974). The defining characteristic of exchange between organisations is that it is voluntary interaction which is undertaken for the realization of the goals and objects of the participants (Levine & White, 1961). Even the dominated party may have control over central resources, and exercise hierarchical authority, it may also be the case that the centre is dependent on the local agency for implementing policy goals.

Apart from the application of the top-down approach in studying OSH policy implementation with different key stakeholders, as mentioned, the origins of teachers' OSH problems are mainly found at both the macro and organisational levels, it will also be beneficial to review the OSH policy implementation from an organisational perspective. This could help to address the issues of how the social organisations behave and how people behave in organisations in the process of policy implementation. The examination of the interactions between stakeholders (e.g. school management and teachers) and the organisations (schools) is likely to enhance the understanding of the implementation of OSH legislation and policies and the outcomes of such initiatives.

In particular, the involvement and commitment of key stakeholders are the key success of the implementation of policy level interventions (Iavicoli, 2010) and their role in the interaction of

exchange which based on mutual interests is also significant to the policy implementation (Bish, 1978; Tuite et al., 1972; White, 1974). Therefore, by adopting the organisational approach in the study of policy implementation, the framework model of OSH climate-behaviour-outcome relationship which entails stakeholders' perceptions of commitment (climate) and involvement (compliance behaviour) in the policy implementation process is likely to enhance understanding of the issues at the organisational level. The next section considers in detail the background and key elements of this framework model of OSH climate-behaviour-outcome relationship.

## **2.2 Organisational culture and climate**

To secure the continuous improvements of OSH and an effective implementation of OSH legislation and policies in schools, both environmental and human factors play an important role (Davis et al., 2001). From the organisational perspective in studying the implementation of OSH policies in schools, the interactions of social organisations and human behaviours are important (Mazmanian & Sabatier, 1989). Organisational culture and climate are influential to the implementation of policies because it represents employees' perceptions on their management commitment and plays a specific part in employees' behaviours at the organisational level (Dastmalchian et al., 1991; Reichers & Schneider, 1990; Rentsch, 1990). In particular, the framework model of climate-behaviour-outcome relationship demonstrates how climate perceptions are related to the outcome expectancies through the social interactions between management and employees, for instance social learning (Bandura, 1986; Lawler, 1971; Vroom, 1964). In other words, the framework model is a tool to study OSH legislation and policy implementation at the organisational level, and a favourable OSH culture and/or climate are critical in achieving the OSH policy interventions initiatives. The discussion of the framework model of climate-behaviour-outcome relationship in the current setting would not be completed without expanding on the constructs of organisational culture and climate, to distinguish the differences between the two concepts and to conceptualize the key concepts.

### *2.2.1 The concept of organisational culture*

Although Gregory (1983) and Martin and Siehl (1983) believe that organisations are multicultural, we can define culture in 2 broad views (Gregory, 1983; Martin & Siehl, 1983): culture as something an organisation is and culture as something an organisation has (Smircich, 1983). The first definition relates to studies of organisational culture, organisational culture is for the most part exploratory and descriptive in nature, yielding descriptions of the deep structure of organisations; it is a study of organisation culture and uses a native view paradigm (Gregory, 1983).

The second approach discusses organisational culture as something an organisation is and commonly defines it as a pattern of basic assumptions that have been invented, discovered, or developed by a group as it learns to cope with its problems of external adaptation and internal integration. It is to be taught to new members as the correct way to perceive, think, and feel in relation to those processes (Schein, 1985). The definition promotes an examination of organisations' artefacts, creations, values, basic and underlying assumptions (Schein, 1985), and further investigations on the causes (that is, the founder, the societal context) and effects (that is, organisational performance, problematic mergers) of organisational culture.

### *2.2.2 The concept of organisational climate*

The concept of organisational climate is grounded in Gestalt psychology, which based on perceived patterns in the specific experiences and behaviours of people in organisations. It is suggested that when experiences and behaviours are perceived to be patterned in particular ways, it could form the climate of the situation (Schneider et al., 2000). Hence, climate is an emergent property that characterizes groups of individuals. It has been generally defined as a variable, or set of variables, that represent the norms, feelings and attitudes prevailing at a workplace (Litwin & Stringer, 1968; Payne, 1971).

Many researchers have referred to organisational climate comprising of the combined perceptions of organisational members describing the atmosphere in their organisation (Dastmalchian et al., 1991) or with regard to its fundamental properties, for instance: policies, procedures and practices (Reichers & Schneider, 1990; Rentsch, 1990). In the study of general organisational climate, Dastmalchian et al. (1991) identified several apparent problems which helped to refine the definition of organisational climate. Firstly, since climate is an emergent property that characterizes groups of individuals, the practice of deriving organisational level variables (e.g. organisational climate) by aggregating individual perceptions of climate is controversial. There are two types of data which are used to describe organisations / groups' characteristics; they are global data and aggregate data.

Some researchers have suggested that an acceptable measure of climate is only obtainable where there is a relatively high level of agreement between individual respondents (Lincoln & Zeitz, 1980; Angle & Perry, 1986). Roberts et al. (1978) suggested a measure of within organisation variance provides an index tied to the organisation rather than to the individual, which means a small within organisation variance would suggest that climate is useful and representative of an organisational attribute. Then James et al. (1984) also suggested a procedure for indexing the reliability of aggregated data, together with WABA technique that seem to have brought a solution to this analytical problem (Dansereau & Alutto, 1990).

Slocum et al. (1985) also resolved the conceptual problem of using individual analysis for organisational concept. They argued that when climate is conceptualized and measured at the individual level of analysis it constitutes "psychological climate" and if it is studied as organisational level, it is "organisational climate". This principle received quick acceptance and is still operational today, with almost no research being accomplished any longer on psychological climate (Schneider et al., 2000). To clarify the different levels of climate, Zohar (2003) suggested that climates can be described in terms of two independent parameters: 1) strength of climate (weak to strong), which is about the internal consistency with which

climate perceptions are held; and 2) level of climate (low to high), refers to the relative position of the climate mean on the relevant continuum.

Another problem could arise when researchers study the appropriate constituency for the aggregation. It is doubtful whether a climate is a feature of a company, individual divisions, single establishments, departments or even sub-units. One could expect that the shared characteristics of a unit within an organisation contribute to the perceptions of particular climates shared by the unit members, but it is difficult to judge how influential the individual units are in the whole organisation, while the level of homogeneity of perception to form this attribution remains debatable. Dastmalchian et al. (1991) suggested that whether an appropriate level of analysis for studying a climate is that of union affiliation depends on the focus of the research, and argued that if the theory and the underlying research questions relate to the organisation as a whole, then somehow the measurement of climate should correspond to this, with the focus directed at the organisational level.

Nevertheless, the volatility of the climate concept is another potential problem for researchers. If one interprets climate with a high degree of instability, for instance if it is subject to change every day in an organisation, then the measurement and subsequent characteristic of this particular climate would be highly problematic (Dastmalchian et al., 1991). However, most of the researchers studied climate as a construct with a degree of endurance over time, which was expected to change gradually rather than day to day basis.

Rousseau (1988) criticized previous general organisational climate studies as having a “lack of boundaries differentiating what climate is from what it is not”. There are various ways to assess and define organisational climate, and the most relevant perceptual indicators of climate are formal and informal policies, procedures, and practices concerning focal organisational facets, such as service and safety (Schneider et al., 2000; Zohar, 2000). The “lack of boundaries” problem can be overcome by increasing the conceptual clarity for each climate, such as applying a more specific climate. This will be discussed in details in latter chapter.

### 2.2.3 Culture or Climate?

The two concepts of organisational culture and climate appear to be very similar in many ways. Both culture and climate deal with the ways in which organisation members make sense of their environment / experience. They also constitute practices and they are learned, largely through the socialization process and symbolic interaction among members in organisations. Culture and climate are both monolithic constructs and multidimensional ones at the same time, they are not concrete phenomenon. As Jones and James (1979) argued there might exist both a “central core of dimensions” as well as specific dimensions applying to some particular situation. They both aim to identify the shared environment / experience which affect the behaviour of the members in organisations but in a relatively stable way, this makes them functional as they supply a frame of reference for behaviour (Safety Research Unit, 1993). Finally, both culture and climate have various aspects and several different cultures or climate can be distinguished within an organisation, e.g. safety climate.

Although the two concepts are similar, some researchers did not find any connections between them and attempted to distinguish the two constructs, for instance: although there was no significant conclusion made, both Ott (1989) and Schneider (1990) argued that organisational climate is different to organisational culture. argued that the four segments in an organisation’s social system (organisational culture, social structure (Ekvall, 1983), organisational climate and work relations) are mutually related but distinguishable.

Glick (1985) made the distinction in terms of applied methodology; he suggested that climate research was more quantitative while culture was more qualitative. He continued argued that research on organisational climate developed primarily from a social psychological framework, while culture is rooted firmly in anthropology. He considered culture research as succeeding climate research, which focused on the dynamic processes at work in an organisational culture, continuously creating and shaping. Similarly, Schein (1992) agreed that climate proceeds culture. He suggested that “climate will be a reflection and manifestation of culture

assumptions” and climate is supposed to be replaced by culture to convey a broader and more profound meaning of an organisation.

Denison (1996) tried to end the “paradigm wars” between organisational climate and culture researchers and concluded culture and climate both share the common ground of trying to describe and explain the relationships that exist among groups of people who share some sort of common situation/ experience, but the two constructs are very different to each other. Under the light of Denison’s conclusion, Payne (2000) presented a table to illustrate a comparison of culture and climate, arguing that: “Culture research is more accurate and more specific than climate research but it is much harder to generalize from, other than the application of the concept itself”. Climate research is more generalisable but it is less accurate and less specific, although it may still provide a useful description of a single organisation and an even more useful comparison with other organisations. In short, even it is difficult to distinguish definitions of culture from those of climate, it is possible to claim that measuring climate is a way of measuring culture.

Various factors affect the outcomes of implementation of OSH policy differently, with an organisational perspective in the current research; the focus is on the broad picture and a search for general propositions about human behaviours and social organisations. Therefore, climate measurement is a useful tool to get a snapshot of the employees’ shared perceptions, attitudes and beliefs of the subject – occupational safety and health.

#### *2.2.4 Organisational climate in Schools*

It is not a new subject to study climate in schools, the research on organisational climate in schools started with the explosion of organisational climate research in 1960s. The educational sector became a popular setting for the development of survey techniques for the assessment of organisational climate. Early in 1958, Pace and Stern developed a measure of college climate based on Murry (1938)’s need press theory (Pace & Stern, 1958; Murry, 1938).

In 1966, Halpin was particularly interested in schools' "atmosphere", "feel" and "personality", this provided the major impetus to develop the Organisational Climate Description Questionnaire (OCDQ) which became one of the major approaches for assessing the organisational climate of schools. The OCDQ has inspired hundreds of studies of the organisational climate in schools, for instance: (Anderson, 1982; Hoy & Feldman, 1987; Miskel & Ogawa, 1988; Silver, 1983; Sirotnik, 1980) .

Another approach in the description of organisational climate of schools derives from the organisational health of schools (Miles, 1969) and school as a "social system" (Parsons, 1967; Parsons et al., 1953; Parsons & Smelser, 1956). School health has been used to conceptualize the organisational climate of schools since 1969. According to Miles (1969) a healthy organisation should be concerned with the task, maintenance needs, and growth and development needs (Miles, 1969). Hoy and Feldman (1987) following Miles' work, devised a 44 item organisational Health Inventory (OHI), a deductive approach using multivariate factor analytical techniques, suggested a seven-factor model of school health (Hoy & Feldman, 1987).

The study of climate in schools started off with general organisational climate, however, Schneider (1975) suggested that the thought of a generic concept of organisational climate is so amorphous and inclusive, and the results from the measurement of climate are conceptually amorphous. The multifaceted concept of organisational climate measures no longer focused on Theory X or Theory Y of managerial climate (McGregor, 1960) or on the inclination for banks to hire the right types (Argyris, 1958) or on the fit of needs to campus characteristics (Stern, 1970) or any specific kind of climate. He proposed that there has to be a "climate for something".

Facet specific climates provide convergent measures of employees' appraisals or interpretations of relevant policies, procedures, and practices aggregated to the unit of analysis of theoretical interest, that is the entire organisation (Kozlowski & Klein, 2000). This principle of conceptualizing and studying specific focus of organisational climate should be

applied to all contexts, including schools. To conceptualize this climate of “something” in school, it should be tied to some type of specific referent, which has to be “occupational safety and health” in this study.

## **2.3 Conceptualizing occupational safety and health (OSH) climate**

### *2.3.1 Safety Climate*

As noted above, the role of organisational climate in determining how employees perceive and respond to their work environment is well established, however, researchers have argued that climate perceptions should focus on a specific referent. Since then, “climate for something” has been prominent in the climate literature, for example: service climate (Schneider et al., 2000) and safety climate (Zohar, 1980). In particular, safety climate has been argued to be one of the contributors to the climate in organisation; this is because there are limits to what can be achieved through hardware and technological solutions alone, human factors have a specific part to play in achieving and maintaining high standards of health and safety (Davis et al., 2001). Safety Climate has been researched for approximately 35 years and studies have proved that safety climate has strong associations with safety behaviours, self-reported accident and injuries in industrial sectors. Also, safety climate is the closest concept to OSH climate in the current research, therefore a review of safety climate is essential for the conceptualization of OSH climate.

Due to large amount of researches on safety climate in order to understand the constructs and concepts of safety climate and to identify the characteristics of safety climate and its related factors. A systematic search of the published literature was conducted using a computerized search of the PsycInfo, Embase and Medline databases. We selected the search terms to capture generic and specific words relevant to safety culture and climate on the basis of Subject heading terms and text words from a priori identified review articles:

Guldenmund (2000), Flin et al. (2000) and Clarke (2006). Keywords for the computer-based searches included safety climate, safety culture, safety attitudes and safety perceptions. The computer search was complemented by a manual search of review articles by Guldenmund (2000), Flin et al. (2000) and Clarke (2006), and the reference sections of all articles identified. The database was searched for records from all entries up to, and including, the year 2009. The initial searches yielded over 1421 articles. The criteria for inclusion in analysis were that the article must contain (2) a measure of safety culture/climate and (2) study safety culture/climate in workplace settings, and (3) published in English. Under these criteria, 84 articles were excluded, leaving a sample of 1337 articles. Articles found from this literature search were reviewed and assist the conceptualisation of the key OSH constructs: climate, behaviours, knowledge and outcomes.

The earliest located paper on safety climate is Keenan et al. (1951)'s study on introspective ratings from primary individuals in an automotive plant. It was not until 1980 that Zohar developed a safety climate measure and defined safety climate as "a summary of molar perceptions that employees share about their work environments...a frame of reference for guiding appropriate and adaptive risk behaviours". More recently, Griffin and Neal (2000) argued for a more explicit definition of safety climate in that it should be comprised of the employees' perceptions of the policies, procedures and practices relating to safety. Others provided a wide range of definitions for safety climate, for example employees' beliefs about safety (Williamson et al., 1997) and attitudes and perceptions toward OSH issues (Coyle et al., 1995).

In Guldenmund (2000)'s review of safety culture and climate, he commented that perceptions are more associated with climate whereas attitudes are considered to be a part of culture and Neal and Griffin (2004) also suggested that if the aim of a safety climate study is to assess the effect of different environmental factors on the safety of the employees, then it is better to frame the questions perceptually rather attitudinally in the measures. Guldenmund (2000) also reviewed the characteristics of safety climate definitions and concluded that most of them stressed the 'shared' aspect of climate, for instance terms like "molar" (Zohar, 1980;

Dedobbeleer & Beland, 1991), “shared” (Diaz & Cabrera, 1997), “summary” (Williamson et al., 1997), and “group” (Brown & Holmes, 1986) appeared in all the definitions reviewed. Also, the object of these safety perceptions, attitudes and beliefs are often identified with “work environment” (Zohar, 1980; Dedobbeleer & Beland, 1991; Diaz & Cabrera, 1997), “safety” (Coyle et al., 1995; Williamson et al., 1997), and organisational safety policies (Diaz & Cabrera, 1997; Griffin & Neal, 2000f).

Following the work of Neal and Griffin (2000), Neal and Griffin (2004) proposed that perceptions of specific aspects of safety will load onto first-order factors and that these first-order factors will load onto a common higher-order factor, reflecting global perceptions of safety. The first order factors of safety climate factors should reflect perceptions of safety-related policies, procedures, and rewards. The higher order factor of safety climate should reflect the extent to which employees believe that safety is valued within the organisation.

Although there has been significant effort put into defining safety climate, most definitions are very global and thus highly implicit. The concept of safety climate was not comprehensively developed, and there is a lack of clear and consistent construct definitions and conceptualizations, both on the predictor and criterion sides (Clarke, 2006), Christian (2009) suggested that no study has comprehensively addressed the deficiencies.

Alongside with the conceptualization of safety climate, the recent interest in measuring safety climate results a large number of assessment instruments. They are mostly in the form of self report questionnaires administered as large scale surveys in different sectors, principally the energy industries, but also in manufacturing and construction. Similar to the conceptualization of safety climate, studies argued that there is lack of unifying theoretical model in this area and reflected that inductive rather than deductive approach has been used in operation (Guldenmund, 2000, Williamson 1997). In the previous reviews of the measures of safety climate, Williamson et al. (1997) examined seven reports measuring safety climate and concluded that eight factors could be discerned, four measuring attitudes and four perceptions, although they presented no detailed analysis of which of these eight factors were

derived from particular questionnaires. In Dedobbeleer and Beland (1998)'s review of ten safety climate instruments, only two factors: management commitment and worker involvement had been properly replicated across studies. Dedobbeleer and Beland (1998) and Coyle et al. (1995) found different factor structures using the same safety climate scale in two Australian health care organisations. The study concluded that it was highly doubtful to establish a universal and stable set of safety climate factors. Recently, Flin et al. (2000) did an extensive review of safety climate measures, they conclude there are some recurring themes across safety climate surveys include management, safety systems, risk, work pressure and competence. Regarding to the different work practices and policies, the actual item components of each theme are variable and are likely to be industry or even company specific.

In the discussion of industry specific safety climate measures, some researchers have attempted to developed measure of safety climate in particular industry, for example nuclear power, energy supply, manufacturing (Cox & Cox, 1991; Cox et al., 1998). In particular, there were some significant examples of context specific measures, for instance: Cox and Cheyne (2000) derived from other instruments and developed a nine factor measure of safety climate specially for use in offshore oil and gas processing organisations. All the items loaded onto nine factors: management commitment; priority of safety; communication; safety rules; supportive environment; involvement; personal priorities and need for safety; personal appreciation of risk; and work environment. The instrument was developed from assessments used in a range of different industries, including nuclear power, energy supply. Meanwhile, Varonen and Mattila (2000) attempted to examine safety climate in wood processing companies, the study included four factors to measure the safety climate in eight Finnish wood processing companies. These four factors included: organisational responsibility, safety supervision, and company safety precautions and employee attitudes toward safety. Results at the organisational level analysis show that employee perceptions of organisational responsibility and company safety precautions were negatively associated with expert ratings of workplace hazards and with accidents. Recently, Evans et al. (2007) developed a tool to assess the level of perceived safety climates for pilots, it was a 3-factor

model of management commitment and communication, safety training and equipment, and maintenance.

The academic interest of studying safety climate has driven many researchers to identify the appropriate safety climate factors and measures for different countries and in different languages. For example, Vinodkumar and Bhasi (2009) identified management commitment and actions for safety, workers' knowledge and compliance to safety, workers' attitude towards safety, workers' participations and commitment to safety, safeness of work environment, emergency preparedness in the organisation, priority for safety over production and risk justification as the eight safety climate factors in the chemical industry in India. Another eight dimensions (free communication flow, continuous improvement, reporting/rules compliance, and patient/ family involvement, supervisors' safety leadership, allied professionals' safety leadership, patient safety committee leadership and rules/equipment availability) measuring patient safety climate scale was developed in Japan (Matsubara et al., 2008). However, with the diversity of safety climate instruments, there is not a single instrument develop for the Chinese population or in Chinese.

### *2.3.2 Health Climate*

From the review of safety climate research, it seems that previous studies tended to avoid the issue of 'health' in the development of models and measures. Unlike safety climate, there are very limited studies which directly address the construct for workplace health climate. Same research strategy which used for 'safety climate' search was used to search 'health climate' articles. Keywords for the literature search was 'health climate and 'health culture'. Through 2009, only 32 peer reviewed articles resulted from the search and most of them do not directly related to 'health climate' as a specific facet of organisational climate.

However, some researchers argue that the researches related to "social climate" contribute to the health climate literature (Ribisl & Reischl, 1993). Although some of the dimensions of

“social climate” are associated with employees’ climate perception for health, they did not link directly to health and well being. Moreover, we have found that organisational climate did play a role in the effectiveness of health promotion programmes and worker participation in such programmes (Rost et al., 1990). There are certain dimensions of organisational climate which have been identified as predictors of employee participation in health promotion programmes, such as perceptions of control over work, supervisor support and work time flexibility to take part in healthy activities (Sloan & Gruman, 1988). The most significant attempt on health climate research was Ribisl & Reischl (1993)’s study on the ‘climate for health’ as part of the general organisational climate and the scale they developed to measure it. Similar to the safety climate research, they found that health climate differed significantly across workplaces. There was also a strong association between the organisational health climate and exercise behaviours, smoking behaviours, nutrition, job stress and job satisfaction.

### *2.3.3 OSH climate*

In summary, safety climate has received more attention than health climate and it is becoming accepted that a favourable safety climate is important for safe operation. Numerous structural models have proved that safety climate predicted unsafe behaviour and other safety outcomes. Interestingly, there is little previous safety climate (and even culture) research which has focused on the issue of employee occupational health. One of the major reasons of over-emphasis of safety in climate research is because the concept of safety climate was coined in the response to major negative outcomes (e.g. accidents, injury rate, etc) that arose due to the failure of safety policy (Sheen, 1987; Cullen, 1990).

Moreover, the sole focus on safety in climate studies sounds conceptually illogical, because the constructs of OSH are strongly linked. According to the joint definition of WHO and ILO, OSH is more than the protection of physical health but also the promotion of socially and economically productive life. Since management’s consideration for the general health of the employees is essential in developing and promoting their quality of life and well being

(Mearns et al., 2006), a favourable OSH climate is significant to the promotion of OSH in workplaces. The development of different international OSH policies (e.g. European Framework Agreement on work-related stress) together with the promotion of workers' well being and rights by international organisations (e.g. World Health Organisations and International Labour Organisations) demonstrate the idea that occupational 'safety' and 'health' are strongly related and both should be incorporated into practice.

In this case, employees' safety climate perceptions should be affected by the importance placed on their general health. Climate research should incorporate elements of both health and safety. So far from the literature review, there are only three studies which attempted to measure "health and safety climate" (Basen-Engquist et al., 1998b; Mearns & Hope, 2005; Mearns et al., 2006). All three studies focused on the effectiveness of health promotion activities, the relationships between climate, employees' behaviours and related outcomes are unclear and there remains a room for further investigation. With the settings of the current study is HK schools, the following section discusses the core meaning of teachers' OSH climate.

#### *2.3.4 The core meaning of teachers' OSH climate*

Schools as organisations have multiple goals, and to achieve these goals, the government and school management must develop facet specific policies to which employees attend, resulting in multiple specific climates. The Government and school management understand that in order to achieve the educational goals in schools, the OSH of teachers is crucial. Hence, OSH policy intervention initiatives were developed to protect the OSH of teachers and other workers in schools.

In the implementation of the OSH policies, there is a distinction between policies and practices, where policies could be explicit but practices could be tacit which derived from perceptions of school upper management style (Argyris & Schon, 1996). According to Zohar

(2003), climate perceptions should refer only to policies in use, or enacted policies, rather than to their formal counterparts, because they inform employees of the probable consequences of safety behaviour. According to this perspective, a consensus should occur when management displays a commitment in which an internally consistent pattern of action concerning teachers' workplace safety and health is evident. OSH climate in schools should be referred to the teacher's perception of management value on OSH, rather than informal interaction with colleagues.

Climate perception is a social cognitive construct (Rochlin, 1999), in which the basic sense-making process involves observing organisational events, detecting or abstracting patterns of relationships among the events, and interpreting these events in psychologically meaningful terms. From this perspective, climate perceptions, therefore, are associated with the types of role behaviour likely to be rewarded and supported, and it follows that the most significant information is derived from organisational events that reveal managerial policies and practices. Stajkovic & Luthans (1997) and Luthans & Kreitner (1985) suggested that supervisory action and reaction provide the most important sources of rewards and support. Meanwhile, in the school setting, due to teachers' tight schedule to teach, administrative duties, and care for students, OSH issues are inherent to every educational process. Priorities could be taken by upper management of the schools and reflected in the implementation of general and local OSH policies (or procedures) and practices in schools. Also, the interpretation of the pragmatic meaning of policy enforcement could be varied due to different economic benefits or pressures, the true priority would be revealed through reward and support from the management. Hence, OSH climate should refer to the perceptions to those policy attributes that indicate the true priority of workplace safety and health.

Zohar (2003) suggested that climate should be a part of an active process of organisational sense-making (Drazin et al., 1999; Weick, 1995) and climate level should reflect its consensual priority. In this case, if there is a high level of OSH climate in a school, health and safety issues should not be ignored even if there is a high pressure of school works, for example: near the end of the term with all paper corrections and extra administrative work,

teachers should not infer a lower workplace safety and health priority by the school management. Similarly, if reward has been given to teachers who are not known for their workplace safety and health, other colleagues will infer low safety priority despite formal declarations to the contrary. In the current study, we define OSH climate as teachers' perceptions of the value management place on OSH and the commitment to OSH policy implementation. Further, from the organisational perspective, policy implementation is more to do with its impacts on human behaviours and social organisations (Jenkins, 1978), the interaction of exchange for mutual benefits which leads to behaviour change is also significant to the policy implementation (Bish, 1978; Tuite et al., 1972; White, 1974). Therefore, the framework model of climate-behaviour-outcome relationship is valuable to the study of OSH policy implementation and its outcomes at the organisational level. The following section describes this framework model and its constructs.

#### **2.4 Framework model of climate-behaviour-outcome relationship**

Theoretical models of safety climate have specified the link between climate perceptions and safety behaviour (or performance), and thus climate is mainly a mediator between environmental properties and organisational outcome (e.g. Neal & Griffin, 2006). Many models of safety climate have used this linkage to prove the safety climate-behaviour-outcome relationship (Griffin & Neal, 2000; Thompson et al., 1998). This link is also significant in school settings, where OSH climate should be related to teacher's health and safety performance and further related to the relevant outcomes.

In the literature, there is empirical evidence concerning the relationships between climate level and injury rate, for example: (Hofmann & Stetzer, 1996; Zohar, 2000; Fullarton & Stokes, 2007; Huang et al., 2006). In particular, Zohar (2003) proposed safety climate affect safety record in 3 ways:

- 1) Climate perceptions influence behaviour-outcome expectancies;
- 2) Expectancies influence prevalence of safety behaviour; and

### 3) Behavioural safety influences injury rate (safety outcome)

Firstly, Zohar argued that the relationship between climate perceptions and behaviour outcome expectancies is implicit in his definition of climate. Given that climate perceptions are related to enacted policies that indicate the true priorities of key task facets, it follows that climate perceptions will influence outcome expectancies. This is because employees pay attention to enacted policies rather than to their formalized counterparts because they indicate probable consequences, which inform behaviour-outcome expectancies. Further, the effect of expectancies on behaviour is based on social learning and expected valence utility constructs (Bandura, 1986; Lawler, 1971; Vroom, 1964), that the higher the perceived likelihood of obtaining a result by certain actions and the more valued the result, the greater the motivation to act in a specific manner. The applications of various social exchange theory models (e.g. psychological contracts, leader member exchange (Barling et al., 2002; Hofmann & Morgeson, 1999), and perceived organisational support (Hofmann & Morgeson, 1999)) may enhance understanding of safety related organisational behaviours. Thus, there is a positive relationship between the safety climate perceptions and safety behaviours in organisations, and in fact this relationship has been proven in previous safety climate studies (Garcia et al., 2004; Zohar & Luria, 2005).

In safety climate studies, Zohar (2003) suggested that in industrial accidents, human action significantly contributes to accidents, as human error accounts for about 85% of accidents across industries (Reason, 1990; Reason, 1997; Heinrich, 1931), therefore, behavioural safety would highly influence organisational outcomes, such as injury rate and safety record. Support has also been found for the mediating effect of safety related behaviours on the relationship between safety climate and safety outcomes (Oliver et al., 2002; Tomas et al., 1999).

Furthermore, several authors found that in situations where there are no specific procedures for appropriate role behaviour, human errors are particularly conducive to injury (Reason, 1990; Reason, 1997; Rasmussen, 1982; Rasmussen, 1990; Brown, 1991). Therefore,

climate perceptions influence action in many situations where there is no specific procedures for appropriate safety behaviour (Zohar, 2002). In Saari and Nasanen (1989)'s study of housekeeping levels in a shipyard, results showed public feedback concerning housekeeping level for the previous 2 years, not only related to the decrease in accidents related to housekeeping, but also accidents not related to housekeeping. Other behaviour modification studies, e.g. Komaki et al. (1982) and Reber et al. (1984) also showed that climate changes produced an incremental effect unaccounted for by environmental change alone.

This "no specific procedures" situation also happens in school settings, unlike other industrial settings, in which there are often many standard fixed safety procedures for workers to follow. In workplaces like schools, health and safety issues are inherent in the educational process. The OSH policy interventions do not cover all work situation and contingencies; there are many situations in which behaviour must be guided by internal management standards of OSH assessments and personal preference in work procedures. In these situations, climate perceptions play a significant role in the climate-behaviour relationship. As OSH climate perceptions were defined to relate to the priority of OSH as inferred from the global pattern of executed procedures. As related to this priority, the mediating effect of OSH climate perceptions can be attributed to their potential influence on behaviour-outcome expectancies in situations for which no specific procedures have been defined.

One the other hand, workers' personal bias of the job conditions would also influence the behaviour-outcome expectancies, where careless behaviour prevails during regular job activities. In schools, this is particularly observable when teachers have to meet several challenging goals at the same time (e.g. teaching, administrative work, care for students, handling parents' complaints, etc). In making the choice of behaving safety and health, the decision theories explain that underestimation of the likelihood of possible "rare" events might override the greater weight to short term gains (Herrnstein et al., 1993). For example, when teachers have to get the job done within a short period of time and neglect the importance of sitting and standing positions, the use of voice, or even psychological well being. These kind of OSH behaviours entail a modest but immediate cost of both the individual and organisation.

According to prospect theory (Kahneman & Tversky, 1979), there is a more generous value function for gain in OSH behaviour than in loss. Hence, to modify this value function in OSH behaviour, contingent reward or punishment from management is significant. This could be done by, for example by providing detailed risk information (Cooper et al., 1994) and has been proven to be more effective than pledge or fear based interventions. Also, due to these personal bias in job conditions, climate perceptions which reflect management commitment and priority in OSH issues, are likely to be more influential in these situations.

In the quantitative study, the interest of studying the OSH legislation and policy implementation from the organisational perspective underlines the focus of human behaviours and social organisations. By adopting the framework model of climate-behaviour-outcome relationship, the study applies the organisational exchange approach, in which the model is structured by the concepts of social interaction of exchange with mutual interests (Bish, 1978; Tuite et al., 1972; White, 1974) and social behaviour expectancies (Bandura, 1986; Lawler, 1971; Vroom, 1964). The following section describes the constructs relevant to the climate-behaviour-outcome relationship.

#### *2.4.1 OSH behaviours*

In the application of the framework model of climate-behaviour-outcome relationship, behaviour is one of the major constructs. In fact, the construct of OSH behaviours is essential to the study of OSH policy implementation from the organisational perspective, because the major interest of this perspective is the understanding of human behaviour change in the implementation process.

The concept of OSH behaviours is very similar to the concept of “safety performance” in safety climate research. Christian et al (2009) suggested that the term “safety performance” have been used to refer to two different concepts. One might refer to an organisational metric for safety outcomes, like number of injuries per year and another may refer to a metric for

safety-related behaviours of individuals, which we have discussed in the section on framework of climate-behaviour-outcome relationship. It was also suggested that it is important to distinguish between safety outcomes and safety behaviours because they may have different relationships with the antecedents.

In previous studies of safety behaviours, a number of safety related behaviours measures have been utilized to evaluate the effect of safety climate, they included unsafe behaviours (Hofmann & Stetzer, 1996; Oliver et al., 2002; Tomas et al., 1999; Brown et al., 2000; Cabrera & Isla, 1998), involvement in safety activities (Cheyne et al., 1998), patient safety indicators (Singer, 2009) and near misses (Morrow & Crum, 2004). Some researchers argued that a uni-dimensional model of safety related behaviour, which only focuses on the safety compliance to safety policies was inappropriate and they proposed that climate-behaviour relationship should include workers' safety initiatives (Marchand et al., 1998).

The combination of OSH compliance and initiatives was also recognised by Burke et al. (2002)'s definition of safety performance: "action or behaviours that individuals exhibit in almost all jobs to promote the OSH of workers, clients, the public, and the environment". It includes using personal protective equipment, engaging in work practice to reduce risk, communicating hazards and accidents and exercising employee rights and responsibilities. It was suggested these factors were correlated to each other but distinct, certain conditions using the aggregate of these factors is appropriate .

Griffin and Neal (2000) later developed a two dimension model which distinguished between task and contextual performance and comprises safety compliance and safety participation. Compliance behaviours include obeying safety regulations, following the correct procedures, and using appropriate requirement. Safety participation is defined as a behaviour that does not directly contribute to an individual's personal safety but supports safety in the wider organisational context, in which help co-workers to promote safety programmes and give safety suggestions within the workplace. In this study, for instance teachers could volunteer to promote workplace safety and health in schools.

Further in the discussion of safety compliance, Griffin & Neal (2000) make a connection between the construct with task performance in job performance studies. Seo (2005) also proved that safety climate had a significant indirect effect on unsafe behaviours through the removal of perceived barriers to safety, such as reducing attitudes of scepticism towards the importance of safety procedures. Also, as mentioned in the framework of climate-behaviour-outcome relationship, situations with no specific safety procedures and personal bias would affect safety compliance, therefore climate perceptions are influential.

Safety participation, on the other hand, demonstrates initiatives in OSH, which are very similar to the concept of organisational citizenship behaviour (OCB). This could be explained by social exchange theory (Blau, 1964), in which behaviours are promoted through reciprocity as an obligation of favour-return (Gouldner, 1960). Griffin & Neal (2000) define safety participation based on contextual performance. Contextual performance is actually conceptually similar to OCB that it has been defined as “behaviours that support the broader organisational, social, and psychological environment in which the technical core must function” (Borman & Motowidlo, 1993). Contextual performance allows for the possibility that such behaviours might be rewarded, which is different from the traditional definition of OCB. Recently, some researchers have argued that it is inappropriate to define OCBs as behaviours that are not formally rewarded (e.g. Podsakoff et al., 1993; Podsakoff et al., 2000). Organ (1997) even proposed to redefine OCB in much the same way that contextual performance is defined.

Further, Hofmann et al. (2003) demonstrated that when managers and supervisors who showed their commitment toward safety and concern for employees' well being, employees are willing to favour-return by broadening their role definitions, which include safety related OCB. Management commitment on safety is the key element of safety climate (Flin et al., 2000), therefore, climate perceptions are significantly related to safety participation. The current study is going to assess both compliance and initiatives in OSH in order to grasp a broader picture of OSH behaviour in schools.

## 2.4.2 OSH outcomes

OSH outcome is a significant construct not only in the framework model of climate-behaviour-outcome relationship but it also represents the actual impact of policy level interventions. In the discussion of OSH outcomes as the main construct of the behaviour-outcome relationship; previous studies have linked safety climate with a number of different safety related outcomes, including performance of safety work practices (Griffin & Neal, 2000; DeJoy et al., 1995), safety related programmes (Cheyne et al., 1998; Zohar, 1980), interpretations of accidents (Hofmann & Stetzer, 1998), accidents (Dedobbeleer & Beland, 1998; Hofmann & Stetzer, 1996; Oliver et al., 2002) and injury rate (Hofmann & Stetzer, 1996; Zohar, 2000c). However, as mentioned, OSH performance is different from the OSH outcomes in climate studies (Christian et al., 2009) and the components of OSH outcomes should be distinctive and exclude workers' performance.

Other safety outcome studies mainly focused on the number of accidents and injuries per year. Cooper and Phillips (2004) suggested that the previous measurements are "notoriously problematic". This is due to these measures of accident rates and compensation costs being reactive (after event) and relatively infrequent. Under this assumption, the success of OSH is measured by lower levels of system failure (Cohen, 2002).

To overcome this problem, some studies have taken a more proactive approach in measuring the safety behavioural outcomes (Strickoff, 2000; Cooper & Phillips, 2004), for example hazard identification, observed safety behaviours, etc. These proactive approaches focus on current safety activities to establish system success rather than system failure.

In order to ascertain the effects of the OSH policy level interventions in schools, this study is going to combine both approaches.

For the current study, with reference to the previous safety climate research (due to limited study of health climate and OSH climate), individual self-rated reports of occupational health complaints and injuries can act as an indicator of the impact of OSH climate in the school

context with a reactive approach. However, the measurement of system failure is insufficient to provide a full picture of the outcomes of the framework model of climate-behaviour-outcome relationship. The current study is going to measure teachers' general well being by using the General Health Questionnaire (GHQ). GHQ is a very robust instrument that has been repeatedly used in medical and psychosocial studies to assess general well being and levels of stress (Goldberg, 1972). Many studies have demonstrated a close correlation between feelings of ill-health caused by work stress and later ill-health states with GHQ (e.g. Stansfeld et al., 2000). The GHQ has pre-set questions that have numerical scores allocated for each response; these are then totalled to give an overall score. This instrument has been repeatedly validated in international studies.

From the previous review of the current situation of teachers' health, there is a general consent that teachers are suffering from variety of work-related health problems. Together with the core principles of OSH indicated that OSH is more than safety concerns but workers' well being (ILO, 1986). It is relevant and essential to measure teachers' well being as one of the outcome constructs in order to review the OSH policy level intervention in schools.

Meanwhile, the inclusion of this measurement of system success enables the current study to adopt a proactive approach in measuring the outcomes of the climate-behaviour-outcome relationship. As mentioned, there is an over-emphasis in reactive approach in previous safety climate research, the multi-approach of the current study can potentially shed some light to the field of climate research literature, particularly in the school context.

#### *2.4.3 OSH knowledge*

Apart from the main constructs in the framework model of climate-behaviour-outcome relationship, there are other determinants of the OSH outcomes which are linked to the relationship and worth to investigate. The determinants of OSH outcomes represent the proximal causes of variability in these outcomes. Previous community health research

suggested that knowledge can predicting community health behavior, for instance: environmental knowledge was found to be related to environmentally responsible behaviours (Hines et al., 1987; Oskamp et al., 1991) and Observed recycling could be predicted by knowledge of recycling programmes (Gamba & Oskamp, 1994).

Other health psychology research, for example: several studies of the theory of Planned Behaviour (Ajzen & Fishbein, 1980) included knowledge as one of the constructs in predicting health related behaviours and well being, one of them is Cheung et al. (1999)'s study which showed that knowledge significantly predicted health behaviours after controlling Theory of Planned Behaviour constructs (Cheung et al., 1999).

In organisational climate studies, climate as the perception of management commitment and values help to enhance desired behaviours through knowledge. Campbell et al. (1993)'s study presented that knowledge is one of the only determinants of individual performance. Meanwhile, climate and behaviour can be mediated by knowledge (Brown & Leigh, 1996). Organisational climate was also demonstrated to influence knowledge by increasing participation in activities such as training (Morrison et al., 1997).

Particularly for safety climate, safety knowledge is characterized by employees' understanding of safe operating procedures and safety instructions with adequate safety training (Hofmann et al., 1995). Research also suggested that safety knowledge is an important factor in predicting safety compliance (Hofmann et al., 1995; Neal et al., 2000). These findings indicate that is reasonable to suggest that OSH knowledge may be a determinant of teachers' OSH behaviours and further the OSH outcomes.

Further, in the framework model of climate-behaviour-outcome relationship, climate perceptions should be a part of an active process of organisational sense-making (Zohar, 2003) which represents the perceptions of management value and commitment on OSH. This sense-making process is reasonably associated with perceptions and attitudes toward OSH behaviour change. With reference to Theory of Planned Behaviour, knowledge together

with attitude change are strongly associated with workers' health related behaviours and other health outcomes (Ajzen & Fishbein, 1980). Therefore, in the current study of framework model of climate-behaviour-outcome relationship, OSH knowledge is noteworthy to be included in the framework model as a mediator of OSH climate and behaviours and further enhance OSH outcomes.

#### *2.4.4 Antecedent of OSH climate*

There has been a large body of specific climate research, however, the antecedent factors for promoting a favourable climate remains unclear (Mearns & Hope, 2005). This is important because of the implications for intervention strategies. Previous studies of safety climate antecedents have a common property, in which they believe that safety climate is based on the reciprocal relationship between the upper management and employees. Therefore, factors reflecting social relationships in the workplace have received more attention, for instance communication (Cheyne et al., 1998; Hofmann & Stetzer, 1998), and trust (Zacharatos et al., 2005; Barling et al., 2003; Watson et al., 2005).

Studies on safety performance, found that work groups could vary significantly in the degree to which safety performance is viewed as expected, rewarded, and valued (Hofmann & Stetzer, 1996; Zohar, 2000d). Hofmann & Morgeson (1999) found significant links between leader-member exchange (LMX) and perceived organisational support (POS) to safety related communications, perceptions of safety commitment and ultimately, safety outcomes. Hofmann et al. (2003) also examined the relationship between LMX and safety role definitions and safety climate. They found the LMX and safety role definitions were moderated by safety climate and that safety role definitions were positively related to safety citizenship behaviours. Furthermore, communication also related to safety climate in that it significantly influences the perception of workplace hazards (Cheyne et al., 1998) and accidents (Hofmann & Stetzer, 1998).

Trust in organisations was also studied with different safety outcomes, for example trust in management was related to the management commitment on safety practices (Zacharatos et al., 2005), and distrust of management has found to associated with workplace injuries (Barling et al., 2003). In Watson et al. (2005)'s study of social determinants on workplace safety, they also found that trust in supervisor predicted perceptions of a safe work environment in the steel industry.

These antecedent factors of safety climate and other organisational outcomes are related to the properties of "social capital". In short, a trustworthy reciprocal relationship with good communication within an organisation (properties of social capital) would facilitate a good climate perception. In addition, different from the other social constructs which have been studied in many health research (e.g. social support and communication), the concept of social capital emphasises the importance of social networks and mutual benefits. This concept of social interactions in organisations (i.e. social capital) resembles the core principle of the organisational exchange approach in the study of policy implementation, in which employees' interaction of exchange is structured by mutual interests (Bish, 1978; Tuite et al., 1972; White, 1974). Therefore, social capital is a unique, innovative and significant construct to be incorporated into the model of climate-behaviour-outcome relationship.

Furthermore, in the current context, HK was ranked 53 on collectivism scale among the 74 countries and regions in Hofstede's study of collectivism and individualism. In collectivist cultures people are born and integrated into strong, cohesive in-groups, which provide them protection throughout their lives in exchange for loyalty (Hofstede, 1991). The level of collectivism among HK people has been intensified by the Confucius moral education. The extension of hierarchy relationships in the schools, linked up the relationships between families, society and schools, thus inter-personal relationships in Chinese societies, such as HK is never a one to one business. With this strong emphasis on the "social" aspect in Chinese workplaces, social capital is believed to be critical for the model of climate-behaviour-outcome relationship, as well as the implementation of OSH legislation and policies in schools. Further discussion on social capital is presented in the following section.

## 2.5 Social capital

Social Capital is among the most recent in a series of theories in inter-personal capital that have developed over the past 40 years. Again due to the amount of publications on social capital, in order to understand social capital as an organisational construct, a systematic literature search has been conducted similar to the ones on 'safety and health climate'. The keyword used in the search was 'social capital', as different terms were used to describe what has now been joined under the umbrella term "social capital", a wide range of search terms was used, for example, "social cohesion" and "collective efficacy". Search term 'social support' was excluded due to a vast literature relevant to social capital at work. It is believed that social capital is differed from social support, as social capital has its characteristics of 'collective', 'cohesion' and 'aggregation'. The criteria for inclusion in analysis were that the article must contain (1) study social capital in workplace settings, and (2) published in English. Under these criteria, leaving a sample of 88 article and findings were used as a background for the conceptualisation of 'social capital' for the current research project.

Social capital is a multidimensional concept in which it has been defined in various ways depending on the broad spectrum of different perspectives used to address it (Requena, 2003). The term was defined as the capital provided by social relations and links derived from belonging to social networks , the formation of generalized trust in others, and /or those features of social relationships that facilitate co-ordination and co-operation for mutual benefit (Putnam, 1993; Kawachi, 1999). It is characterized by social groups rather than individuals, and it is seen as an asset of the individuals and therefore born of shared experience which fosters mutual trust and reciprocity (Shortt, 2004).

The definitions of social capital further demonstrate the idea of exploring its role as an antecedent of OSH climate, as mentioned previously. Meanwhile, one of the objectives of the current research is to investigate the implementation of the OSH policy in schools with an organisational perspective. All social capital theories shared the notion that they consider the social aspects of organisational life and insists that inter-personal associations provide

dividends to the people that invest in them, they also claimed that collectives fostering these inter-personal associations also derive benefits from them (Watson et al., 2005). This is similar to the idea of implementing OSH policy in organisations that different levels of stakeholders put collective effort to obtain a safety and healthy work environment for workers.

On the other hand, the nature of benefits derived from social capital varies among the theories as does the normative determination about what constitutes an adequate organisational return for an individual's contributions (Portes, 1998). However, many research recognised social capital as a useful concept in explaining and understanding the international and inter-organisational variation in productivity and the quality of working life (Liukkonen et al., 2004). There is general acceptance that social capital is an important determinant of health and well being (Yip et al., 2007). Research has also proved that that social capital is positively associated with employees' health and well being in work organisations (Requena, 2003; Liukkonen et al., 2004; Kouvonen et al., 2006). Social capital, therefore, shares the same property with OSH climate; both constructs are potentially associate with health and well being in workplace.

It is worth discussing that social capital is multifaceted and its relationship with health (and recently well being) is complex (Ziersch et al., 2005), however, the health effects of social capital has been extensively studied, in that Macinko & Starfield (2001) counted 10 empirical studies and 24 comments and theoretical texts on social capital and health. In general low social capital has been associated with a range of health outcomes such as higher mortality (Kawachi et al., 1997; Skrabski et al., 2003; Kawachi et al., 1997a; Veenstra, 2002), poor self rated health (Kawachi et al., 1999), and poorer mental health (De Silva et al., 2007; De Silva et al., 2006). In particular, meeting socially with workmates and attendance at religious services is associated with better self-rated health (Veenstra, 2000). In terms of different types of social capital, bonding social capital has been associated with better self rated health (Poortinga, 2006). Health effects have been shown from community bonding and bridging social capital (Kim et al., 2006). Whereas, linking social capital was associated with a higher risk of poor health (Sundquist & Yang, 2007). Even the relationship between social capital

and well being is multi-faceted, it seems that previous studies have demonstrated the well-built association and support the relevance of social capital in the current research.

There are studies arguing that social capital consists of two components: structural and cognitive dimensions. The structural dimension encompasses behavioural manifestations of social capital, which refers to the extent and intensity of associational links or activity, and includes social interaction in networks giving access to resources. The cognitive dimension thus encompasses attitudinal manifestations; includes values, norms, perceptions of support, sharing, trust and reciprocity (Harpham et al., 2002; Subramanian et al., 2003) which can be seen as a resource held between individuals interacting within the social networks. However, others have argued the distinction between cognitive and structural dimension do not necessarily represent structural and individual qualities respectively (Coleman, 1990; Kouvonen et al., 2006). As it can be argued that the individual might participate in associations and norms of reciprocity and trust, for example, can be a characteristic of social structures. The networks, for example, attached to individuals might be resources for the achievement of certain outcomes, and the norms of reciprocity, trust and support, may be embedded in social structure and thus serve as resources for groups.

Recently, there are some studies focused on another three types of social capital, they are bonding, bridging and linking social capital (Szreter & Woolcock, 2004). Bonding social capital is defined as the relations between individuals of similar social identity and facilitates cooperation within a group. Bridging social capital refers to connections between people from different races, classes or ages. Meanwhile, linking social capital means the connections between individuals of different power or status in hierarchies (Kawachi et al., 2004). Different from structural and cognitive dimensions of social capital, these three types of social capital are constructs to specify how social capital inheres in relationships between individuals in similar social context and in different levels of society (Harpham et al., 2002), and basically they do not intersect with each other but refer to different ties that cut across different individuals and communities (Kouvonen et al., 2006). Further, with relevance to the current research, (Kouvonen et al., 2006) suggested that three types of social capital could be found

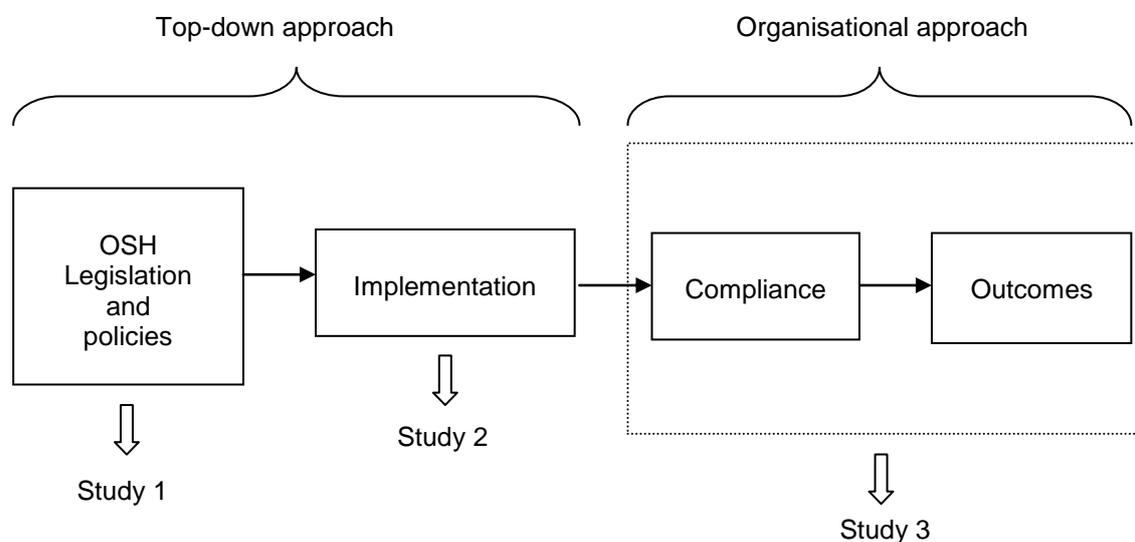
in the workplace: Bonding social capital refer to workers with similar socio demographic characteristics; Bridging social capital refers to people from different races, classes or ages cut across barriers in workplaces with much diversity; and linking social capital can inhere in the vertical networks between employers and employees with different degrees of institutional power.

There is a strong emphasis on the “social” aspect in Chinese workplaces; support, trust and communication are considered to be critical for a good and effective working relationship. However, most of the social capital studies have been carried out in western countries. For example: in a study of middle aged adults in Germany and the United States, results showed that relationships between individual level reports of reciprocity, trust and participation and self-reported health, depression, and functional status (Pollack & von dem, 2004). European Social Survey of 22 European countries found that while social trust and civic participation are positively associated with self related health (Poortinga, 2006). In Russia, a study demonstrated that social capital correlated positively with good self-reported physical and emotional health (Rose, 2000). In Hungary, membership in both political and non political organisations has been positively associated with self-reported health (Skrabski et al., 2004). In a Finnish study, carried out in one of the country's bilingual regions, higher mortality was observed among Finnish-speakers attributed to their lower level of social capital in comparison with the Swedish-speakers (Hyypä & Maki, 2001). From the literature reviewed, there is only one study of the Chinese on the relationships between social capital and health by (Yip et al., 2007). They found that cognitive social capital of Chinese population in rural China is positively associated with self report general health, psychological health and subjective well being. From our knowledge, social capital at work has not been studied in schools and with limited research in China on social capital, it will be significant to investigate social capital with Chinese in relation to OSH issues.

## 2.6 The current research

The general objective of this research stems from the previously discussed issues related to the study of the implementation of OSH policy level interventions in HK schools. The basic rationale behind this research project can be represented as a model shown in Figure 2.1 below.

**Figure 1: Rationale of this research project**



Mazmanian and Sabatier (1989) suggested in his definition of policy implementation that implementation normally runs through a number of stages beginning with passage of the basic statute, the policy decisions of the implementing agencies, followed by the compliance of target groups with those decisions. The current research summarized the implementation process into different key elements, namely as the basic statute (OSH legislation and policies), implementation, compliance and outcomes of the OSH legislation and policies in HK schools. In order to better understand the outcomes of OSH policy initiatives and the relevant teachers' OSH issues, this research project investigates these key elements systematically from the top-down and organisational perspectives.

Previous literature has recognised the importance of policy level interventions, and the development of OSH legislation and policy is one of the most significant achievements in HK

among different forms of policy initiatives. It is generally understood that OSH legislation and policy are adopted to maintain and protect workers' OSH. In order to investigate the factors which help to meet the objectives of the OSH legislation and policies, the current research begins with a review of the background and issues relating to the implementation of the OSH legislation and policy (Study 1), so as to conceptualize the key elements of the study (e.g. OSH climate and the framework model). The context and reality of the implementation of OSH legislation and policy in HK schools is explored through qualitative research (Study 2). OSH is a multi-disciplinary subject which touches many issues. The study of organisational factors which potentially affect the compliance and outcomes of OSH legislation and policy implementation will be significant both to the literature and OSH practice. The subsequent quantitative research (Study 3) will be conducted to examine the compliance and outcomes of the OSH legislation and policies in the school level. In precise study three aims to examine the framework model of climate-behaviour-outcome relationship with its potential antecedent (i.e. social capital) and outcomes (i.e. teachers' self-reported injuries and health problems).

The focus on HK teachers in this research is significant due to the important role of teachers in HK; they are responsible for teaching the future generation of HK. With the 'Hong Kong people rule Hong Kong' policy adopted after the handover to China in 1997, the education system in HK, therefore, came across various reform and innovations due to the increase of its importance and concerns. Similar to the other policy level interventions, OSH legislation and policies for teachers, however, are under-studied and evaluated. The reasons for this are stakeholders' lack of knowledge and awareness of OSH legislation and policy, the greater focus on the individual consequences of psychosocial work hazards in schools, and the over-emphasis of individual level of interventions. For example, the Committee on Teachers' Work was formed in 2006 by the government to look into teachers' work and relevant issues. With reference to their recommendations to improve teachers' workload and stress problems, none of them are related to OSH policy level interventions (Education Bureau, 2006). It is hoped that the present research will shed some light on OSH issues in HK schools and highlight concerns and priorities of OSH policy implementation.

As no previous studies have addressed the topic in the same manner, the first two studies of the research are exploratory in nature in order to look into the background and process of policy implementation. Together with the literature review and the results of the first two exploratory studies, the subsequent quantitative study will be conducted.

This research project aims to:

- Review the existing OSH legislation and policy in HK that governs schools and teaching profession and analyze the implementation to assess the emphasis on OSH issues.
- Interview key stakeholders in HK to understand their levels of knowledge and awareness of OSH issues for teachers; their role of existing legislation and policy; and their views on the current legislation and policy implementation.
- Investigate the implementation of OSH legislation and policy from an organisational perspective by adopting the framework model of climate-behaviour-outcome relationship, and assess the model constructs.

## **2.7 Structure of the thesis**

Chapter One provides an introduction into the importance of OSH, how it is relevant to the current situation of HK teachers (i.e. teachers' OSH problems), and what is needed to be focused in order to address the problems appropriately. It also presents a brief profile of HK. A brief account of the HK educational system, different levels and types of schools are presented. An overview of teachers' research in HK is also included.

Chapter Two is the conceptualization of the key elements of the current research project, it provides a review of the terminology and concepts adopted in the thesis. The chapter begins with the discussions on the importance of OSH and policy implementation, followed by reviews of schools as organisations; the concept of organisational culture and climate; and the conceptualization of OSH climate in schools. The framework model of climate-behaviour-outcome relationship is also discussed together with the model constructs, such as OSH

behaviours, knowledge, outcomes and social capital. The significance of the research is presented with the aims of the research.

The research methodology adopted for this study is presented in Chapter Three. This includes an overview of the techniques used and addresses specific issues relating to the studies. The background and descriptions of mixed methods of qualitative and quantitative approaches are discussed. Information with respect to the instruments, analytical and statistical procedures employed are also provided.

The analyses and results of the studies are concentrated within Chapter Four to Seven. Chapter Four focuses on the first aim. It presents a narrative systematic review of the OSH legislation and policies in HK schools. It helps exploring the issues of concern in the OSH legislations and policies which have been enacted to protect teachers' OSH, to establish an understanding of the development and the content of OSH policy in HK schools, and provide theoretical background for the subsequent studies.

Chapter Five presents the results and discussion of the qualitative study of the implementation of OSH policy in HK schools. It integrates together with the results of the policy review, provides a baseline understanding of the implementation of OSH policy in schools. It also highlights issues of concern in different level of implementations, so as to inform the design of subsequent studies to be performed.

Chapter Six presents the results and discussion of the quantitative study. The focus of the chapter is to investigate the implementation of OSH legislation and policies with an organisational perspective. It tests the differences between teachers' organisational perceptions (OSH perceptions and social capital) according to school organisations (types and levels). It also examines the framework model of climate-behaviour-outcome relationships within the school organisation as a whole. It discusses the relationships between the antecedent, determinants and outcomes of teachers' OSH in different models.

Chapter Seven concludes the study with an overview of the study, a discussion of the major significant issues in relation the practice of OSH legislation and policy implementation, followed by strengths and weaknesses of the research project and recommendations for future research.

## Chapter 3: Research methodology

### 3.1 Introduction

This chapter provides an overview of the methodological approaches used in this research and addresses specific issues relating to the studies. Mixed methods of qualitative and quantitative approaches are used in three studies to investigate the effectiveness of the implementation of OSH policy in HK schools.

Studies regarding OSH policy in HK schools are rare, most of the previous studies focused on measuring teachers' work-related OSH problems, especially work-related stress (see Introduction chapter). There are very few studies which studied the implementation of policy level interventions in solving teachers' OSH problems. In particular, there is no empirical study investigating the relationships between different organisational and psychosocial factors and the implementation of OSH legislation and policies in schools. Therefore, it is worth using different methods to explore the factors influencing the effectiveness of the OSH policy implementation in schools. The key objective of this research (as mentioned in Chapter One - Introduction) is to study the implementation of OSH policy level interventions for HK teachers. In order to better understand the outcomes of OSH policy initiatives and the relevant teachers' OSH issues, this study focuses on the macro level of OSH interventions in schools by examining the OSH policy implementation from the top-down and organisational perspectives. Study one and two apply the top-down approach to study the policy implementation: study one reviews the OSH legislation and policies in HK schools; and study two investigates the effectiveness of different levels of implementation of OSH policy in schools. Study three applies the organisational perspective: it aims to investigate the implementation by using the framework model of climate-behaviour-outcome relationship to examine the relationships of the model constructs.

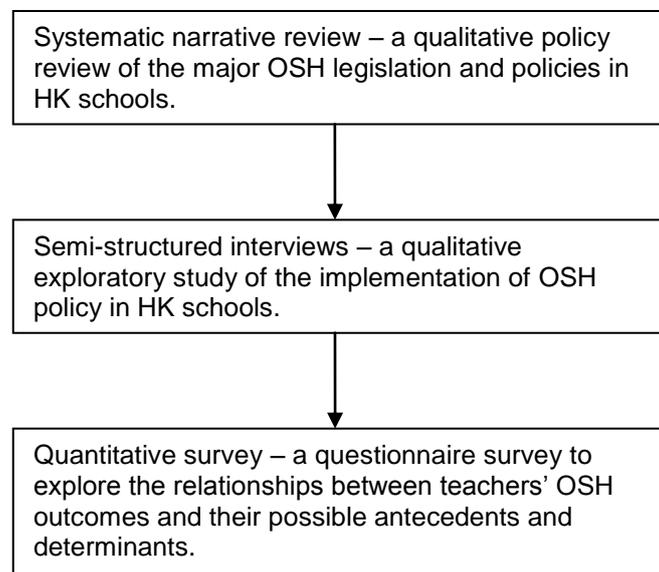
The practice of research is a 'messy and untidy business' that rarely conforms to models,

therefore employment of a combination of research methods in a single piece of research may facilitate a more appropriate exploration of research problem (Brannen, 1992). Given the exploratory and multidisciplinary nature of this research, the combination of qualitative and quantitative methods is chosen.

### 3.2 Methodological framework: overview

Study one: a policy review is first conducted to explore the background of the issues of concern, which subsequently gives direction to study two. Study two involves qualitatively exploring the specific organisational and OSH related factors relevant to teachers in HK. This facilitates the design of the quantitative questionnaires in study three. Figure 3.1 gives a description of the pathways of the three studies.

**Figure 2: Methodological framework and studies interaction**



#### 3.2.1 Triangulation in this research project

In the light of the multidisciplinary nature of this research, a strong design using triangulation is required. Therefore, a mixed method of qualitative and quantitative methods is chosen for

the current research project. This would help by contributing to our understanding of exploratory of the important factors relating to OSH among HK teachers. Triangulation is defined as the intent in research to use two or more research methods to strengthen the design and therefore increase the ability to interpret the findings (Thurmond, 2001; Campbell & Fiske, 1959; Denzin, 1970; Polit & Hungler, 1995). It does not aim simply at validation of results but at deepening and widening one's understanding of these results (Massy, 1999). It aims to decrease, contradict, or compensate the deficit of using single strategy, so as to increase the ability to interpret and understand the findings (Thurmond, 2001).

There are mainly five types of triangulations namely; data sources triangulation, investigator triangulation, methodologic triangulation, theoretical triangulation and data-analysis triangulation (Thurmond, 2001). Methods of data sources triangulation can vary from collecting data at different time points, to collecting it in different places, settings or from different people (Denzin, 1970; Mitchell, 1986). A longitudinal study, however, would not be considered as a method of triangulation (Thurmond, 2001). Investigator triangulation involves using more than one observer, interviewer, coder or data analyst in the same study (Thurmond, 2001). Methodologic triangulation involves using a mixed-method or multi-method approach, it can refer to either data collection methods or research designs (Lincoln & Guba, 1985). Theoretical triangulation is the use of multiple theories or hypotheses when examining a phenomenon (Denzin, 1970; Thurmond, 2001). Finally data analysis triangulation is the combination of two or more methods of analyzing data (Thurmond, 2001). When more than one type of triangulation is used, it is referred to as multiple triangulation (Denzin, 1970; Polit & Hungler, 1995; Woods & Catanzaro, 1988; Thurmond, 2001).

In the current research project, multiple triangulation methods are chosen to study HK teachers' OSH. It involves using multiple data sources and methods to collect information on HK teachers' OSH. In study one a qualitative approach is used to review OSH policies; in study two, the stakeholders' perceptions of OSH issues is explored by using qualitative interviews; in study three, a quantitative survey is used to examine the relationships between the antecedents and determinants of teachers' OSH outcomes. Different data sources are

also used to collect data, examples are: study one, policy and relevant documents are used to explore the details of the OSH policies; in study two, the perceptions of OSH and relevant issues are assessed from different perspectives of three groups of key stakeholders; in study three, the perceptions of teachers on different organisational and OSH issues are examined by questionnaires. The advantages of using multiple triangulation methods are to strengthen the comprehensiveness, reliability and validity of the study (Mitchell, 1986) as well as widen our understandings of the knowledge on HK teachers' OSH.

Qualitative and quantitative research are different in many ways, therefore they contribute differently to this study. Qualitative approaches often lead to in-depth understanding of the meaning and context of behaviours and the processes that take place within observed patterns of interrelated factors. Participants' personal experience and different perceptions which they might have of the same situation can be revealed from qualitative studies (Mertens, 1998). On the other hand, quantitative approaches can assess the incidence, epidemiology and boundaries of problems of the situation under scrutiny. They can also provide authoritative survey data and relate diverse factors (Bullock et al., 1992).

Traditionally some researchers argued that qualitative and quantitative research belonged to distinctively different paradigms (Layder, 1988) and they should not be triangulated because they are based on totally contrary paradigms (Bryman, 1992; Hilton, 2005; Hilton, 2005). However, there are potential advantages of multi-method research when it meets the nature and aims of the research, and appropriate data analysis is used. Mitchell (1986) suggests that in multi-method research, different types of data should be analysed separately and relevantly to the type of data examined. Researchers nowadays have to be flexible and therefore have to select a range of methods that are appropriate to the research problem under investigation (Burgess, 1984). The current research involves the study of different levels of enquiry and the exploration of different aspects of the same problem, the combination of different methods adds breadth and depth to the analysis (Fielding & Fielding, 1986). There should be more than one gate to the kingdom of knowledge and that each gate offers a different perspective, but no one single perspective can reach the realm of reality (Burns, 2000).

### *3.2.2 Qualitative approach*

The qualitative approach is used in this research in two ways as mentioned in the methodological framework (see Figure 2). The number of studies exploring the OSH legislation and policies frameworks in HK remains limited, especially from a social sciences perspective. As the first stage of this research focuses on the review of OSH legislation and policies, the basic overview and understanding of the policies were necessary before any further investigation could be designed. Two paths are chosen for the achievement of this aim: 1) a qualitative analysis of the law documents, government and trade unions' publications and websites; and any other available literature on a national level; and 2) a series of interviews are undertaken with three key stakeholder groups in HK schools (policy makers, implementers and teachers' representatives).

The qualitative design is conducted to study specific issues or situations in depth in order to produce a wealth of detailed information (Patton, 1990). In particular, when investigating the implementation of OSH policy, it is very important to have a qualitative paradigm to show the true picture of different levels of implementation of OSH policies from the perceptions of different key stakeholders, to show how these legislation and policies protect teachers' OSH and address the needs of different interest parties.

Implementation of OSH legislation and policies in schools involves different levels of implementers. Their knowledge, perspectives and concerns relating to OSH policy and relevant issues are an important part of effective implementations. Therefore, the qualitative mode of inquiry meets the purpose of this study, it is characterised by methodological eclecticism, a hypothesis-free orientation and an implicit acceptance of the subject (Burns, 2000). The qualitative approach to research holds that reality cannot be subsumed within numerical classification. It places emphasis on the validity of multiple meaning structures and holistic analysis, as opposed to the criteria of reliability and statistical categorisation which are important in quantitative research (Burns, 2000).

Spicker (1995) also argues that for the most part data sources in social policy evaluation is generally people. It is people, who establish the policies, administer the agencies, receive the services, and have the problems and needs. The most common forms of empirical research thus are concerned with human activities such as people's beliefs and opinions. The importance of 'people' tends to push social policy research towards methods which are concerned with obtaining information such as interviewing. Nevertheless, qualitative approaches have been widely used in many applied policy research, for example: Ertel et al. (2008) reviewed the social policies, legislation frameworks and integrative infrastructures in relation to psychosocial risk management by focus group interviews. One reason for not using a quantitative approach in the first two studies is that while research has had some limited effect in showing cause-effect relationships between variables and outcomes, these methods cannot explore the significant factors which affect the implementation process of OSH policy in schools.

### *3.2.3 Quantitative approach*

The quantitative approach implies the application of a measurement or numerical approach to the nature of the issue under investigation as well as to the gathering and analysis of data. Quantitative research is usually concerned with hypothesis testing and theory generation. The final study of this piece of research examines several parameters with the concept of OSH climate as the focus is to investigate the implementation of the OSH legislation and policies in HK from an organisational perspective. A survey is conducted with HK teachers in order to achieve the aims of the study. Field research in occupational settings requires measures which not only meet the psychometric requirements of internal consistency, reliability, and validity but are also relatively short, readily understood, quick to administer, perceived to be relevant by the individuals concerned, and free from response bias effects.

In the design of questionnaires, the researcher should choose the survey method as a balance between different factors and where some degree of compromise is necessary (Jackson & Furnham, 2000). For instance, the total time of the questionnaire represents a

trade-off between using more measures, which increases the amount of information obtained; and using more items in each, measures which increases reliability. Also, the complexity of the measure and the time taken for administration are also concerns especially when the number of items and formats of the Likert-response influence the internal consistency of the questionnaires. Different methods of administering the questionnaire survey may also affect the response rate as well as the information obtained, for example: there are differences between traditional paper-pen administration and internet administration of questionnaire survey. Therefore, when research is carried out in field settings, it is necessary to balance psychometric and practical considerations.

The balance of different considerations is widely relevant to this study. The used of standard questionnaires with long questions and numerous items maybe more acceptable in clinical practice but it might be intrusive or unacceptable to employees with tight schedules, like teachers. The length of the questionnaires will also affect participants' attitude and behaviour and pushes more of them over a threshold beyond that they will no longer cooperate (Bogen, 1996). In order to obtain reliable information, care needs to be taken to ensure that test materials are seen to be relevant and appropriate by respondents, and that policies relating to the confidentiality of individual data are clearly communicated to all concerned. In study three, one major concern was that teachers might be reluctant to fill in questionnaires on stress and occupational health related research, because most of them have been participating in different survey studies since the education reform (see Chapter One - Introduction). To counter this problem and to obtain as wide a sample as possible, a short version of standard questionnaires with good internal reliability were used.

In addition, teachers are invited to complete in either the online-version or the paper-version of the questionnaires. The administration of questionnaires via the Internet compared to pen-and-paper administration has been debated among researchers for awhile. There are studies showing that Internet administration of questionnaires have lower completion rates but less missing data compared to paper-pen administration of questionnaires (Kongsved et al., 2007). In contrast, some studies show that Internet administration provides similar participant

responses as pen-and-paper administration. They appear to generate similar results in measuring quality-of-life measures in adolescents (Raat et al., 2007), health-related questionnaires completed by Internet volunteers (Ritter P et al., 2004), and trauma survey in healthy college volunteers (Fortson et al., 2006). With concerns relating to long working hours and busy work schedules of HK teachers, the availability of both online and paper questionnaires encouraged them to participate in the study and allowed them to have more time and careful consideration to their answers. The major results of the online and paper questionnaires will be compared by t-tests to check whether the two types of questionnaires are comparable in terms of the results.

A potential disadvantage of self-administered questionnaires is that they could be filled in carelessly and if they are returned anonymously, the researcher is unable to refer back to the respondent, and guarantee the quality of the answer. According to Oppenheim (1966), if a person has little interest in the subject, he/she is unlikely to complete the questionnaire, or may produce a poor response. This could be overcome by the distribution of more questionnaires but this involves the possibility of bias and unrepresentativeness of the sample compared to the whole population. However, in this study, the respondents' anonymity is ensured and it was clearly emphasised that the participation was completely voluntary.

Also, there might be potential disadvantages in using self-reported data, for example: teachers might report higher level of psychological distress due to their discontent with the education policy. However, the validity of using self administered questionnaires is supported by Spector et al. (1988)'s study on stress-inducing job conditions. They compared the self reports from job incumbents with data from the supervisors, and who found convergent and discriminate validities for several stressors. The literature on self reports and physiological measures in workplaces is reviewed by (Pennebaker & Watson, 1988). They mentioned that self ratings represented an important source of information from which we can assume that there will be some behavioural implications. Meanwhile, from HKPTU (2005)'s study on teachers' sickness absenteeism, the results found that some teachers on sick leave did not apply for medical sick leave because of the heavy workload and pressure from upper

management. Therefore, in the case of teachers, self-reported data may be a better representative than the official record. With the results of the previous stage of qualitative study and the literature review, there were some emerging factors, which are potentially related to each other and influence teachers' OSH outcomes as a model. A representative number of responses from the population of HK teachers are needed to test the relationships of these variables, as well as to increase the generalisability of the study. Therefore, it seems that the most feasible and appropriate method for this part of the research is self report questionnaire. The choice of methodology is thus driven by practical, as well as theoretical, considerations.

### **3.4 Ethical consideration**

The OSH of HK teachers and their perceptions of relevant issues are sensitive topics. It is recognised that this research project involves human participants and access to sensitive and personal information. Therefore, the research is carried out without identifying participants. Consent forms are signed by each participant before each study was conducted. At all times, the right of confidentiality of the research participants was respected and the participants had the right to withdraw their consent for the use of information gained from the studies. At no time were the names of the participants used. Their participation is voluntary and their consent is obtained. In retrospect one further safeguard is considered not to identify the schools involved in the project. This is standard procedure followed by researchers at the University of Nottingham. This research is also approved by the Institute of Work, Health and Organisations Ethics' Committee.

### **3.5 Summary**

This chapter presented the methodology approaches of the current research project, it expanded upon the practical and theoretical bases for the use of both qualitative and

quantitative approaches in this research. Multiple triangulation is chosen as the most appropriate methodology to achieve the objectives of the research. The details of the methods of each study will be presented in the corresponding study chapters. Ethical issues are also considered and discussed. The research methods which included illustrations of data collection procedures and analytical methods are presented and discussed under the topics of the three empirical studies. The following chapter will present study one the qualitative policy review of OSH legislation and policies in HK schools.

## Chapter 4: Study one - HK OSH legislation and policy review

### 4.1 Introduction

In Hong Kong (HK), evidence has shown that teachers are suffering from serious work-related health and safety problems, however, previous research has over-emphasised the individual and organisational consequences of psychosocial work hazards in schools, individual level interventions, and general analysis of the education policy (see Chapter One - Introduction). As discussed, it is evident that in order to address the root of the problems identified, there is a need for a broader framework to evaluate different levels of occupational safety and health (OSH) intervention initiatives (Cox et al., 2007). However, there is a notable absence of studies of legislative or public policy initiatives in relation to OSH (Sauter, 2004).

According to Birland (2005), the top-down perspective on policy implementation is to study policy implementation in which one first understands the goals and motivations of the highest level initiators of policy, and then tracks the policy through its implementation at the lowest level. It is based on a set of assumptions that include that the policy contains a single statute or other authoritative statement of policy. In the case of HK, there is structured OSH legislation governing teachers' OSH which is relatively single dominant with goals and measurable outcomes; as such it is sensible to adopt the top-down approach to study the OSH policy implementation in HK. The first step of a top-down approach study is to review the current available legislation and policies in HK. The current chapter presents a systematic review of OSH legislation and policy that govern HK schools. It helps to explore issues of concern in OSH legislation and policies which have been enacted to protect teachers' OSH; to establish an understanding of the development and the content of OSH policy in HK schools; and to provide a theoretical background for subsequent studies.

First of all, it is necessary to begin the review with the definitions of "legislation" and "policy".

A policy is typically described as a deliberate plan of action to guide decisions and achieve

rational outcomes, but the term may also be used to denote what is actually done (Hornby, 2000). Policy, in a broad sense, can apply to different bodies, like the government, private sectors, groups and individuals. There are different types of policy; public policy, for example, is defined as a policy which is made in the public's name, generally made or initiated by government, interpreted and implemented by public and private actors, and it is what the government intends to do or chooses not to do (Birkland, 2005).

OSH policy, which is the focus of the current research, is a type of social policy, a sub-category of public policy. Social policy is the study of social services and the welfare state. The central concern of social policy is the study of social, economic or political relationships, problems, or institutions, though it overlaps with different disciplines. It is also a concern of issues that are social, in general it implies that there is some kind of collective social response made to perceived problems. It is also a study about welfare, which means 'well being' in a wide sense (Spicker, 1995). The main shortcoming of social policy is that the field extends across a wide spectrum, because there are many kinds of issues affecting people's social relationships and welfare. It is also common to seek understandings of social responses by putting materials into some kind of context, like historical, social, economic and psychological (Spicker, 1995). Hence, type-specific social policy studies are more likely to achieve validity. In the current study, the focus is OSH policy in HK.

Legislation, on the other hand, refers to laws enacted by a legislature or other governing body. Policy differs from law or legislation, because legislation can compel or prohibit behaviours; it must be met in order to be legally complied. Policy merely guides actions toward those that are likely to achieve a desired outcome(s); it is usually put in place to meet the requirements of legislation. It underpins the operation of legal systems in different countries (Smith, 2002).

According to the differences between legislation and policy, this review of OSH legislation and policy in HK schools is divided into two major sections. The first section presents OSH legislation that governs OSH in HK schools. It starts with an introduction of current OSH legislation in schools, then a background of the major legislation is presented, follow by a

review of the major legislation content with the modified World Health Organisation (WHO) checklist on Mental Health Legislation (WHO, 2005). The second section presents different forms of OSH policy in HK schools and the different government bodies implementing them. More specifically, the section presents government bodies, their work and relevant policies on the enforcement of legislation, such as OSH education and publicity, occupational health services and OSH guidance for schools. The review starts off with an overall methods section.

## **4.2 Methods**

In the history of literature review, particularly in medicine and public policy, there has been a pressure to strengthen the link between evidence, and policy and practice developments (Mays et al., 2005). Systematic reviews have been a popular 'scientific' way to answer questions, like "what was effective?". These systematic reviews were predominantly targeted at the needs of clinicians and aimed to review quantitative studies with experimental or quasi-experimental designs (Egger, et al., 2001; Cooper & Hedges, 1994; Oliver & Peersman, 2001). However, the focus of the current review is health and safety legislation and policies. With the need to understand the complex and often messy decision making that policy makers and organisation managers, there is now widespread recognition that a review of evidence to address a wider range of questions at different points in decision making process, for instance: how and why has this policy come about; how significant is it compare with other problems on policy or management agenda; what is likely to work to address the problems, how are these policies or management options likely to address problems in the current context, etc. In order to answer these questions, it is clear that policy makers and managers will often need to draw on diverse sources of evidence. These evidences should not only include quantitative and qualitative research but also other evidence such as expert opinion and explicit value judgements (Mays et al., 2005). Methods for incorporating wide range of evidence in systematic review are relatively under-developed and present a major methodological and practical developmental challenge (Dixon-Woods et al., 2001a; Dixon-Woods et al., 2001b; Harden et al., 2004).

In the current study, the question that needs to answer is: What are the OSH legislation and policies that govern HK schools? According to Mays et al. (2005)'s guidelines on 'choosing a suitable approach to synthesis given the aim and questions of the review'. Narrative synthesis which includes all types of evidence, such as research and non-research (e.g. public and stakeholder views), qualitative and quantitative resources is suitable. Hence, a wide range of official documents, research papers, publications and meeting minutes are used in the review to describe OSH legislation and policy in schools.

In order to find out the OSH legislation and policy in HK schools, the content of the legislation is particularly crucial for the subsequent studies in this research. The content of major OSH legislation is then reviewed using the modified WHO Checklist on Mental Health Legislation. The WHO checklist on Mental Health Legislation (World Health Organization, 2005) has been developed by WHO for legislation review. It is derived from the WHO Resource Book on Mental Health Legislation, which has been prepared by the Mental Health Policy and Service Development Team, Department of Mental Health and Substance Abuse. The checklist aims to: a) assist countries in reviewing the comprehensiveness and adequacy of existing mental health legislation; and b) help them in the process of drafting new laws. In short, the checklist aims to help countries assess whether key components are included in legislation and ensure that the broad recommendations are carefully examined and considered. WHO checklist is particularly useful for reviewing the content of legislation, it offers systematic synthesis for key components in OSH legislation. Other review methods, such as thematic review was not designed to review legislation content, thus less preferable in the current context of research. For each component included in the checklist, three questions need to be addressed: a) Has the issue been adequately covered in the legislation? b) Has it been covered, but not fully and comprehensively? c) Has it not been covered at all? If the response is either (b) or (c), it must decide on the feasibility and local relevance of including the issue, leading to the drafting of local appropriate legislation. It is noted in the resource book that the checklist allows flexibility and encourages internal debate; it also permits countries to make decisions based on their own unique situation. Hence, such flexibility is employed in the decision making of answering the three questions in the checklist. In the current review, decisions are made based on the

content of the legislation, information from the searches and the local experience of the researcher (with more than 20 years living in HK).

This checklist is originally designed for reviewing mental health legislation, however, mental health legislation and OSH legislation share common properties of social policy. They are both concerned with social and welfare issues (Spicker, 1995), hence the checklist is modified in order to fit into the context of the current review. Inappropriate wordings in the checklist are modified with reference to the literature review and information collected from the searches in this study. It is modified according to the applicability of the context of OSH in HK, for instance: Section C of the original checklist was “Access to mental health care”. Since “mental health care” is not directly related to OSH, this was modified to “Access to OSH services”. Also, irrelevant sections of the checklist were omitted, for instance, Section J: “involuntary treatment” and Section N: “Determination of mental disorder” are irrelevant to the context of OSH. The modified checklist is shorter than the original checklist for mental health legislation, with only six sections: 1) preamble; 2) objectives; 3) definitions; 4) access to OSH services; 5) rights of the employers and employees; and 6) responsibilities of different bodies. Table 3 presents the modified checklist with examples of the reviewed legislation.

**Table 3: Modified WHO checklist with examples of the reviewed legislation**

<b>Legislative issue</b>	<b>Examples of the relevant parts of the current legislation</b>	<b>Extent to which covered in legislation: (a) adequate; (b) some extent; or (c) not cover at all) and why</b>	<b>If its not adequately covered, explain how/whether it is to be included in new legislation</b>
1. Preamble	“An Ordinance to ensure the safety and health of persons when they are at work, to provide for related matters, and to consequentially amend the FIUO and the Administrative Appeals Board Ordinance”	(b) Some extent:  - Only covered part of the employees’ right.	- Should cover the importance of the accessible OSH policy and services.
2. Objectives	The purposes of this Ordinance are as follows- (a) to ensure the safety and health of employees when they are at work; (b) to prescribe measures that will contribute to making the	(a) Adequate:  - Clear objectives, covered both reactive and proactive approaches.	

	workplaces of employees safer and healthier for them; (c) to improve the safety and health standards applicable to certain hazardous processes, plant and substances used or kept in workplaces; (d) generally to improve the safety and health aspects of working environments of employees.		
3. Definitions	Examples from the legislation: - “work” (工作) means work as an employee; - “employee” (僱員) means a natural person who works under a contract of employment or apprenticeship, but does not include a domestic servant; and - “employer” (僱主) means a person who employs natural persons under contracts of employment or apprenticeship.	(b) Some extent:  - Clear definitions of some key terms, e.g. work, employer and employee.  - Clear definitions of technical terms: e.g. workplace, public and place.  - Lack of definitions of key terms like “health” and “safety”.	- Clear definitions of some key terms are needed.  - E.g. “health”, “safety”, etc.
4. Access to OSH services	Examples from the legislation: - OSHO PART VIII Workplace Codes and Subsidiary Legislation: (1) The commissioner may issue codes of practice for the purpose of providing practical guidance to employers and employees, and to occupiers of workplaces who are not employers. (2) A workplace code of practice- a) may consist of a code, standard, rule, specification or provision relating to occupational safety or health approved by the Commissioner; and; b) may apply, incorporate or refer to any document that has been formulated or published by a body or authority either as in force at the time when the document is approved by the Commissioner or as amended, formulated or published from time to time.	(b) Some extent:  - Information on the law enforcement.  - The establishment of OSHC in providing OSH services.  - Stated the allocation of resources to the services.  - Stated OSH promotion among the community.	- More details of OSH services should be included.  - E.g. guidance of services, the extent of services, etc.
5. Rights of Employers and Employees	Examples from the legislation: - OSHO PART VI Miscellaneous Offences: (1) A public officer commits an offence if, without lawful authority, the officer discloses	(a) Adequate:  - Employers and employees’ rights and confidentiality are stated.	

	to a person the name of, or any information that could identify, a person who has made a complaint- a) alleging a contravention of this Ordinance or the Factories and Industrial Undertakings Ordinance (Cap 59); or; b) as a result of which the officer or any other public officer has become aware of such contravention.		
6. Responsibilities of Different Bodies	Examples from the legislation: - OSHO Regulation PART VII Manual Handling Operations 23. Responsible person to make preliminary assessment of risks (1) Before manual handling operations are first undertaken at a workplace after the commencement of this Part, the person responsible for the workplace must ensure that a preliminary assessment is made of the risks to the safety and health of employees employed at the workplace who undertake those manual handling operations.	(b) Some extent:  - General responsibilities of employer and Commissioner for Labour are stated.  - E.g. stated employers' legal duties	- Practical issues of the law enforcement should be stated.  - E.g. Inspectors' inspection frequency, details of employers' responsibility to carry out workstation risk assessments, etc.

In the second part of the systematic review, narrative approach of narrative synthesis was used to review the OSH policies. OSH policies are put in place in order to meet the requirements of the legislation are mostly related to the establishment and work of different government bodies. The traditional narrative review involves systematically extracting, checking, and narratively summarizing information (Petticrew & Roberts, 2006). Narrative synthesis refers to a process in which a narrative approach is used to synthesize evidence extracted from multiple studies. It differs from a narrative review in moving beyond a summary of study findings to attempt a synthesis which can generate new insights or knowledge and be more systematic and transparent (Mays et al., 2001).

In the current review, since the review question: "What are the OSH legislation and policy that govern HK schools?" dictate the inclusion of a wide range of different research designs, producing non-research evidence, for example, role and responsibilities of different government bodies, guidance pamphlets and resource books published by the Government,

etc. Hence, the review generates findings of different government bodies and their work on the enforcement of policies, OSH education and publicity, occupational health services and OSH guidance for schools.

The following search strategy has been adopted to map out the available evidence. First, documents are retrieved from journal papers, OSH publications and internet pages. The broad terms for this initial search included the combinations of “HK”, “teachers”, “schools”, “legislation and policy”, “occupational safety and health”. The aim is to get an idea of the context of the OSH system and associated legislation and policy. When the OSH context was understood, the extent and boundaries of the document analysis were decided. The boundaries for the document analysis are laid down; a systematic search is conducted in reviewing the publications from HK Bilingual Laws Information System, Legislative Council meetings, bill committees' meetings, Government sub-committees' meetings, Government publications; relevant websites. The key words of “occupational safety and health”, “occupational (and work) safety”, “occupational (and work) health”, “Occupational Safety and Health Ordinance”, “school safety”, “school health”, “teachers' safety” and “teachers' health” were used in the search. The aim is to get an overview of OSH legislation and policies in HK, and to develop a theoretical background for subsequent studies.

Inclusion criteria for the systematic review are the following: (1) the materials are related to the health and safety matters associated with teaching activities and support services in HK schools, (2) the content of the materials is related to the background, history, establishment and implementation of the HK OSH legislation and policy, (3) the materials are available either online or through the HK government departments (e.g. Occupational Safety and Health Council library), (4) the material is written in either Chinese or English language, (5) the materials are published prior to January 2010. Exclusion criteria are materials that did not address “occupational safety and health” directly and those irrelevant to teaching activities or support services in HK schools. For example: Employment ordinance and its subsidiary regulations are excluded.

The documents are listed, read, and reviewed; maintained as paper or electronic copies; and kept accessible during the whole process of the research. Table 4 presents the sources of the information, results of the searches and examples that are included in this review.

**Table 4: Information of the OSH legislation and policy searches**

Sources of information	Results of the search	Examples included in the review
HK OSH Legislation	5 Ordinance and their subsidiary regulations were found from the Bilingual Laws Information System. Only Occupational Safety and Health Ordinance (OSHO) (Cap 509) and its subsidiary regulations met the inclusion criteria.	OSHO (Cap 509) and its subsidiary regulations
Legislative Council, bill committees' and Government sub-committees' meetings agenda, minutes and reports	Initial search yielded 1706 documents from the Legislative Council search engine. After excluding topics that did not meet the inclusion criteria, 491 documents were found.	e.g. Official Record of Proceedings, further report of subcommittee on OSH (Display Screen Equipment) Regulation, Information Paper for the Provisional Legislative Council Panel on Manpower-Major Programme Areas on Employment in the 1997 Policy Address
Government publications (e.g. leaflets, posters, bulletins, books, guidance, etc.)	Over 371 publications were found from Government websites and libraries, including 88 books, 73 leaflets, 144 posters, etc. Publications did not meet the inclusion criteria were excluded, e.g. publications for catering industries, safety in load-shifting machinery, etc.	e.g. Green Cross, Occupational Safety and Health in Schools, Teachers-Safe Work For Social and Personal Services
International and national (regional) OSH related websites	Over 26 websites were initially found and only 13 websites met the inclusion criteria.	e.g. ILO, WHO, Labour Department, Occupational Safety and Health Council, Professional Teachers' Union

### **4.3 Review of OSH legislation**

This section presents the current international and national OSH legislation that governs OSH in HK schools. A background of the major OSH legislation is also introduced, followed by a review of the legislation content with the modified WHO checklist.

#### *4.3.1 OSH legislation in HK schools*

OSH legislation usually incorporates a wide range of important legislative matters. Issues included may be found in general employment laws, health laws, or specific OSH laws. Hence, OSH legislation can either be dispersed in a number of different legislative measures or be contained in a single statute, and this varies among different countries or states. HK is governed by both international and national (regional) OSH standards. In terms of international OSH standards, Chapter VII, Article 151-152 of the Basic Law provides that the HK Special Administrative Region (SAR), using the name "Hong Kong, China" may maintain and develop relations and conclude and implement agreements on its own; it also provides for representatives of the government of HK to participate in international organisations or conferences, and there is a list of international treaties which relate to Labour rights and are applicable in HKSAR (Hong Kong SAR Government Department of Justice, 2009).

Under treaty 17, HKSAR is currently applying the WHO and International Labour Organisation (ILO) constitutions; 41 international labour Conventions in total (see Appendix I). International Labour Conventions set by the ILO prescribe relevant labour standards for member states. Other international instruments, including the International Covenant on Economic, Social and Cultural Rights and the International Covenant on Civil and Political Rights, also touch on labour standards, albeit to a much smaller extent (HKSAR Government, 2007).

In HK, regionally the legislation governing protection for the OSH of employees includes: the Employment Ordinance, the Employees' Compensation Ordinance, the Factories and

Industrial Undertakings Ordinance (FIUO), the Boilers and Pressure Vessels Ordinance (BPVO) and the Occupational Safety and Health Ordinance (OSHO). The principal legislation for safety and health at work includes the OSHO, the FIUO, and the BPVO. With few exceptions, the OSHO protects employees' safety and health at work in practically all branches of economic activity. The FIUO regulates safety and health at work in industrial undertakings, which include factories, construction sites, cargo and container handling areas, as well as catering establishments. The BPVO aims at regulating the standards and operation of equipment such as boilers, pressure vessels, including thermal oil heaters, steam receivers, steam containers, air receivers and pressurized cement tanks mounted on trucks or trailers (HKSAR Government, 2007).

In particular, the safety and health matters associated with teaching activities and support services in HK schools are mainly brought under the control of the OSHO (Cap 509) and its subsidiary regulations (see Appendix II). This ordinance was enacted in May 1997; it provides for the safety and health protection of employees in workplaces, both industrial and non-industrial, and extends the FIUO protection of employees at work to the majority of economic activities (International Labour Organization, 2009).

#### *4.3.2 Background of the OSHO (Cap 509) and its subsidiary regulations*

The FIUO was the major ordinance which governed the OSH of employees in HK before 1997. Due to the change of societal needs, the law has been amended several times to widen its scope of application (Hong Kong Government Department of Justice, 2009). However under the FIUO not all employees are protected by law, but only employees who are working in factories or industrial undertakings. Until 10 January 1994, the HK Bank Shek Kip Mei branch office was on fire and claimed 12 innocent lives. The accident pointed up the inadequacy of occupational safety law for employees who were working in places other than factories or industrial undertakings (Hong Kong Government, 1994).

To date back, the FIUO was introduced to HK from the UK in 1955, repealing and superseding a 1938 old law. With the structural transformation of HK economy, there has been a dramatic increase of white collar workers and workers in the service industry, however the number industry workers has declined steadily. According to Labour Department statistics, HK's working population was 2.45 million in 1992 and 2.79 million in 1993, but the number of employees protected by the FIUO was only 890 000 in 1992 and only 970 000 in 1993 and they accounted for no more than one third of the working population by the time (Hong Kong legislative Council, 1994). Therefore, the OSH of two thirds of the working population in HK was not protected during that period. Some legislative council members urged the Government to seriously consider extending the scope of OSH protection provided for under the FIUO since 1994.

The delay of enacting the new legislation was due to objections from some legislation council members, for example: the employment-related accidents not covered by the legislation was low, the minor environmental inadequacy nature of accidents in non-industrial workplaces and lack of resources (HKSAR Government, 1994).

After years of drafting the legislation, a new legislation which safeguards non-industrial workplaces was finally successfully enacted in 1997. The OSH (Display Screen Equipment) Regulation was also added to the subsidiary regulations of OSO (Cap 509) in section 42 in 2003. In fact, the background of the OSO (Cap 509) underlines the culture that legislation was only enacted to react to problems. Records of accident rates were the major support of the legislation drafts and accidents were always the immediate factor for enacting a new law.

#### *4.3.3 Review of the OSH legislation content with the modified WHO checklist*

OSH legislation or other legally prescribed mechanisms, such as regulations or declarations, can help to achieve OSH goals by providing a legal framework for implementation and enforcement. In HK, the main legislation which governs teachers' OSH is OSO (Cap 509), OSH Regulation (Cap 509 A) and OSH (Display Screen Equipment) Regulation (Cap 509 B)

(see Appendix II). The following sections review six components of the legislation according to the following key dimensions of the WHO checklist on Mental Health Legislation: 1) preamble; 2) objectives; 3) definitions; 4) access to OSH services; 5) rights of the employers and employees; and 6) responsibilities of different bodies.

### 1) Preamble

OSH legislation, like other health legislation, is commonly divided into sections, often starting with a preamble (or introduction) that outlines the reasons why legislation is necessary.

#### *Preamble of Occupational Safety and Health Ordinance (Cap 509)*

*“An Ordinance to ensure the safety and health of persons when they are at work, to provide for related matters, and to consequentially amend the FIUO and the Administrative Appeals Board Ordinance”*

This preamble states a general reason of having this legislation, but it does not cover the importance of OSH policy and services. To some extent, it only mentions part of the right of employees at work. The preamble is important because it, together with the purpose and objectives, helps courts and others to interpret legislative provisions whenever there is any ambiguity in the substantive provisions of the statute. It would be more comprehensive if the importance of legislation, policy and services were presented in the preamble.

### 2) Objectives

A statement of objectives is important because it provides a guide for interpreting legislative provisions.

#### *Objectives of Occupational Safety and Health Ordinance (Cap 509)*

*The purposes of this Ordinance are as follows-*

- (a) to ensure the safety and health of employees when they are at work;*
- (b) to prescribe measures that will contribute to making the workplaces of employees safer and healthier for them;*
- (c) to improve the safety and health standards applicable to certain hazardous processes, plants and substances used or kept in workplaces;*
- (d) generally to improve the safety and health aspects of working environments of employees.*

The objectives of the Ordinance have been addressed adequately; it is very clear that the Ordinance does not only aim to protect employees' OSH at work in a reactive way, but the objectives also state the proactive approach, where workplace safety and health aspects at work should also be improved generally and specifically in certain hazardous conditions.

### 3) Definitions

In legislation, it is important to interpret the meaning of the terms used. Not only people who need to understand and implement the legislation need clear and unambiguous definitions, it is also important for the members of the public because different people may be affected by the legislation. Courts also find this useful, as they have to make rulings based on the stated definitions.

In the OSHO (Cap 509), there are some terms, in particular, that require clearer definitions. For instance in PART II (1), it states that:

- (1) Responsibility for safety and health of employees at work, every employer must, so far as reasonably practicable, ensure the safety and health at work to all the employer's employees.*

In this part of the legislation, there are some important key words which require clear definitions: “work”, “safety” and “health”. Meanwhile, the target group and / or responsible bodies: “employee” and “employer” are also very significant and require definitions. Under the definition part of the Ordinance, the definitions of “work”, “employee” and “employer” are found:

*“work” (工作) means work as an employee;*

*“employee” (僱員) means a natural person who works under a contract of employment or apprenticeship, but does not include a domestic servant;*

*“employer” (僱主) means a person who employs natural persons under contracts of employment or apprenticeship.*

However, there is no definition for the key terms: “safety” and “health” in the Ordinance, and there is no evidence showing why these definitions are not stated in the Ordinance. Instead, only the definitions of “bodily injury” and “serious bodily injury” are found, which are defined as ‘includes injury to health’ and ‘in relation to a person, includes any bodily injury that results in the person’s admission at a hospital or clinic for treatment or observation’ respectively’.

On the other hand, there are often a variety of technical terms, which may have different contextual meanings in different settings and countries. In order to avoid ambiguity and help with the interpretation of legislation, these terms should be precisely defined in the legislative document. In OSHO (Cap 509), there are terms which are very contextually specific to HK, for example:

*“workplace”(工作地點) means any place where employees work, but does not include any of the following-*

*(a) an aircraft or vessel when located in a public place;*

*(b) when a vehicle that is designed or used for the carriage of people, animals or goods is located in a public place, the seat or position normally occupied by the driver of the vehicle;*

- (c) *domestic premises at which the only employees are domestic servants;*
- (d) *a place at which only self employed persons work;*
- (e) *any other place of a kind prescribed by a regulation for the purposes of this paragraph;*

*“public place” (公眾地方) means –*

- (a) *any public street, pier or public garden; or*
- (b) *the permanent way of a railway; or*
- (c) *any part of the territorial sea or any publicly navigable waterway; or*
- (d) *any part of the airspace above Hong Kong; or*
- (e) *any other place to which people are entitled to have access whether with or without payment;*

These terms can vary from different social, cultural and legal contexts and they are well defined in OSHO (cap 509).

According to the recommendations in the WHO checklist, countries have choices to define key terms in a broader definition or a narrow one, however in this case, it is very important to provide a clear definition for these “interpretable” terms in OSH legislation. These terms may have several possible interpretations or meanings or may be ambiguous in terms of their meaning; for instance there are different definitions of the word “health”; The Compact Oxford English Dictionary defines “health” as a person’s physical and mental conditions and the state of being free from illness or injury. However, from the Preamble to the Constitution of the WHO as adopted by the International Health Conference, “health” is defined as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (Representatives of 61 States, 1946). Different interpretations of the term “health” in the current example can lead to confusion to people who implement the legislation, and also to people who are affected by the law. If “health” is defined as the state of complete physical, mental and social well-being in OSHO (Cap 509) PART II, employers will be obligated to ensure the social well-being on top of the physical and mental health conditions of all

employees. This can possibly lead to different practices when it comes to implementation of the legislation, for example, risk assessments should also include assessing risks to social well-being. Hence, the Ordinance failed to define the key terms clearly and this can create confusion in the interpretation of the law.

#### 4) Access to OSH services

Legislation can play an important role in improving access to OSH services; it can increase the availability of services, and provide services that are acceptable and of adequate quality. Under the OSHO (Cap 509), it states the access of OSH services to some extent, which are mainly under the codes of practice and the establishment of the Occupational Safety and Health Council (OSHC).

The inspectors and occupational safety officers are empowered to enforce the law and to protect the rights of employers and employees. Their action of law enforcement can be seen as an OSH service, for example under the OSHO PART VIII Workplace Codes and Subsidiary Legislation:

- (1) The commissioner may issue codes of practice for the purpose of providing practical guidance to employers and employees, and to occupiers of workplaces who are not employers.*
- (2) A workplace code of practice-*
  - (a) may consist of a code, standard, rule, specification or provision relating to occupational safety or health approved by the Commissioner; and*
  - (b) may apply, incorporate or refer to any document that has been formulated or published by a body or authority either as in force at the time when the document is approved by the Commissioner or as amended, formulated or published from time to time.*

The issue of code of practice provides services by giving practical guidance to employers and employees. Meanwhile, under the same ordinance, the inspector (also known as commissioner in the legislation) is empowered to serve an improvement notice and suspension notice on an employer. The issue of codes of practice, improvement notices and suspension notices by the inspectors can help raise awareness of the legislation. However, the ordinance does not address any information on OSH inspection; when and how to do the inspections will be up to the inspectors' for labour. In this case, the Ordinance provides inadequate information for the public.

Furthermore, legislation promotes the access to OSH services by establishing the OSHC (Cap 398) in 1988, as a statutory body for promoting safety and health at work and sustaining the valuable workforce of HK. In OSO PART II, it is stated that:

*The purposes of the Council are-*

- (a) to foster greater awareness among the community;*
- (b) to promote the application of modern technology;*
- (c) to promote education and training;*
- (d) to disseminate technical knowledge;*
- (e) to develop strategies and formulate programmes;*
- (f) to provide consultancy services; and*
- (g) to encourage and facilitate co-operation and communication between the Government, employers, employees and relevant professional and academic bodies,*

*in furtherance of the encouragement and promotion of higher standards of safety and health for people at work.*

This ordinance entails increasing the availability of OSH services and the allocation of resources for OSH services. The OSHC is funded by a levy of 1% on the insurance premium of employees' compensation policies, in addition to a yearly block subvention of approximately \$2 million granted by the government.

In short, the Ordinance provides some information on law enforcement; it also influences allocation of resources of the government to state the need for the establishment of OSHC so as to promote OSH among the community. However, it can be improved by providing details of the OSH services provided by the government, like the extent and guidance of services.

#### 5) Rights of Employers and Employees

The rights of employers are protected by OSHO adequately:

Firstly, in most of the cases, employers have a legal duty to ensure the safety and health at work of all employees, and if they fail to comply, they are committing an offence and are liable on conviction to fine. However, their rights are protected if they have sound reasons for not complying with the requirements. These requirements suggested either by the inspectors and/or the legislation itself have to be practically applicable to the workplace.

Secondly, the Ordinance insists on the privacy of the employers, the identity of the employer is protected in the following circumstances under the OSHO PART VI Miscellaneous Offences:

*(1) A public officer commits an offence if, without lawful authority, the officer discloses to a person the name of, or any information that could identify, a person who has made a complaint-*

*(a) alleging a contravention of this Ordinance or the Factories and Industrial Undertakings Ordinance (Cap 59); or*

*(b) as a result of which the officer or any other public officer has become aware of such contravention.*

*(2) A public officer also commits an offence if, without lawful authority, the officer discloses-*

*(a) to the occupier of a workplace, or to an agent or employee of the occupier; or*

*(b) if the employer of employees employed at the workplace is not the occupier of that place, to the employer, or to an agent or employee of the employer,*

*that a visit to the workplace was made as a result of a complaint of a kind referred to in subsection (1).*

*(3) A person who is or was formerly employed as a public officer commits an offence if, without lawful authority, the person discloses to another person-*

*(a) information relating to manufacturing or commercial secrets or working processes that was obtained through the exercise or performance of a function under this Ordinance or the Factories and Industrial Undertaking Ordinance (Cap 59); or*

*(b) information notified by a medical practitioner in accordance with section 15.*

Thirdly, the employers' rights are protected in that they do not have the sole responsibility of OSH at work under the Ordinance. Employees also share the responsibility to take care of the safety and health of people at the workplace and also co-operate with the employer and other persons as necessary to enable compliance with requirements. Employees who fail to comply with the above also commit an offence and are liable to a fine conviction.

Further, employees' rights are protected by various aspects of the Ordinance: the main objective of the Ordinance is to protect the employees' right of having a safe and healthy work environment and to ensure their safety and health when they are at work. The employees' privacy is also protected under the Ordinance; if an employee makes complaints of the safety and health standards in their workplace, they have a right to confidentiality under the Ordinance PART VI Miscellaneous Offences.

In general, the rights of the employers and employees are defined in legislation. The importance of their confidentiality is well stated; meanwhile, with reasonable excuses, non-compliance of employers is also covered through flexibility of legislation. However, although this part of the legislation is only eligible under reasonable circumstances, in practice some employers may gain favour from it and possibly take advantage of the employees' rights.

On the other hand, protection of rights requires the corresponding parties to be aware and knowledgeable of their rights. It is unlikely for employers and/or employees to ask for what they are entitled to, if they do not even have an understanding of their legal rights in OSH. Even if these rights are being exploited, without sufficient knowledge of the right to confidentiality, it is doubtful that complaints will be made accordingly.

In short, employers and employees' rights are defined in legislation adequately, however strict implementation and sufficient guidance are needed for stakeholders to be aware and execute their rights.

#### 6) Responsibilities of different bodies

Under the OSHO (cap 509), everyone has a role to play in creating a safe and healthy workplace. In terms of responsibility, there are mainly three groups of people who are particularly significant for the safety and health of employees at work. They are employers, employees and Commissioners for Labour. To some extent, their responsibilities were stated in the Regulations under the Ordinance.

##### - Employers

The employer (or the occupier of the workplace), according to the ordinance, is responsible to provide and maintain the school premises and work systems of the school that do not endanger safety or health. They are also responsible to provide and maintain a safe and healthy work environment for teachers and other staff. Employers also have to take a proactive role to provide all necessary information, instruction, training, and supervision for ensuring safety and health.

Furthermore on the specificity of the OSHO, there is a set of requirements for employers to follow. These requirements are on accident prevention, fire safety, workplace environment control, hygiene at workplaces, first aid and manual handling operations.

Employers of schools should perform a risk assessment of workstations in the workplace before it is first used by users and review the risk assessment performed in respect of the workstation and revise the record of findings accordingly. They should also take steps to reduce any risks identified in a risk assessment performed and provide the necessary safety and health training on the use of workstations.

- Employees

All employees of a school must take reasonable care for their own safety and health and for that of others working in the school. They also have to contribute to safety and health in the school by using any equipment or following any system or work practices provided by their employers (and anyone else who has legal duties under the safety and health law). In particular, they have obligations not to damage or obstruct fire escapes; conform to any protective measures of manual handling operations; and conform to any system and work practice that is established by the employer in the use of workstations, which includes any risk reduction measure taken as a result of any risk assessment of the workstation.

- Commissioner for Labour

In order to ensure the enforcement of the ordinance, the Commissioner for Labour is empowered to issue improvement notices and suspension notices against activity of the school as a workplace which may create an imminent hazard to the employees, which includes fire safety measures, first aid items to be provided, etc. Also, a key element in enforcement is to advise on prevention of accidents.

In short, under the Ordinance and Regulation, employers, employees and inspectors all share responsibilities to ensure the safety and health of employees at work. However, there are some limitations in the legislation that are worth discussing: requirements made under the OSHO for employers to follow are related to traditional OSH issues like accident and fire

prevention, however, other factors like psychosocial risks and work-related stress are now widely recognised as major challenges to OSH (European Agency for Health and Safety at Work, 2007). Legislation has failed to address stakeholders' responsibilities in psychosocial risk management, and this directly affects the stakeholders' scope of responsibilities. Again, this is related to the lack of definition of some key terms in the legislation as mentioned previously.

Also, the Ordinance does not clearly state the practical issues of carrying out these responsibilities. In practice, the implementation of the OSH (Display Screen Equipment) Regulation is a good example: details of the workstation risk assessment are neglected in the legislation, there is no regulation on the details of OSH inspections and provision of rest breaks for workstation users. It is likely that enforcement relies heavily on the self-regulation of employers and employees. Clarification is needed to avoid confusion and misinterpretation of the implementation of legislation.

#### **4.4 Review of OSH policies**

This section of the review is presented according to different forms of OSH policy in HK schools; these policies are put in place by different government bodies in order to meet the requirements in legislation, as follows: 4.4.1 OSH legislation enforcement; 4.4.2 OSH education and publicity; 4.4.3 Occupational health services; and 4.4.4 OSH guidance for schools.

##### *4.4.1 OSH legislation enforcement*

The enforcement of OSH legislation is equally important to the content of the legislation. The Occupational Safety and Health Branch (OSHB) of the Labour Department is a government body which is responsible for the promotion and regulation of safety and health at work. Its main objective is to ensure that risks to people's OSH are properly managed and reduced to

the minimum by legislation, education and promotion. Specifically, this branch provides a legislative framework to safeguard safety and health at work ensuring compliance with the OSHO and its subsidiary regulations by conducting inspections and taking out regulatory actions and by investigating accidents and occupational health problems at workplaces (Labour Department, 2010).

Labour Department also conducts inspections and special promotional visits to encourage employers to adopt a self regulatory approach in monitoring. The schedule of inspection is recorded every year in the Labour Department Annual Report. In 2008, for example, in relation to work activities in schools, Labour Department conducted focused inspections to office workplaces to ensure that both employers and employees abided by OSH (Display Screen Equipment) Regulation. Altogether with the inspections in other workplaces (workplaces regarded as high risk of physical injury are the majority), a total of 176 171 workplaces, including 18 506 construction sites, were recorded (HKSAR Government Labour Department, 2009).

Among the official published statistics and figures, there is no indication of records concerning school inspections, issued warnings, accident investigations and suspected occupational diseases. There is also no evidence of the inspections and promotional visits details. Even though the aims of Labour Department show some promise in enforcing OSH legislation, there is no empirical evidence showing their commitment on occupational health in different workplaces, especially those with low risk of physical injury. This makes the public suspicious about the government's commitment and the effectiveness of OSH legislation implementation, especially concerning "health" aspects. The government's records of inspections and promotional visits should be published and be available to the public and thereby raise the awareness of OSH in HK.

#### *4.4.2 OSH education and publicity*

Enforcement of legislation by inspections alone cannot make a sufficient impact on accident prevention and good health at work, the ultimate objective must be education of both management and workers to take the necessary preventive measures (HKSAR Government Labour Department, 2009). Therefore, the OSHB aims to improve the knowledge and understanding of employers, employees and the general public on OSH by providing them with appropriate information and advice; and by organizing promotional programmes, training courses and health talks to improve the OSH awareness of the workforce.

The Department stated that most of the training and health talks on related services provided are specially designed for industries. Each year the annual report of Labour Department presents figures of courses and talks held and the numbers attending them. In 2008, for example, Labour Department conducted 484 legislation-related safety and health training courses for 3327 participants and 337 tailor-made talks for 12688 employees (HKSAR Government Labour Department, 2009). From the synopsis of occupational health talks published by Labour Department in 2009, there are mainly 39 topics of health talks provided by the Department, and out of these 39 topics, there is one specially designed for teachers. The talk aims to increase teachers' awareness of occupational health and includes the topics of backache, voice and occupational stress. Meanwhile, there are three other topics related to occupational stress education, and they are: 1) Occupational health talk series for school workers; 2) Occupational health for office workers; and 3) Occupational stress (Labour Department, 2009).

In a further attempt to spread OSH awareness, Labour Department set up six committees under the Committee of OSH. The Committee is established to review the standards of OSH; advise on legislative proposals on OSH and review existing legislation; and advised on the measures to be adopted by the Labour Department with a view to improving the existing system which enforces OSH legislation.

As mentioned earlier in the review of legislation section, OSHC is a statutory body for promoting safety and health at work and sustaining the valuable workforce in HK, which came into being under the OSHC Ordinance 1988. The Council's major services include promoting OSH in the community and facilitating exchanges between different OSH key stakeholders (HKSAR Government, 2001; Labour Department, 2010).

The Occupational Safety Charter, meanwhile, has been jointly launched with the OSHC since 1996 to promote the spirit of "shared responsibility" in workplace safety and health.

Employers are highly encouraged to establish a Safety Charter and use it as the basis for building a safety management system. In 2008, 1069 organisations, including public utilities companies, industrial and non-industrial establishments, banks, construction companies, unions, associations and community organisations, subscribed to the Occupational Safety Charter (Occupational Safety and Health Council, 2010; HKSAR Government Labour Department, 2009).

However, among the 1069 organisations, only two organisations are related to occupational activities in schools; they are the HK Government which is the employer of all government schools, and Tsuen Wan District Parent Teacher Association Federation Ltd. This is demonstrating a lack of participation among the teachers' unions and associations in the Occupational Safety Charter. The emphasis of "safety" in the aims and objectives of the Occupational Safety Charter may explain the lack of participation among organisations with less concern of safety issues. However, with the changes of OSH concerns in recent years, it is essential for organisations in HK to establish psychosocial risk management system on top of the traditional safety management system. It is, therefore, significant for the Occupational Safety Charter to consider putting more emphasis on occupational health management.

#### *4.4.3 Occupational health services*

The division of Occupational Health Services is responsible to prevent occupational diseases and to promote health at work. This division is made up of two Occupational Medicine

Divisions and three Occupational Hygiene Divisions and its major work includes: providing advisory and promotional services; enforcing occupational health legislation; and investigating and providing treatment to suspected occupational disease cases and compensation claims (HKSAR Government, 1998).

Together with the occupational health services, occupational health clinics are responsible for enhancing the health of the working population through prevention, diagnosis and treatment of occupational diseases (Labour Department, 2010). There are currently two Occupational Health Clinics in HK, they are the Kwun Tong Occupational Health Clinic and the Fanling Occupational Health Clinic. In 2008, 12999 clinical consultations were rendered, and 3070 medical examinations and assessments conducted. Six patient support groups were organised to promote patients' treatment compliance and sustainability in good work (HKSAR Government Labour Department, 2009). In particular, there is a growing concern of musculoskeletal disorders in HK; one of the most common disease reported in the clinics was tenosynovitis: a traumatic inflammatory disease of tendons and the associated tendon sheath. It is the result of prolonged and repetitive movements or excessive exertion of the hands and forearms, and most commonly reported in clerical and related office personnel. Nowadays, six specific musculoskeletal disorders have been prescribed as occupational diseases in UK (European Agency for Health and Safety at Work, 2007). It is undeniable that the increase of musculoskeletal complaints is due to change in the workforce in the last decade (Wall & Jackson, 1995; Sauter et al., 2002; WHO, 2005). The increase of office workers where they have high risks of psychological problems and prolong used of shoulder-neck region muscles (Westgaard et al., 1993). However the publicity and health efforts of OSH promotions for office workers by the government should not be neglected. Moreover, the government rarely associates musculoskeletal disorders with work-related psychosocial hazards, and issues such as work stress. Since there is a reasonable consensus in the literature of the relationship between musculoskeletal disorders and psychosocial hazards at work (Leka & Kortum, 2008), this reveals the gap between OSH knowledge, policy and practice.

#### 4.4.4 Guidance of OSH for schools

Apart from the activities jointly organized by different parties, Labour Department also attempted to increase publicity of OSH by publishing different publications. In relations to schools, OSHB, Labour Department and OSHC published several guidelines in order to help both employers and employees of schools to maintain a safe and healthy workplace. These publications systematically introduce potential OSH hazards for teachers in schools and provide relevant preventative measures aiming to enhance OSH awareness (Occupational Safety and Health Council, 2008).

It is suggested that an effective safety and health management system starts with the commitment of school management. In order to form the basis on how to co-ordinate activities in achieving the goal set by the school on safety and health issues, a written safety and health policy is the best intent to reflect the determination, organisation and arrangements for safety and health. This safety and health policy is the foundation of the safety and health of the school and there should be an arrangement for telling employees about its contents. The policy should be circulated among employees and posted on bulletin boards and publicized in school journals. To construct an effective policy, there should be two levels of safety and health policy: central and local. The central safety and health policy is usually written in general terms, and covers the entire organisational structure, and each school should have a copy of it. Local safety and health policy should build on the central policy and take account of local conditions so as to ensure the continuity of control in each school. It is important to develop these safety and health policy out of the identified needs and culture of each school.

The government also encourages school management to develop a positive safety culture in schools. In such organisation of safety and health, it is necessary to involve staff and students for the purpose of managing risks and to meet the objectives of the safety and health policy. Although the ultimate responsibility rests with the school management, employees and students should also have functional roles to be accountable on safety and health. A

successful safety management system can be well accomplished through the establishment of an efficient school safety and health committee. The committee should include members of the principal, teachers and staff, and hold regular meetings with written records. In particular, the government has suggested guidelines for the functions and composition of this committee (Labour Department, 2001):

- a) monitoring the safety policy;
- b) assistance in the development of safe work procedures and safe system of work;
- c) on-going evaluation of hazards and arrangements to implement safety measures;
- d) study of accident/incident statistics and trends together with recommendations for corrective actions;
- e) monitoring the adequacy of safety training;
- f) monitoring the adequacy of safety and health communication in the school; and
- g) the organisation of safety promotion activities such as safety competitions, exhibitions, film shows, safety incentive schemes and safety suggestions.

A good housekeeping with cleanliness and the good order of equipment and facilities in a workplace are also recommended in the guidelines. Although guidelines of different aspects of teachers' OSH are quite brief, they cover ventilation in classrooms, lighting, working postures, vocal cord care, prevention from contact dermatitis, manual handling operations, laboratories and workshops, office safety and work stress (Occupational Safety and Health Council, 2008; Occupational Safety and Health Branch Labour Department, 2000). The work stress guidance is a part of the general OSH guidelines for schools, and consists of a brief introduction and a summary table of 5 common sources of stress: 1) Heavy workload; 2) Poor working environment; 3) Poor inter-personal relationship; 4) Keeping student disciplined; and 5) Pressure from students' parents. With 6 suggested precautions: 1) Identify the sources of stress and manage them properly; 2) Develop a reasonable work and rest schedule; 3) Talk with others; 4) Learn self-relaxation exercises; 5) Develop proper inter-personal skills and communications; and 6) Seek professional advice if needed. In particular, this part of the OSH guidance has placed most of the responsibilities of work stress onto the employees and

the guidelines are too brief and unclear. There is no explicit guidance for both employers and employees on stress management and psychosocial risk management.

In general, the guidelines cover some major OSH aspects in schools, like setting up an OSH committee and conducting risk assessments. However, the suitability and sufficiency of the content of the guidelines is unconvincing. The government recommends schools to set up OSH committees and policies, but the set of guidelines provided for the functions and composition of the committee focus only on the safety aspects of work. It is common knowledge and awareness that occupational health issues are particularly significant in less physical demanding occupations, like teachers. Overlooking health issues in OSH committee guidelines for schools poses a question for their appropriateness.

On the other hand, even though the general OSH guidance for teachers covers the issue of stress, the content of the guidance is too brief and insufficient. There is no guidance on psychosocial hazards and relevant risk management, but only a very brief summary table of sources and precautions of stress and with no descriptions. The information provided is broad and unhelpful, for example the suggested precaution for stress due to poor inter-personal relationship is to talk with others and develop proper inter-personal skills and communication. A comprehensive and practical guidance on psychosocial risk management is needed in order to address teachers' OSH problems effectively.

#### **4.5 Discussion**

From the review above, there are many international or national (regional) regulations concerning workers' OSH in HK, even though most do not use the term "occupational safety and health" explicitly. As mentioned previously, the current review is not exhaustive due to the broad definition of OSH, therefore it does not cover all legislation which might be indirectly relevant to OSH in HK, for example: employment laws, factories safety laws, etc. However, the legislation and policies that concern the content of teachers' work have been reviewed.

The review of the background of OSH legislation underlines HK OSH culture that HK people only react to problems rather than prevent the problems proactively. New legislation was reacting to the vicarious situations of the work environment, and improvement of the current work environment or promoting a safe and healthy work environment was of least concern. Initiatives of new OSH legislation usually began with some high profile serious occupational accidents or high accident rates. Policy makers usually use the records of accidents rates in drafting legislation. The numbers and nature of accidents determined to a large extent whether laws would be successfully enacted in Legislative Council. Some research showed that this reactive tendency to problems might be related to cultures (e.g. Bugental, et al. 2006). However, the results also indicated the lack of awareness in the relationships of psychosocial hazards in the work environment and ill health (e.g. Maina et al., 2009).

In fact, the legislation is unclear for effective implementation; as can be seen from the review by the modified WHO checklist, there is some OSH legislation concerning the rights and responsibilities of different bodies in terms of OSH; however, the weakness lies in the fact that the legislation does not always explicitly define all key terms and information. For example, there is no definition of “health” in OSO (Cap 509) PART II. If “health” was defined as the state of complete physical, mental and social well-being in the legislation, the employers would also have responsibilities to ensure the social well-being but not only physical and mental health conditions of all employees.

The review further highlights the problem of ambiguity in some other parts of the legislation; for example, there is a lack of detail on OSH services in the legislation and the responsibilities of different bodies. This might be due to the fact that the government may want to be more flexible in terms of law enforcement and implementation. However, practical issues may arise due to the ambiguity of the legislation; for instance, there is no regulation or ordinance written on when and how often the inspectors should conduct regular inspections in schools. Also, with reasonable excuses, non-compliance of employers is covered through flexibility of legislation. These “straight and simple” regulations are more likely for the employers to gain favour with the legislature. In fact, Hong Kong is not an exception in the issue of key terms

clarifications in the policies. Previous policy evaluations also find that some policies (e.g. Framework Directive 89/391/EEC on Safety and Health of Workers at Work) were lack of practical and operational translation of the terms. The lack of specificity will also lead to ambiguity and confusion in the implementation of legislation.

Moreover, the government has established some bodies to help put all legislation in practice: the legislation enforcement, education and publicity work by the OSHB of the Labour Department are examples. Although the aims and objectives of their work seem promising, there are no official records showing the injury, occupational diseases and accident rates of schools. Evidence of the work on school inspections, education and publicity by different government bodies is also neglected. Previous research found that the availability of guidance, education, information and tools were important for implementing systematic psychosocial risk assessment (e.g. Natali et al., 2008). The neglect of evidence in implementation in HK reflects a doubtful commitment among the Government bodies in implementing OSH policy in schools. This issue of lack of commitment is directly widening the gap between policy and practice, in which previous literature (Levi, 2005) demonstrated as a contribution to the failure of policy initiatives. School specific records should be officially published to increase school stakeholders' awareness of OSH in schools.

Even though there are OSH guidelines designed for the teachers and schools, they focus mainly on traditional occupational safety issues. It is widely recognised that psychosocial risks are the major challenges of OSH, especially in a workforce with less physical demands (e.g. Sauter & Murphy, 1990; European Agency for Health and Safety at Work, 2007; Papdopoulos, et al., 2010). There is also considerable research attesting that the OSH challenges of teachers lie in the psychosocial work environment (Peeters & Rutte, 2005). The published guidelines are inappropriate by over-emphasising teachers' safety issues at work, but neglecting the importance of psychosocial risk management in schools. Even though there is a brief illustration of stress in the guidelines, it is too brief and inadequate. OSH guidance for schools should be more comprehensive and practical, in order to meet the needs and concerns of HK teachers.

It is worth noting that most of the government bodies' work and relevant policies are not binding by the law; responsible bodies always have the 'freedom' to follow the policies or not, while only 'voluntary' activities are expected to be performed by and on behalf of parties interested in establishing OSH standards in response to their needs. Hence, it should be considered that legislation should explicitly define the key terms and thereby state more clearly the OSH services provided to maintain and promote a healthy and safe work environment for HK teachers.

#### **4.6 Conclusion**

The current review discusses OSH legislation and policies in HK schools, with details of the background and content of the major OSH legislation; a review of the policies and government bodies related to law enforcement, education, publicity, service and guidance was also presented. OSH is an interdisciplinary subject and OSH legislation and policies usually covers a wide range of standards concerning workers' rights of OSH at work. The current review provides an understanding of the development and the content of OSH policy in HK schools. It also points out the issues of concern of the OSH legislation and policies that have been enacted to protect teachers' OSH, such as the ambiguity of the key terms, OSH services, and responsibility of different bodies in existing OSH legislations. The issue of ambiguity, for instance might lead to confusion and misinterpretation in legislation and policy implementation. Although there are some issues of concern in the anticipated implementation of OSH legislation and policies, the review demonstrated that HK teachers' OSH is governed by a relatively structured and single dominant legislation. It also provided a background for the subsequent studies; the next step of the study of OSH policy implementation is to explore the views of different key stakeholders that could provide further insight through their personal knowledge and experience.

## Chapter 5: Study two – Interviews with key stakeholders

### 5.1 Introduction

In the first study, the current OSH legislation and policies have been reviewed systematically. The review showed that HK teachers' OSH is mainly governed by the OSHO (Cap 509) and its subsidiary regulations. The study raised some issues of concern in reviewing the legislation and policies. The major ones were the ambiguity of key terms, OSH services, and responsibility of different bodies in existing OSH legislations; the lack of commitment among the Government bodies in implementing OSH policy in schools; and the overemphasis of safety aspects in the published guidelines. These issues of concern have potential impacts on the implementation of OSH legislation and policies in HK schools. For instance, the ambiguity of key terms and overemphasis of safety in the policy may affect stakeholders' understanding of the policy and psychosocial issues during the process of implementation; and the lack of commitment among Government bodies may also influence the role perception of the role of OSH management. However, the process of implementation is elaborate and complex, it involves not only the policy itself but also groups of stakeholders. Previous literature has confirmed that the failure of OSH policy initiatives is often associated with the gap that exists between policy and practice (Levi, 2005). Therefore, apart from reviewing the legislation and policies, it is also important to recognise the role of policy actors and institutions in the policy process (Howlett and Ramesh, 2003).

From Leka et al. (2008)'s review on OSH related policies, it is recognised that trade unions, employers organisations, government agencies, researchers and academics are play a key role in the area of psychosocial risk management at the policy level. However, previous studies have demonstrated that a gap exists between experts and the general population in the perception of work-related health risks (European Foundation for the Improvement of Living and Working Conditions, 2007; Iavicoli et al., 2004) and that this affects the decision

making process (Slovic, 2000). Particularly at the stakeholder level, perceptive gap between trade unions and employers on perception/recognition of psychosocial problem causes and consequent difficulty in implementing shared prevention/correction strategies was reflected in different surveys, such as the survey conducted in 2004 by the Italian National Institute for Occupational Safety and Prevention. These perceptive gaps includes employers' interpretation of stress as individual (and not a collective) phenomenon. Key stakeholders' hindered communication and collaboration by the conflict/competition between different government departments was also found to be a barrier to the development of policy level interventions (Leka et al., 2010).

The importance of collaborations between key stakeholders has been recognised in the literature (e.g. Leka et al., 2010). In the current context, with the background knowledge of current OSH legislation and policies in schools, it will be important to explore key stakeholders' understandings of OSH and psychosocial issues; their knowledge of OSH legislation and policy; and roles in managing OSH in HK schools. The current study aims to interview stakeholders from the top to the bottom of the implementation process, in order to evaluate their levels of knowledge and awareness of OSH issues for teachers, and their role of existing legislation and policy. The top-down approach of the current study of policy implementation also aims to explore the similarities and uniqueness of different levels of stakeholders' understandings and opinions of the above issues.

The chapter is divided into introduction, methods, results and discussion. It begins with the overall introduction and methods of the current qualitative study. Three major themes were emerged from the analysis and are presented in the results section. In accordance with Framework Analysis, similarities and uniqueness of different stakeholders are illustrated under each major theme, together with the sub-themes. The chapter concludes with the overall discussion of the study.

## **5.2 Methods**

### *5.2.1 Design*

The interview schedule is constructed by the researcher on the basis of the literature and the previous study on policy review (study one), for example, in study one the lack of commitment of the Government in OSH implementation was identified as an issue of concern in the OSH policy. Together with the literature review, questions exploring the understanding of management style and OSH legislation and policies in schools were constructed. Examples of the questions in the interview schedule are: “what is your understanding of the term OSH?”; “are you aware of any government policy and/or legislation that deal with OSH in school? If yes, what are they?”; and “do you believe that the management style adopted in an organization has an effect on occupational safety and health practices in organizations? And why?”.

The schedule consists of five sections. The sections focus on: 1) Understanding of OSH issues; 2) Understanding of psychosocial issues; 3) Knowledge of health and safety; 4) Legislation and policies; and 5) Demographic information (see Appendix III for the complete interview schedule).

### *5.2.2 Sampling*

In order to study the implementation from a top-down approach, a total of 38 stakeholders representing the organisations that develop, implement and determine the outcome of OSH policy in HK schools are selected according to the level of implementation process (from top to bottom) for interviews. They are representatives of the Legislative Council, Government organizations, trade unions, employers organizations (heads of schools), and employees (teachers’ representatives), these groups of stakeholders are also identified as key roles in the implementation of OSH related policy (e.g. Leka et al., 2008c) (see Table 5 for detailed descriptions of the interviewees). They are also divided into 3 groups according to the top-

down implementation process, these stakeholders are responsible for the development and implementation of OSH policy in schools, the three groups are: Policy makers (n= 8), implementers (n=14) and teachers' representatives (n=16) who were responsible for the development and implementation of OSH policy in schools.

**Table 5: Descriptions of the interviewees' demographic characteristics**

<b>Interview Groups</b>	<b>Interviewees' characteristics</b>	<b>No. of inter-viewees</b>	<b>Descriptions / Responsibilities</b>
Policy makers (n= 8)	- Legislative Council Members (Representatives of the major political parties: Neighbourhood Workers Service Centre, League of Social Democrats, Democratic Party, Alliance, Frontier, Democratic Alliance for the Betterment of HK, and Civic Party)  -Age: 42-64 years old	6	The Legislative Council members are responsible: 1) to enact, amend or repeal laws in accordance with the provisions of the Basic Law and legal procedures; 2) to examine and approve budgets introduced by the Government; 3) to receive and debate the policy addresses of the Chief Executive; 4) to raise questions on the work of the Government; 5) to debate any issue concerning public interests; 6) and to receive and handle complaints from HK residents.  Noted: The election for the fourth term of the Legislative Council of the HKSAR was held on 7 September 2008. According to the Basic Law and the Legislative Council Ordinance, the term of office of the newly elected members of the Legislative Council is four years and started from 1 October 2008 (Legislative Council, 2010). All interviews were conducted before the elections, and all interviewees were successfully elected as the fourth term member, which means all of them are current Legislative Council members with at least 4 years experience working in the council.
Policy makers	Committees of the Labour Advisory Board - Committees on OSH  - Age: 30-56 years old	2	Committees of the Labour Advisory Board - Committees on OSH are responsible: 1) to review the standards of OSH in HK; 2) to advise on legislative proposals on OSH and review existing legislation; 3) and to advise on the measures to be adopted by the Labour Department with a view to improve the existing system which enforces OSH legislation
Implementers (n=14)	Representatives of the HK Government, Labour Department	2	The department is mainly responsible: 1) to ensure that risks to people's safety and health at work are properly managed by legislation, education

	-Age: 44-54 years old		and promotion; 2) to improve and safeguard employees' rights and benefits in an equitable manner.
Implementers	Heads of the schools (School Principals / Vice Principals)  -Age: 41-60 years old	12	- Principals are responsible to lead the school and staff.  - Vice Principals are responsible to assist the school principal in school administrative work and to teach.
Teachers' representatives (n= 16)	Trade Union (The Professional Teachers' Union) Representatives  - Age: 43-58 years old	2	The Professional Teachers' Union with over 90% of HK teachers are members of this union, and it is responsible: 1) to protect teachers' rights; 2) to provide them with various welfare services; 3) and to strive for education quality through promotion of teachers' professionalism.
Teachers' representatives	Subject panel heads of the schools  -Age: 30-50 years old	14	Panel head teachers are responsible to lead a team of subject teachers, and to teach.

All local implementers and teachers' representatives are selected from sampled secondary schools, which included the majority types of secondary schools in HK (Government, subsidized and private), and different locations of the schools (covered 5 districts of HK).

These wide ranges help to focus on and grasp wide ranges of views for the implementation of OSH policy (see Table 6 for the detailed descriptions of the interviewees' schools).

**Table 6: Descriptions of interviewees' schools**

Source of funding	Interviewees' groups	Location of the schools	Subjects interviewees teach
Government (n = 3)	Local implementers (n = 2)  Teachers' representatives (n = 1)	<ul style="list-style-type: none"> <li>• Hong Kong Island (n = 1)</li> <li>• New Territories East (n = 2)</li> </ul>	Chinese and Mathematics
Subsidized (n = 20)	Local implementers (n = 9)  Teachers' representatives	<ul style="list-style-type: none"> <li>• Hong Kong Island (n = 3)</li> <li>• Kowloon East (n = 4)</li> </ul>	English, Chinese, History, Chinese History, Mathematics, Pure Mathematics Computer Science, Physics, Science, Religion Education and Physical Education

	(n = 11)	<ul style="list-style-type: none"> <li>• Kowloon West (n = 3)</li> <li>• New Territories East (n = 2)</li> <li>• New Territories West (n = 8)</li> </ul>	
Private (n= 5)	<p>Local implementers (n = 3)</p> <p>Teachers' representatives (n = 2)</p>	<ul style="list-style-type: none"> <li>• Hong Kong Island (n = 2)</li> <li>• Kowloon East (n = 1)</li> <li>• Kowloon West (n = 1)</li> <li>• New Territories West (n = 1)</li> </ul>	Chinese History, English, English Literature, Mathematics, Pure Mathematics and Biology

### 5.2.3 Procedure

The in-depth semi-structured interviews are conducted in HK between March and September 2008. The interview schedule is piloted with three participants. Some of the questions need minor rephrasing in Cantonese verbal expressions. Interview questions are conducted in Cantonese; transcripts are translated into English using back translation by the first author and another bilingual applied psychologist (Scott, 2004). This technique is carried out by the researcher who is a native speaker of Cantonese and another applied psychologist who was also a bilingual speaker (English and Cantonese). This is to ensure that the translators had certain level of knowledge of the subject and were capable to understand both languages. Socio-demographic data were collected via a brief pre-interview questionnaire.

The average time for each interview was 30-60 minutes, and they are tape-recorded under the consents of the participants. All interviews are conducted under I-WHO ethical procedures, consent forms have to be signed by the participants before every interview and they can terminate the interview anytime they wish.

### 5.2.4 Data Analysis

Framework Analysis is used to analyse the data, with the framework being implementation of OSH policy in HK schools. This analytical method involves a systematic process of sifting, charting and sorting material according to key issues and themes. It is divided into five stages: familiarisation, identifying a thematic framework, indexing, charting, mapping and interpretation (Ritchie & Spencer, 1994). Table 7 gives the details and examples of the five stages of Framework Analysis.

**Table 7: Descriptions and examples of Framework Analysis**

Stages of the Framework Analysis	Descriptions of each stage	Examples of the current study
1. Familiarization	<ul style="list-style-type: none"> <li>• Researcher listened to the interview tapes and read the observation and summary notes several times to get a sense and immerse in the details of the interviews.</li> <li>• Major themes started to emerge.</li> </ul>	<ul style="list-style-type: none"> <li>• Ideas and concepts of having themes related to legislation, OSH issues, and psychosocial related factors have emerged in this stage.</li> </ul>
2. Identifying a thematic framework	<ul style="list-style-type: none"> <li>• Writing memos in the margin of the text in the form of short phases.</li> <li>• Ideas or concepts began to develop from the text.</li> <li>• Statements and categories are formed.</li> </ul>	<ul style="list-style-type: none"> <li>• Three major themes are emerged: legislation and policy; understanding of OSH issues; and psychosocial factors.</li> <li>• Statements of each theme are formed.</li> </ul>
3. Indexing	<ul style="list-style-type: none"> <li>• Comprises sifting the data, highlighting and sorting out quotes and making comparisons both within and between cases.</li> </ul>	<ul style="list-style-type: none"> <li>• With the help of Nvivo 8 software, highlighted and sorted out the quotes from the transcripts and compare,</li> <li>• Example from Interview (transcript) 19: <ul style="list-style-type: none"> <li><i>“For physical safety, like there was someone fell down in our school, then we will take immediate actions.....We have newly installed some 3M anti-slippery mat..... for computers, we are aware of the position of the keyboard. For psychological health, I always keep an eye of the well being of our teachers, if they have any significant changes in emotions, like signs of unhappiness, I will ask our vice principal or other teachers to talk to them. About psychological health,</i></li> <li style="text-align: right;">2.1</li> <li style="text-align: right;">2.1</li> <li style="text-align: right;">2.2</li> </ul> </li> </ul>

		<i>stress is very crucial, including parents' expectation, students, some students have ridiculous demands onto the school, this would lead to teachers' stress"</i>
4. Charting	<ul style="list-style-type: none"> <li>Lifting the quotes from their original context and rearranging them under the newly-developed thematic content.</li> </ul>	<p>Examples from one of the major themes - legislation and policy:</p> <p>Interview 37: Policy maker: <i>"Actually I am very concerned with OSH, for instance whenever there is related legislation discussion in Legislative Council, I will be interested, I think I have certain level of knowledge, I can't say I am very knowledgeable, but at least I know something."</i> 1.1</p> <p>Interview 17: Local implementer: <i>"I didn't pay attention to the legislation. There are laws protecting construction site workers, industrial workers, general public would be aware of these laws."</i> 1.1</p> <p>Interview 30: Government implementer: <i>"We have our system to do school inspections depending on the size of the schools and the nature of inspections, for example we may do more frequent inspections in universities."</i> 1.2</p>
5. Mapping and interpreting	<ul style="list-style-type: none"> <li>Be imaginative and analytical to see the relationship between the quotes.</li> <li>Develop links between the data as a whole.</li> <li>Krueger (1994) suggested seven established criteria for interpreting coded data: words; context; internal consistency; frequency and extensiveness of comments; specificity of comments; intensity of comments; big ideas (Krueger, 1994).</li> </ul>	<p>Example of consider the frequency and intensity of comments:</p> <p>Interview 32: <i>"Teaching is very stressful, because people have expectations on HK education.....parents and students are giving pressure to teachers, they complain and some students harass their teachers, teachers spent a lot of time on administrative work.....Teachers are stressed."</i></p> <p>In this example, how often a comment of stress is made and the depth feelings of stress are being interpreted. Respondent in this example emphasised the problem of stress by giving examples to illustrate the point of view and repeated the words relevant to stress.</p>

Transcripts are read repeatedly to identify the key themes and categories for coding. After initial coding the thematic framework was developed both from previous literature, as well as from emerging issues of the stakeholders' responses. Thematic areas are noted, and codes were used to identify specific pieces of data which corresponded to the themes. The data

units are then rearranged according to the appropriate thematic reference through creating representative charts (NHSU, 2003), retaining line and page references to relevant passages in the transcripts for retrieval of the original transcript data. Finally, patterns, associations, concepts, and explanations in the data are searched and interpreted. In this last stage quotes were interpreted in depth according to the content of the coded data, such as words, context, internal consistency, frequency, etc. In this study, quotes are compared between the three groups of stakeholders, namely policy makers, implementers and teachers' representatives. Links and patterns will be developed according to the three groups with the similarities and characteristics of each group. The following result section will present the major and sub-themes emerged from the data. Under each theme, data were patterned and associated according to the similarities and uniqueness of the three stakeholders' groups.

### 5.3 Results

Three major themes emerged; they were the understanding of OSH issues; psychosocial factors; and legislation and policy. Each theme generated minor sub-themes and they were examined following the top-down sequence of the implementation process, which is represented by three stakeholders' groups (policy makers, implementers and teachers' representatives). The findings will be summarized and presented each interviewee group's uniqueness in comparison to each other. Table 8 demonstrates the thematic framework of analysis.

**Table 8: Conceptual framework of the qualitative study on implementation of OSH policies in HK schools**

<b>Themes</b>	<b>Sub-themes</b>
1. Understanding of OSH issues	<ul style="list-style-type: none"> <li>i. Physical health</li> <li>ii. Psychological health</li> <li>iii. Knowledge and awareness of OSH issues</li> <li>iv. Promotion and education</li> <li>v. Importance of management</li> </ul>
2. Psychosocial factors	<ul style="list-style-type: none"> <li>i. Stress</li> <li>ii. Work culture</li> </ul>

3. Legislation and policy	<ul style="list-style-type: none"> <li>iii. Workload and working hours</li> <li>iv. Communication and trust</li> <li>v. Inter-personal relationships</li>   <li>i. Awareness of the legislation and policy</li> <li>ii. Implementation of the legislation and policy</li> <li>iii. Future directions of legislation</li> <li>iv. Local OSH policy</li> </ul>
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### 5.3.1 Theme 1: Understanding of OSH issues

The main objective of implementing OSH policy is to protect the safety and health of employees at work; therefore stakeholders' general understanding of OSH issues is important in the effectiveness of relevant legislation and policies. The interviewees were asked to elaborate on their understanding of the term "OSH", OSH problems, potential risks to health, the effect of management style on the OSH practices, possible ways to improve OSH in schools, and obstacles of such actions. The sub-themes emerged are, therefore, a good reflection of interviewees' understanding of the extensive definition of OSH issues.

Appendix IV summarizes the emergent sub-themes for the three groups of stakeholders of policy makers, implementers and teachers' representatives in sequence for ease of comparison. Physical health, psychological health, knowledge and awareness of OSH issues, promotion and education and importance of management sub-themes are emerged within this theme (understanding of OSH issues):

#### **Overview of the theme**

The three groups of stakeholders responded similarly on some aspects of their understanding of OSH issues. Most stakeholders have a common perspective of physical health problems, which are directly related to teachers' teaching activities, for example teachers always become hoarse due to the over-use of voice in teaching. Most of the stakeholders mentioned several common physical health problems of teachers, they were aware that teachers would be at higher risk of suffering from musculoskeletal and voice problems.

In the discussion of psychological health issues, most stakeholders recognised teachers were suffering from many psychological health problems. There is consent among stakeholders that teachers' psychological health has received some attention from the public due to the negative impacts of some external factors, such as high expectations from society, parents and students; crowded environment; and education reform. Similar to the physical problems, stakeholders mentioned teachers' psychological problems in a descriptive manner, for instance, many stakeholders mentioned that teachers were always disappointed and frustrated about their work which led to different levels of depression.

*“Psychological health risks have something to do with how the teachers perceive their work, or their expectations on their students. If they make a lot of effort but not able to achieve what they expect, this would lead to tiredness and disappointment in long term.”* (Interview 13: Local implementer)

Stakeholders also recognised the importance of management in the implementation of OSH policy. They emphasised the significance of good management, for example, how it influenced the employer-employee relationships in schools in order to encourage the report of OSH problems and facilitate OSH promotions. Some stakeholders mentioned the attitudes of the employers, such as empathy and consideration, and how employees perceive their management are related to OSH outcomes in workplaces. The best OSH management would require stakeholders' co-operation throughout the implementation process, which includes the government, school management and teachers.

*“Management style is influential on the outcomes of OSH, because a good management should have empathy and be more considerate for the employees. Then naturally the school will become a safer work environment. However, if the management has no empathy and consideration, with such and ‘employer-employee’ relationship, the work environment will become hazardous.”* (Interview 37: Teachers' representative)

## Physical health

### **Policy makers:**

Most of the policy makers mentioned that different types of work and work environment influenced OSH differently, particularly in relation to physical health. These differences affect the availability of protective measures in different workplaces. They were also knowledgeable about different physical occupational health illnesses and some of them related these illnesses to different occupations, but teaching professions were not particularly mentioned.

*“Firstly we have to define the nature of the job, the health and safety of a white collar is very different from, for example: a bus driver. Once we’ve defined the work nature……ask those workers to seek assistance from those occupational health professionals will do.”* (Interview 17: Policy maker)

### **Implementers:**

In contrast to the policy makers, most of the local implementers did not mention much about physical health problems of other occupations but focused only teachers. Some local implementers also suggested that teachers were at risk of poor physical health at work and teachers are more vulnerable to these problems when they are tired and stressed.

*“The work environment in school is very crowded, if we have inappropriate sitting position, this would lead to musculoskeletal problems……if they do not have enough rest due to the lack of sleep, physical health problems would be more serious.”* (Interview 15: Local implementer)

### **Teachers’ Representatives:**

It was interesting that when teachers' representatives were asked to define the term "OSH", most of them mentioned physical health problems and physical health and safety aspects in their definitions, but little mentioned of psychological health. It seems that according to the teachers, there is a strong connection between physical health and safety and OSH in general.

*"To prevent getting hurt from work, handling heavy stuff, sitting position, especially for teachers, how to use their voices, these are something related to OSH."* (Interview 6: Teachers' representative)

### Psychological health

#### **Policy makers:**

Most of the policy makers mentioned the sources of psychological health problems instead of describing different types of psychological health problems and pointed out that psychological health problems were usually long term illnesses, instead of immediate consequences of workplace hazards.

*"If someone works under pressure for too long, their mental health would be affected."*  
(Interview 38: Policy maker)

#### **Implementers:**

In comparison with the policy makers, the local implementers were more experienced in understanding teacher's work and work environment. This is particularly obvious when they talked about the issues of psychological health that they shared a lot of personal experiences.

*"If you see someone cries very often, or maybe he/she told you that he/she couldn't sleep at night.....I pay a lot of attention to these issues.....there were some teachers appeared to be*

*very quiet, I thought it was their personality until I found out that she has stopped menstruation for 4 years due to stress, I didn't realised it until she told her colleagues."*

(Interview 19: Local implementer)

Very different from the local implementers, the Government implementers did not mention a lot about psychological health and did not show any interest in answering questions related to this issue.

### **Teachers' Representatives:**

Even though most of the teachers' representatives admitted that they were not knowledgeable on OSH issues, some of them pointed out the influence of teachers' psychological health on their teaching quality.

*"Frankly I have very little understanding on OSH, I am working in a relatively safe environment, like an office, my awareness is not that strong. However, for teachers, I always emphasise the importance of mental health."* (Interview 6: Teachers' representative)

### Knowledge and awareness of OSH issues

#### **Policy makers:**

The policy makers generally had good knowledge and awareness of general OSH issues, especially the physical safety aspect. Most OSH issues they mentioned were related to physical hazards and physical demanding occupations. Even when they talked about less demanding occupations, they mentioned the physical aspects of the workplaces, for instance, the ergonomic safety of office workers in using computers and reaching documents on high shelves. They could also name the corresponding government organisations which were responsible for teachers' OSH.

## **Implementers:**

In contrast to the policy makers, the local implementers had better knowledge of the OSH issues in schools. They were aware of the issues of concern in school as a work environment and the work-related health risks of teachers. These local implementers showed a lot of concerns for teachers' OSH problems, and they claimed that they reacted immediately to OSH hazards that they discovered.

*"For physical safety, like there was someone fell down in our school, then we will take immediate actions..... for mental health, I always keep an eye of the well being of our teachers, if they have any significant changes in emotions, like signs of unhappiness, I will ask our vice principal or other teachers to talk to them."* (Interview 19: Local implementer)

Some of the local implementers mentioned the need to measure OSH in schools and the tools for these measurements. This reflected the level of knowledge which is shared among the local implementers in terms of risk management in schools. They also understood OSH should be a shared responsibility and the co-operation between management and employees were important to OSH promotion.

*"I think OSH is everyone's responsibility, in the structure of our school, we have different departments and they are responsible for different things.....we have people responsible for laboratory safety..... the staff development team is responsible for teachers' mental health."* (Interview 19: Local implementer)

The government implementers were the most knowledgeable group, compared with the other stakeholders. They were competent in providing definitions of some relevant terms, for example: OSH and safe and health work environment. They showed understanding of the correct procedures to protect the health and safety at work and what the management/organisation should do to improve health and safety. They mentioned professional terms like risk management, management commitment, risk perceptions, etc. This reflected their

knowledge of the relevant issues, which was different from other groups of stakeholders. However, it is interesting that they did not mention a lot about psychological health while they are knowledgeable in OSH.

### **Teachers' representatives:**

When teachers' representatives were asked about specific OSH issues, they were unable to answer many of the relevant questions. They showed a limited level of knowledge of health and safety issues at work. Although the trade union representatives were also categorized in the teachers' representatives group, they were more knowledgeable than the other teachers' representatives.

*"Health risk in schools mainly is about work-related stress, because there are fewer physical hazards in school environment, comparatively speaking we are working in a safer environment, but psychological and social health and safety is very serious, a very serious hazard. We have seen many teachers who have committed suicide in HK."* (Interview 37: Trade union teachers' representative)

### Promotion and education

#### **Policy makers:**

The policy makers were knowledgeable on the available promotion and education of OSH in HK because they are responsible for making and reviewing the relevant laws. During the process of law making and reviewing, they have to understand what the Government has done to implement the law, which includes promotion and education. For Legislative Council members, since they are also the representative of the general public in the Legislative Council, they are partly obligated to promote and educate the public with their knowledge on OSH. This made it more reasonable for the policy makers to know more about promotion and education comparing to the other stakeholders.

Apart from reviewing the current available laws and advising the making of new laws, Committees on OSH is also responsible for organizing OSH promotions. Representatives of the committee mentioned that there was a lack of flexibility in organizing and evaluating these promotion functions. Even there were many experts and representatives of the different workers' groups in the committee, they had many constraints in doing their work. They complained the government did not give the committee enough flexibility.

*"We are also responsible for promoting OSH, I know the Government won't be happy about what I am going to say. Actually many things were fixed in the committee, for example every year we have to organise two seminars, two street promotional activities, they have set everything for us. We just have to choose the venue and topic, we can't even decide the content of the activities.....in fact the committee is very representative, if we are only responsible to look at the accident rates, do you think it's a bit meaningless? It would be better if we can tailor- organise some promotional activities for employees and employers."*

(Interview 29: Policy maker)

### **Implementers:**

The local implementers were, on the whole, aware of the promotion leaflets and posters distributed by the Government. However, they did not show much enthusiasm about promoting the seminars or functions organised by the Government. According to them, those leaflets and posters were only a useful reminder of their usual practice. They also claimed that their lack of the enthusiasm about promoting Government seminars and functions is also due to the lack of positive response from the teachers.

However, the local implementers mentioned that Government promotions on OSH did not meet the teachers' needs, but instead there was too much emphasis on students. Some of them mentioned that the promotion leaflets were usually distributed when a serious incident

happened, for example: SARS. They believed that more practical and tailor-made promotions would facilitate a better implementation of OSH policy in schools.

*"I think they should publish some 'user-friendly' leaflets or periodical or questionnaires for the schools..... the currently situation is like 'you know something is out there' but you have to find it out by yourself, and you have to be responsible for it when serious incidents happen."*

(Interview 4: Local implementer)

The government implementers responded differently from the local implementers. They were responsible for general promotions and education, and they believed that there were sufficient and effective promotions from the Government. If the Government does not provide sufficient promotions, teachers can request suitable education or training programmes. In comparison with the local implementers, the local implementers never noticed that the Government would tailor-made some OSH education or training programmes for the schools.

*"For promotion, we went to schools and did some promotion work, we aimed to increase their awareness and knowledge in OSH. Also, there is an occupational safety training centre under Labour Department, they organise courses related to OSH, and schools can participate to increase their knowledge in OSH."* (Interview 30: Government implementer)

### **Teachers' representatives:**

Compared with other stakeholders, teachers' representatives showed very little awareness of both local and government OSH promotions. For those teachers' representatives who were aware of the Government promotions, most of them received the general information from the media, like television advertisements and newspapers. They found that the promotions focused mainly on safety issues in the workplace and there was a lack of work-related psychosocial health promotions. They believed if there were suitable promotions or education activities, they would participate more enthusiastically.

*“I don’t think there are sufficient promotions, I am the best example, I totally ain’t aware of any promotion, if I am unhappy, apart from the trade union, who could help me, I can only seek help from the GP. Who else can help us? I don’t know! For safety side, anything about the laboratory I know there is insurance, but for mental health, we have no way to seek for help.”* (Interview 6: Teachers’ representative)

### The importance of management

#### **Policy makers:**

The policy makers believed that the government role on OSH is significant; a committed and responsible Government would help the school management to realize the importance of their role in OSH.

*“The most important aspect (of OSH) is the Government’s commitment and conviction, together with the employers’ participation, seeing OSH not as a burden, but something directly related to productivity and efficiency.”* (Interview 19: Policy maker)

Some of the policy makers mentioned that the school management should take the initiative to implement OSH policy and promote OSH, they should be the role model and participate in the education activities with the teachers. The school management should take a bigger role in this, and not to rely on their employees to take care of their health and safety at work.

#### **Implementers:**

The local implementers noticed that the management had an important role in implementing the OSH policies. If the management held health and safety as a high priority, they tended to facilitate an effective implementation. Some local implementers also mentioned that the management style affected teachers’ psychosocial health, especially when the management over-emphasised on work efficiency and neglected the importance of health and safety.

*“Management style certainly has an impact on the OSH outcomes, for example, local policy, rules and regulations for the employees. The new principal in our school is very strict in complying OSH policies...we are working in a safer work environment.”* (Interview 22: Local implementer)

### **Teachers’ representatives:**

In contrast to the other stakeholders, teachers’ representatives as the middle management of the schools, recognised the importance of their role. Since middle management were also teachers themselves, they were closer to the majority of the teachers, and understood more about the teachers’ role and responsibilities in schools. They were the bridge between the top management and the teachers, could help to facilitate communication on health and safety issues.

*“Management style ... erm.... Middle management, for example in schools, they should make good use of the role of the management. There are actually communication obstacles between upper management and teachers, because your voice won’t be able to reach the upper management, and middle management, in the middle of the relationship, can reflect teachers’ opinions to the authority.”* (Interview 6: Teachers’ representative)

### **Summary:**

In terms of the understanding of OSH, most stakeholders showed a certain level of understanding of physical and psychological health issues. Apart from the Government implementers, most stakeholders were also knowledgeable about teachers’ common psychological health problems that they mentioned the sources and their understandings of the problems. They agreed the importance of management, both the roles of government and school management in OSH.

In comparison, the policy makers focused more on the general workers and believed that OSH issues are very different for different occupations. They are more knowledgeable in terms of physical safety risks in workplaces, but did not mention teachers in particular. The school stakeholders were more knowledgeable about teachers and they understood more about the practical OSH issues in schools, for instance, they emphasised the obstacles of OSH promotions in schools. The Government implementers were the most knowledgeable group but not interested in commenting on workers' psychological health problems and were very satisfied with the current OSH promotions. In contrast, the teachers' representatives were constantly not very knowledgeable about OSH.

In general, the results have demonstrated that the importance of management and psychological health concerns in the implementation of OSH legislation and policy. The different levels of knowledge among stakeholders indicated that there was a need to value school stakeholders' (heads of schools and teachers' representatives) knowledge and opinions in the policy making and implementation process.

### *5.3.2 Theme 2: Psychosocial factors*

The psychosocial work environment has received increased attention in the last decades and has come to be related to the changing world and nature of work (Cox, 2003; WHO, 2002), school as a work environment is not an exception. It is suggested in the literature that workers have the rights to work in an environment that is physically, psychologically and socially healthy. Psychosocial hazards, in particular, represent the most common challenges to workers' health and safety. Psychosocial factors are significant in workplaces, they influence individual worker's mind and behaviour, it also represents an interrelation of behavioural and social factors (Oxford English Dictionary, 2009). The interviewees were asked about their understanding of psychological and social issues in schools, their understanding of the relationship between psychosocial factors and OSH outcomes, and their perceived influence of psychosocial hazards in schools.

The sub-themes that emerged within this theme are related to the stakeholders' understanding of psychological and social issues in schools, their understanding of the relationship between psychosocial factors and OSH outcomes, and the perceived influence of psychosocial hazards in schools. Appendix V summarizes the sub-themes for the three groups of stakeholders. Stress; work culture; workload and working hours; communication and trust; and inter-personal relationship, sub-themes are emerged within this theme (psychosocial factors):

### **Overview of the theme**

Most of the stakeholders agreed that teaching is very stressful due to the multi-task nature of teaching profession. They also talked about different sources of teachers' stress; for example, teachers had to work with the management, parents and students; and these people's behaviour and attitude were also strongly related to teachers' stress. With the repetition of the work stress in the conversation, stakeholders generally commented teaching is a very stressful job.

*“Teaching is very stressful, because people have expectations on HK education.....parents and students are giving pressure to teachers, they complain and some students harass their teachers, teachers spent a lot of time on administrative work.”* (Interview 32: Policy maker)

Also, most stakeholders suggested that communication and trust were important not only to OSH, but also significant to other organisational aspects. Communication could minimize the barriers between employers and employees, because the two groups understood each other better with appropriate communication. With better communication, clearer instructions could be delivered from the management to the workers and hence facilitate the implementation of OSH policy in schools. Meanwhile, the workers would also be more willing to voice their opinions on health and safety issues. According to most stakeholders, communication and trust were strong psychosocial factors which affected workers' work efficiency, morale as well as occupational health.

*“Yes communication is useful, because if the employees believe that the upper management is willing to listen them, and there will be someone for you if you encounter some problems, but not on your own, someone values you, and you will be happy even in a stressful environment, and there should be less stress as well.”* (Interview 5: Teachers’ representative)

On the other hand, most stakeholders mentioned the change of education system had an effect on teachers’ workload and working hours. In particular, there is an increase in administrative work for teachers, which is not directly related to teaching. All three groups of stakeholders believed that heavy workload and long working hours did not only affect teachers’ psychosocial well being, but also the quality of teaching and the HK education. They also mentioned workload was one of the biggest challenges, because it directly affected the motivation of teachers and the effort they spent on implementing OSH policy. OSH, therefore, becomes a lower priority, due to heavy workload and long working hours.

*“The biggest challenge of improving and maintaining the health and safety in schools is workload, don’t even talk about stress, you have to spend time to finish your work.....this would affect your health, emotions and your life.....If there is less workload, the problem will be solved, and you don’t have to put extra effort on OSH.”* (Interview 14: Teachers’ representative)

The importance of inter- personal relationship in schools was also recognised by most stakeholders. Teachers are the frontline educators and their behaviours and attitudes have direct impact on their students. Teachers’ OSH outcomes could be affected by the teacher-student relationship because since the education reform, people started to have different expectations to teaching professions in HK. Contrary the traditional hierarchical teacher-student relationship, students take up the customer-like role in schools, and have high expectations of their teachers. Hence teacher-student relationship has a significant impact on teachers’ OSH. On the other hand, most stakeholders suggested that healthy relationships between co-workers could facilitate the implementation of OSH policy in schools.

*“This is because teachers are responsible to teach the future generation, teachers themselves should have a good work-life balance, if not they might throw their temper onto their students. Every word they say to the students will influence the standard and quality of HK students.”* (Interview 16: Policy maker)

## Stress

### **Policy makers:**

It was very common for policy makers to relate stress with occupational health. Some of the policy makers drew connections between stress and different OSH problems. This shows that policy makers realize the serious consequences for general workers being too stressed.

*“If you are very stressed about your work, of course this would influence you in many ways.....like if you have to work with machines and you are stressed, you might put your hand into a cutting machine, the consequences could be so direct and serious.”* (Interview 38: Policy maker)

### **Implementers**

The head of schools believed that compared with other occupations, teachers were more vulnerable to work-related stress, due to the nature of work. Most of the head of schools shared their experience in working with stressed teachers and recognised the impact of stress on teachers. They mentioned that as upper management of the schools, they have been trying their best concerning the problems of teachers' stress and claimed that they have used various ways to organised activities to help teachers cope with the stress.

*“Some of them do not aware of their stress level, they know everyone is stressful, but they don't know whether they can stand the stress, but they only realize it when they have*

*problems. I will send them some websites for stress coping, I do these things slowly, I am afraid if I educate them quickly, I might scare them away, I'm trying to help.*" (Interview 33: Local implementer)

It was surprising that the government implementers had very limited knowledge about stress, and they did not comment much on this issue. This was very different from the other stakeholders.

*"I don't know much about stress, maybe relationship would affect it, but I really know very little about stress."* (Interview 30: Government implementer)

### **Teachers' representatives:**

Different from other stakeholders, teachers' representatives suggested that they were suffering from serious stress because the HK government and society were pressuring them. Their expectations on teachers have been a source of stress to them, they were expected to take care of the students not only in terms of academic performance but also moral conducts. These expectations increased the demands of the job and turn into stress, which affected work satisfaction and psychological well being. They also put blames on the Government and policy makers for not taking care of teachers' stress problems.

*"The society is giving us pressure, they have a lot of expectations on us..... this directly affect our mental health."* (Interview 20: Teachers' representative)

### Work Culture

#### **Policy makers:**

The policy makers tended to focus on the general work culture in HK, which most of the workers used to work under pressure. Some policy makers mentioned that many HK workers

believe OSH is luxury but not basic rights, this was quite different to other countries' work cultures, e.g. UK. This culture affects the implementation of OSH policy, as HK workers do not place health and safety as a high priority. They suggested that without workers' demands, the implementers would slack in implementing the policy.

*"The concern for now is the working culture of the frontline workers. This is because, there are policies, but no one from the Labour Department enforce the law..... There are policies but doesn't mean that they are well implemented."* (Interview 13: Policy maker)

### **Implementers:**

Many implementers agreed that OSH is a kind of culture in schools. If the school management is concerned about health and safety in schools, it was more likely for the school to promote and educate their employees on the importance of it. The local implementers in particular, recognised that a strong OSH culture would help to implement the OSH policy in schools. Most of them mentioned that good health and safety culture in schools required all the members of the school to work together.

*"Actually their attitude at work will be influenced by other colleagues, the employers and employees can affect the work culture, like do they think safety is important? If your employers think safety is very important, it will affect the content of regular meetings, like asking people to be aware of safety."* (Interview 30: Government implementer)

### **Teachers' representatives:**

The trade union representatives had a stronger view on work culture than other teachers' representatives. They believed that the future direction of OSH in schools should be more teacher-oriented. Some of them suggested that the policy makers should consult the teachers before they make decisions on important policy. The implementers should also educate teachers on potential hazards in schools and raise their awareness. As a whole,

society should work together to build up OSH culture in schools.

*“Firstly, the government has to change the education climate, they should empower the teachers, consult the frontline teachers when they make the policies, take a balance out of it. This is because they do not care about you during the policy making process now.....Secondly teachers and employees have to be aware of those hazards, like if they don’t even realize they have depression, this is very serious.”* (Interview 36: Trade union teachers’ representative)

### Workload and working hours

The policy makers’ views on workload and working hours were not significant to the other stakeholders’ groups, their opinions were similar to the majority opinions on the issues.

#### **Implementers:**

Unlike the other two groups of stakeholders, some of the local implementers did not only realize the psychosocial risks behind teachers’ heavy workload, they also mentioned that they had tried to suggest some ways to cope with the problems.

*“They should take care of teachers’ mental health, which could affect their physical health. They should have adjusted teachers’ workload, and fight for more resources to employ more people. We also have some workshops to help teachers to cope with their stress.”* (Interview 6: Local implementer)

#### **Teachers’ representatives:**

Teachers’ representatives related long working hours with Government’s lack of concern for OSH. They blamed the Government and the policy makers for not putting enough effort in the problems of workload. Some of them pointed out that if the government put more resources

into education, for example, employer more administrative staff, the problem of long working hours among teachers could be improved.

*“The government has to be aware of this and put more resources and push the schools to be aware of this. We mentioned that teachers’ long working hours is a problem so they have to make the class size smaller and employ more people. That is a way to deal with problems but not necessarily OSH policies.”* (Interview 26: Teachers’ representative)

### Communication and trust

#### **Policy makers:**

Most of the policy makers focused on general work organisations, however, they agreed that communication and trust were key factors of OSH because the implementation of health and safety policy require co-operation between management and workers. The management should also value employees’ opinions on health and safety at work.

*“I always emphasised that it is very important for employees to voice out the problems, because they are the users of the workplace.....That’s why we have to respect their opinions and we should listen. If we ignore, there will be problems. This is an important motivation for promoting OSH.”* (Interview 16: Policy maker)

#### **Implementers:**

The policy makers mentioned more about OSH communication in the general workplaces other than schools, but the local implementers talked about communications in schools. Most of them suggested that their schools had regular OSH discussions. These meetings were usually held by the health and safety related committees in their schools, the local implementers claimed that teachers were able to communicate health and safety related issues.

*“Our colleagues from the safety committee held meetings on OSH, discussed issues concerning the school environment and made decisions. We did not have any forums for teachers.”* (Interview 17: Local implementer)

For teachers’ representatives, it was interesting that they did not have any significant opinion on communication and trust in comparison to the two other stakeholders’ groups. Their views on communication and trust were very similar to the majority of stakeholders.

### Inter-personal relationships

Apart from communication and trust, which are the factors related to relationships in schools. The inter-personal relationships, as a whole, were also important factors in teachers’ OSH. Stakeholders talked about relationships in schools, e.g. teacher-student relationship, and how they are significant to OSH. However, in the discussion of this sub-theme, the policy makers’ opinions were not significantly different from the majority’s view, therefore, only the implementers and teachers’ representatives’ opinions are discussed separately.

### **Implementers:**

Some of the local implementers focused on the positive aspect of the teacher-student relationship. Compared with other occupations teacher-student relationship may be more interactive, teachers can get to know their students and communicate with them. Some of them believed that the communication between students and teachers could have a positive impact on teachers’ psychological well being. In general, they were suggesting that there were positive health gains to be had from teachings.

*“For other workforce, they might not be able to know their clients, but at least we are dealing with the same group of students everyday, and we could know about their background, in*

*case there is anything happening to them, we can always talk to their parents, and we could have proper channel to communicate with our students.” (Interview 8: Local implementer)*

### **Teachers’ representatives:**

The teachers’ representatives’ discussed how the teacher-student relationship can be affected by teachers’ emotions, instead of the other way around. They suggested that if teachers are psychologically unwell, they may throw their temper to their students, thus may directly affect the quality of their teachings. This was different from what the other stakeholders believed, as they mentioned that teacher-student relationship affected teachers’ work-related psychological health and suggested that the teacher-student relationship and teachers’ work-related psychosocial health are related in both directions.

Unlike the policy makers and implementers, some teachers’ representatives mentioned that good student-teacher relationship led to enjoyment of their work. They believed that teachers were different from other occupations in a way that they had other rewards apart from their salary, for example: students’ understanding and consideration is a kind of job satisfaction.

*“Sometimes we can get some rewards from our work, they are just kids, if they know you long enough they’ll know more about you and won’t bully you. We always have this kind of invisible reward, like when you were ill, they care about you and after they graduated they came back to visit you.” (Interview 35: Teachers’ representative)*

Even though the teachers’ representatives agreed that collegial relationship was very significant for teachers work-related health, unlike the local implementers, they tended to talk about the negative impact of this. To compare, most of the local implementers mentioned harmonious relationships led to favourable psychosocial health, while teachers’ representatives mentioned tensions and arguments between colleagues led to unfavourable OSH outcomes.

*“If we are working in an unhealthy work environment, we are going to be stressed, and everyday we go to work, we have to prepare ourselves to be attacked by others, this is very uncomfortable, like working in a less secure work environment.”* (Interview 1: Teachers’ representative)

### **Summary:**

There are several psychosocial factors that emerged from the interviews. Apart from the Government implementers, most stakeholders showed understanding of the sources and consequences of work-related stress. They also showed their concerns for the negative consequences of heavy workload and long working hours. In general they agreed that teachers are facing several major psychosocial problems, which is very similar to the previous literature (e.g. Cheung, 2009). The psychosocial hazards in schools were further confirmed in the results of the current study. It is interesting that teachers’ representatives tend to blame policy makers, the Government and the society for psychosocial problems, such as stress and long working hours, yet the policy makers acknowledge the importance of stress and work-related health issues.

The importance of communication and trust were recognised by all three groups of stakeholders. The local implementers, in particular, claimed that they put effort into facilitating good communication in schools, however, it is undeniable that teachers were still suffering from work-related health problems.

In terms of the inter-personal relationship in schools; most stakeholders mentioned the individual and organisational impacts of teacher-student and collegial relationships. It is interesting that most of the local implementers mentioned the positive effect of collegial relationships to psychosocial health, but the teachers’ representatives tend to focus on the conflicts between colleagues that led to unfavourable OSH outcomes. The policy makers focused on the influence of teachers on students, but the school stakeholders mentioned the positive aspects of teacher-student relationship. This is indicating that there are potential

positive health gains from teachings. It should also be noted that most stakeholders agreed that these psychosocial factors were significant in the implementation of OSH policy in organisations.

Also, most stakeholders believed OSH is a type of work culture, and commented on the general work culture in schools. The teachers' representatives mentioned the importance of teacher-oriented culture in making policy and managing schools. The significance of OSH culture in schools may potentially foster the positive outcomes of OSH practices.

### *5.3.3 Theme 3: Legislation and policy*

OSH Legislation and policies regulate employers to ensure employees' OSH; for example, under OSHO, employees are recommended to cooperate with employers to enable requirements to be met (Occupational Safety and Health Council, 2008). The interviewees were asked about their knowledge and awareness of OSH legislation and policy and its implementation. They were also asked to talk about the future direction of OSH legislation. Emerging sub-themes regarding legislation and policy are related to relevant issues at both institutional and national levels.

The following Appendix VI summarizes the emerged sub-themes for the three groups of stakeholders of policy makers, implementers and teachers' representatives. Awareness of OSH legislation and policy; implementation of the legislation and policy; future direction of legislation; and local OSH policy are the sub-themes that emerged within this theme (legislation and policy):

#### **Overview of the theme**

The three groups of stakeholders commented quite differently on the issues related to legislation and policy, however, on the issue of future directions of legislation, most

stakeholders suggested that there should be a legal guideline of maximum working hours as well as the workload.

Also, both local implementers and teachers representatives agreed that school management should implement some OSH educational activities in the current school schedule. For instance, many school stakeholders mentioned that the staff development days could provide a platform for the schools to organise some OSH activities. Nowadays, there is a very high flexibility for the schools on the design of programmes for staff development days. Some local implementers suggested that the government should set up more guidelines for staff development days, and set OSH educational programmes as compulsory sections.

*“For example, all the schools in HK have to organise Staff Development Day each year, and it’ll be more helpful if the Government regulates the activities of it, e.g. some programmes from the health department etc.”* (Interview 21: Local implementer)

Similarly, when the teachers’ representatives were asked about the implementation of OSH policy, most of them recalled some relevant activities in the staff development days. Although most of them did not take part in organizing the activities of Staff Development Day, many teachers recalled the schools’ effort in organising these OSH promotions.

#### Awareness of OSH legislation and policy

##### **Policy makers:**

Most of the Legislative Council members who participated in the study were responsible for OSH in their political parties. Hence, they were quite aware of the current OSH legislation and policy. Most of them were able to list out the OSH related legislation and some of them even took part in drafting the legislation. They mentioned that there were difficulties drafting laws on this aspect, because the term “OSH” was hard to define. Most of them also commented on the improvement of OSH legislation over the past 10 years. They highlighted

that the Legislative Council has become aware the importance of legislation due to the high work-related accident and injury rates in the past.

*“The Legislative Council and Government are aware that there were quite a high death rate among construction sites workers, the situation has improved these years, you can’t say there isn’t any law related to OSH, we have made some laws.”* (Interview 31: Policy maker)

### **Implementers:**

Most local implementers were not aware of any OSH legislation in schools, which contradicted to their high level of OSH knowledge found in the previous section. However, they had noted that there is OSH legislation for industrial and constructive sites workers. Interestingly, even though they were not aware of the OSH legislation in schools, they thought the legislation was effective enough to protect their health and safety at work. This was mainly because they did not perceive schools as risky work environments in terms of safety. However, they also mentioned that teachers were suffering from various work-related psychological health problems in the previous section. This is due to their misconception of the general health and safety laws. They mentioned that it was difficult to make general laws to protect teachers’ health at work. Their responses on this issue were quite similar to the policy makers’ opinions.

Compared with the local implementers, the Government implementers were the most knowledgeable group in terms of OSH legislation and policy. They did not only list out all legislation by names and details, they were also very confident in their knowledge and awareness of the legislation.

*“I am an implementer, I know a lot about safety ordinance, work environment safety, I am a professional, and I have certain level of knowledge.”* (Interview 17: Government implementer)

### **Teachers’ Representatives:**

Most of the teachers' representatives were not aware of any OSH legislation in schools. They had very low awareness of the OSH policy in general. Due to the lack of awareness of the OSH legislation among teachers, they believed that the legislation and policies were inappropriate and insufficient. They believed that there was a need for improvement in promoting existing OSH policies and making more policies on OSH in schools.

*“(Do you think the current OSH legislation is adequate and appropriate to protect the safety and health of teachers? Please elaborate.)*

*Inadequate and Inappropriate, because as a teacher, I know nothing, at least the interested party should know something about it.” (Interview 5: Teachers' representative)*

#### Implementation of the legislation and policy

##### **Policy makers:**

The policy makers had strong views on the implementation of the OSH legislation and policy. Most of them commented that there were appropriate legislation and policies but the government failed to implement them effectively.

*“legislation are available but there are no implementers enforcing the law.....even there are legislation, it doesn't mean they have good implementation.” (Interview 28: Policy maker)*

All of the representatives of the OSH Committees complained the government did not make good use of the function of the committee. The Committee should be responsible for monitoring the implementation of the OSH laws, to give advice to the Legislative Council and the Government, to organise OSH related activities and so to assess the effectiveness of it. However, the representatives complained they were only allowed to make decisions for some trivial matters and they had too many constraints in organizing promotional activities. They did not have the power to change much of the content of the activities.

*"I've been in the committee for over 2 years, but they do not often have meetings, and they organised very few activities, they don't care about the feedbacks from others. They put a lot of resources, however the results are limited. You invested that much money into it, the Government should respect the feedbacks."* (Interview 28: Policy maker)

### **Implementers:**

When the local implementers were asked about the OSH law enforcement, some of them recalled nothing about inspections from the Government. Some of them only noticed the regular fire inspections by the Government fire department, however, these fire inspections are not directly related to teachers' OSH.

Different from the local implementers, the government implementers claimed that they had a good system to inspect schools regularly. The frequency of inspections depended on the nature of the schools and their size. They also conduct some health and safety promotions in schools. When they were asked more about the inspection system, they mentioned that their system depended on their work schedule and resources they had. Inspections were usually done on a sudden basis and schools were assessed based on the law. The inspection monitored their compliance to the law and assessed their potential risks. Government inspectors would then give them suggestions to improve if there were problems with their health and safety.

*"We have our system to do school inspections depending on the size of the schools and the nature of inspections, for example we may do more frequent inspections in universities."*

(Interview 30: Government implementer)

*"(How frequent is the enforcement inspections in schools?)"*

*I don't have the figures now, I think about once a year. We inspected all schools and we have the record of it."* (Interview 29: Government implementer)

### **Teachers' representatives:**

The teachers' representatives did not have many comments on the government requirements to monitor, assess and implement OSH legislation, because they did not have a strong awareness of the legislation and the implementation of it. Most of them were not aware of any inspections.

*"(What, if any, are the government requirements to monitor, assessment and implement of OSH legislation?)*

*I don't know whether they have requirements or not, but there is a very weak awareness of it in the society."* (Interview 26: Teachers' representative)

### Future directions of legislation

### **Policy makers:**

Compared with the other two groups of respondents, the policy makers mentioned more about the future direction of legislation. Some of them focused more on the future possible directions of education policy. They believed that the class size and the number of teaching assistants were very important to the OSH of teachers. Their focus was mainly on the improvement of education policy and a better implementation of current OSH policies.

*"Firstly, there should be a smaller class size, and there have to be more than one teacher in a class, there will be less tension and pressure when there is more than one teacher with a smaller class size, they could help each other."* (Interview 9: Policy maker)

### **Implementers:**

Compared with the policy makers, the local implementers did not mention a lot about the future directions of the legislation. However, the government implementers focused mainly on

the improvement of the current legislation. As they were more knowledgeable on the occupational safety ordinance and guidelines, they suggested that the future direction of legislation on health and safety should focus on the safety management in schools. Safety management in other industries was required by the law, however this has not been implemented in schools yet. The schools are only highly encouraged to implement safety management policy, but there is no legislation backing up this guideline. Therefore, the government implementers suggested legal guidelines on safety management in schools.

*“There should be safety management in schools if it’s possible, current legislation on safety management does not include schools. If there is a legislation backing up.....they’ll have to do it.”* (Interview 29: Government implementer)

Teachers’ representatives’ opinions on this issue were not unique from the majority of the stakeholders.

#### Local OSH policy

##### **Policy makers:**

The policy makers did not mention much about local policy in schools, instead they talked about local policy in general work organisations. For example, risk assessment in the organisation and health and safety management.

*“There are many ways, the most popular one is to work with the human resources department in a company.....they will look into your stress level.....work efficiency.”* (Interview 24: Policy maker)

##### **Implementers:**

When talking about local policy on OSH, most local implementers mentioned the local safety

committee and risk management teams. Safety committees in schools were mostly responsible for the safety related matters in schools for both students and teachers. They focused more on the safety in laboratories, cookery rooms, fire safety, first aid, etc. Although there was no legislation to regulate these committees in schools, most of the schools in HK had their local safety committees. Moreover, most of the local implementers mentioned that they did not have clearly written local policy for regulating OSH, instead they usually gave oral advice or leaflets to their staff. Some of the schools had some safety guidelines for Manual staff. They also claimed that their teachers were aware of the safety reminders provided by them, and they were safety conscious.

*“We do not have specific OSH local policy, but how should I explain...um...we will remind our staff on some important issues.”* (Interview 21: Local implementer)

The government implementers had very different views compared with the local implementers, they stated best practice of a good safety management in schools, and how they should implement their local policy. However, comparing with the local implementers, it seemed that they did not have much knowledge of what was actually happening in the schools, and were unaware of practical issues.

*“Ideally, we should have a top down approach, start from the top management.....establish safety committees, and inform the middle management with instructions, and distribute to the members.”* (Interview 29: Government implementer)

#### **Teachers’ representatives:**

Nearly all respondents from the teachers’ representative group were unaware of any local policy on OSH. Some of the teachers’ representatives were aware of the risk management teams, safety committees and some of the relevant groups, and mentioned that students were the top priority of these groups. These groups also mainly focused on the safety side of the environment, for example: air circulation, fire safety and ergonomics problems.

*“There is no obvious local safety and health policy, our school emphasised a lot on healthy lifestyle these years, which includes students’ health.”* (Interview 15: Teachers’ representative)

### **Summary:**

In general, three groups of stakeholders demonstrated different levels of knowledge and awareness on OSH legislation and policies and this suggested a gap in the implementation process. Since the policy makers are responsible for drafting the OSH legislation, they have good awareness of the OSH legislation and policy. The government implementers also shared a high level of awareness on this, but the local implementers and teachers’ representatives were not so aware of OSH legislation and policy in HK, especially in schools.

The policy makers suggested that there were appropriate OSH legislation and policies but lack of effective implementation by the government. Interestingly, even though most of the school stakeholders noticed the impacts of psychosocial hazards in schools (as mentioned in the theme of “psychosocial factors”), they did not relate these concerns with the current OSH legislation and policies. Further, most of the local implementers and teachers’ representatives were unaware of Government inspections, but ironically the government implementers who were responsible for enforcing the legislation claimed that they did regular inspections in all schools.

Similar to the discussion of OSH issues in schools, the policy makers talked about the importance of local OSH policy in general workplaces, but they did not particularly comment on local OSH policy in schools. While, the Government implementers also agreed with the importance of local OSH policy. Most school stakeholders suggested that staff development days could be a good platform to conduct OSH educational programmes. The local implementers believed their effort in managing the local safety committees in schools were effective. However, the teachers’ representatives were not aware of any local OSH policy.

## 5.4 Discussion

This study aimed to interview stakeholders from the top to the bottom of the implementation process, in order to evaluate their levels of knowledge and awareness of OSH issues for teachers, and their role of existing legislation and policy. This study provides insights into different levels of implementation of OSH policy in HK schools. This is particularly significant for the future improvement of OSH policy implementation for teachers. Three key themes were generated: legislation and policy, the understanding of OSH issues and psychosocial factors in schools. The policy makers, implementers (Government and local) and teachers' representatives represent different levels of implementation from law making to the implementation in schools. Some issues and concerns within these themes are consistent among different levels of implementation and some are not, which reflect the responses of the different stakeholders. The consistency of opinions – or otherwise - provides evidence regarding the effectiveness of the current implementation.

Stakeholders generally agreed that, teachers were facing several major psychosocial problems relating to stress, heavy workload and long working hours. This is similar to the findings of the previous research on teachers' well being (e.g. Cheng, 2009; Leung 1994), meanwhile, these psychosocial factors are relevant to the inter-personal relationships in schools and worth attention. Although the teachers' representatives mentioned the gains from positive teacher-student relationships, stakeholders generally suggested psychosocial hazards would have a negative impact on students and society. The current study confirmed that after the adaptation of OSHO in 1997, significant psychosocial hazards still exist among teachers, and are widely recognised by the different stakeholders. This gap between policy and practice was suggested in previous literature as the failure of policy initiatives (Levi, 2005). This could be explained by those issues of concern raised in study one, such as the ambiguity of some details in the OSH legislation and policies.

In the past, attention in relation to workers' OSH has been mainly directed at physically demanding working conditions. Attention is now focused on the total physical and

psychological well being of employees. In this study, although most of the key stakeholders recognised the psychosocial hazards in schools, they did not find significant connections between these hazards and OSH policy. In particular, the school key stakeholders (local implementers and teachers' representatives) recognised teachers' work-related psychosocial problems, however, they did not show much awareness and knowledge of OSH issues, legislation and policy, because they believed that school is a safe work environment and psychosocial factors are irrelevant to the OSH policy. This is similar to the findings reported by (e.g. Leka et al., 2010; Iavicoli et al., 2004; Eurofound, 2007), that stakeholders showed a lack of knowledge in psychosocial issues, but still perceived the policies were effective in terms of management and assessment of psychosocial risks.

Interestingly, the Government implementers' opinions are quite distinct from the other stakeholders. They are very knowledgeable of the policy and OSH issues but they did not comment on the psychosocial issues in schools. Also, while the Government implementers believed that the OSH legislation and policy are sufficient and well implemented, the teachers' representatives were not aware of this. This reflects the possibility of communication breakdown in the implementation process. Even the policy makers recognised the importance of psychosocial issues, their concerns of psychosocial hazards were not explicitly reflected in the policy and the implementation, this was confirmed by the results of the policy review in study one, where the ambiguity of key definitions and lack of coverage in the policy was identified. Hence, the Government implementers interpreted the legislation and policies and OSH issues differently from the policy makers. In short, the policy was not able to implement from the top (policy makers) to the bottom (local authorities and the public) of the implementation process, and this communication breakdown avoided the policy to be implemented effectively. This further explained why teachers' representatives were discontent with the policy makers, and blamed them for teachers' psychosocial problems. The gap between different stakeholders in perceiving psychosocial issues was also found in previous policy studies (e.g. Natali et al., 2008; Leka et al., 2010), and their findings suggested the perceptive gap was an obstacle in policy implementation.

The results have certain implications regarding the future direction of the effective implementation of OSH policy in schools. At the higher level of implementation, together with the issues of concern raised in the previous policy review (study one) policy makers could consider clarifying some of the definitions and adding more details to the current legislation, for example: in the OSHO, there is no definition for the terms: “safety” and “health” in the Ordinance, and there is no evidence showing why these definitions are not stated in the Ordinance. Previous policy evaluations also find that although some policies (e.g. Framework Directive 89/391/EEC on Safety and Health of Workers at Work) emphasises the importance of addressing psychosocial risk factors at work, if there is no practical and operational translation of the terms stated in the policy, the effectiveness of such risk management would be affected. Therefore, more guidelines and clearer instructions on the implementation legislation and policies would help to translate the policy into different levels of implementation in HK.

From the results, the policy makers tend to know more general OSH issues and policies rather than school-specific ones. They should openly consult schools key stakeholders’ opinions in designing the policy and education programmes on OSH. On the other hand, since most of the stakeholders mentioned the importance of teachers’ perceptions of OSH and the role of management, the improvement of health and safety climate would potentially foster the implementation of OSH policy. Organisational climate was defined as the concept to comprise the combined perceptions of organisational members describing the atmosphere in their organisation (Dastmalchian et al., 1991) or with regard to its fundamental properties – in other words, policies, procedures and practices (Reichers & Schneider, 1990; Rentsch, 1990). In the current context, a consensus should occur when management and the Government display a commitment with an internally consistent pattern of action concerning health and safety in different levels. The health and safety climate in schools should refer to teachers’ perceptions of policies, but not informal interaction with colleagues. Therefore, in regards to the opinions of the stakeholders, the health and safety climate is associated with the effectiveness of the implementation of OSH policy in schools.

At the school level, the results showed that key stakeholders' emphasised the importance of trust, communication and inter-personal relationships in the implementation of the OSH policy as well as their impact on teachers' psychosocial health. These factors are strongly linked to the concept of social capital at work and it is defined as the capital provided by social relations and is linked to belonging to social networks, the formation of generalised trust in others, and those features of social relationships that facilitate co-ordination and co-operation for mutual benefit (Putnam, 1993; Kawachi, 1999; Putnam, 1993). There is room for investigating social capital as the antecedent of health and safety climate and health and safety outcomes, and hence foster the implementation of the OSH policy for teachers.

## **5.5 Conclusion**

The current qualitative study adopted the top-down approach to study the OSH implementation in HK schools. Interviews were conducted with three groups of stakeholders, namely policy makers, implementers and teachers' representatives, represented the top to bottom levels of stakeholders in the implementation process. The results of the study confirmed that stakeholders agreed teachers are suffering from different psychosocial health problems at work. However, the school stakeholders did not link their concerns about their psychosocial hazards at work with the current OSH legislation and policies. Together with the distinct opinions of the Government implementers, the results demonstrated a communication breakdown in the process of implementation, these findings are particularly significant for the future improvement of OSH policy implementation for teachers. The significance of OSH climate and social capital in the implementation of OSH policy was also identified and left a room for further investigations. With the results of the first two studies and the literature review, the next step of the research project is to investigate the interactions of these potential factors in the implementation of the OSH legislation and policies in HK schools with an organisational approach.

## Chapter 6: Study three - Questionnaire

### 6.1 Introduction

The first two qualitative studies have studied the content and implementation of the current legislation and policies that govern HK teachers' OSH by adopting the top-down approach. The systematic narrative review of the OSH legislation and policies together with the interviews of key stakeholders revealed some issues of concern in the current policy implementation process (e.g. ambiguity of the legislation and communication breakdown in the implementation process). In particular, the stakeholders' interviews provided an insight of some potential factors (e.g. climate and social capital) that may influence the effectiveness of the implementation of OSH legislation and policies, and this left a room for further investigations.

There are always limits to what can be achieved hardware alone (e.g. the statute of legislation), human factors play a significant part in achieving and maintaining high standards of health and safety (Davis et al., 2001). Therefore, there is a need to explore the propositions about human behaviours and social organisations. In study two, stakeholders' role, knowledge and awareness of the current policy implementation were explored using a top-down perspective. The current quantitative study adopts another approach to study the implementation of OSH legislation and policies; it integrates several social factors that presented in the literature review and findings of the previous studies into a framework model. With the application of organisational approach, this study is designed to show how organisations or sub-units of an organisation work with one another in the implementation process. The study aims to investigate the interaction of HK teachers and their organisations in order to understand more about factors affecting OSH legislation and policies implementation.

The previous qualitative study has found that OSH climate and social capital are potentially related to the implementation of OSH legislation and policies in HK schools. It is well known

that facet-specific climate perceptions can influence employees' attitudes and employees' performance in that particular area of their work (Dastmalchian et al., 1991; Reichers & Schneider, 1990; Rentsch, 1990). With regards to teacher's health and safety concerns, the core issue here is OSH climate in schools. As mentioned in the literature review (Chapter 2, Conceptualization of key elements), the concept of health climate is unclear, however, safety climate has been researched for over 35 years and studies have proved that safety climate has strong associations with safety behaviours, self-reported accident and injury rates and employees' safety in industrial sectors. In recent years, some authors (Basen-Engquist et al., 1998; Mearns & Hope, 2005; Mearns et al., 2006) have started to investigate the concept of OSH climate in different workplaces. Their studies suggested that the framework model of climate-behaviour-outcome relationship existed in other settings, similar to what has been found in safety climate research. The questions shift to the construct of "health and safety" climate of the current context (HK schools), and whether this facet-specific climate can be applied to the framework model of climate-behaviour-outcome relationship.

Further, the antecedent factors that promote a favourable climate are also unclear in the literature (Mearns & Hope, 2005). With reference to the stakeholders' interviews (study two) and the literature review, social capital is a potential antecedent factor which is worth further investigation. In addition, Chinese people have a background of collectivist culture and they are born and integrated into strong, cohesive in-groups, which provide them protection throughout their lives in exchange for loyalty (Hofstede, 1991). With this strong emphasis on the "social" aspect in Chinese workplace, support, trust, communication and social network are considered to be significant for a good and effective working relationship. The investigation of social capital in Chinese workplace in relation to health and safety issues is significant to the climate literature.

The current study examines several parameters with the concept of OSH climate as the focus from which to study the compliance of the target group (teachers) and the outcomes of OSH policy implementation (as shown in Figure 1) in an organisational perspective. This perspective underlines the focus of human behaviours and social organisations. By adopting

the framework model of climate-behaviour-outcome relationship, the study applies the organisational exchange approach, in which the model is structured by the concepts of social interaction of exchange with mutual interests (Bish, 1978; Tuite et al., 1972; White, 1974) and social behaviour expectancies (Bandura, 1986; Lawler, 1971; Vroom, 1964).

The significance of social capital and climate were presented in the findings of the stakeholders' interviews (study two). Together with the literature review of framework model of climate-behaviour-outcome relationship, these highlighted factors helped the design the hypotheses and the framework model of climate-behaviour-outcome relationship in this quantitative part of the study.

In this stage of the research, quantitative methods are used to test several hypotheses. The first two hypotheses are related to the relationships between school organisations and teachers' organisational perceptions. As mentioned, the organisational approach is to take the position to study the social organisations or sub-units of a social organisation and human behaviours. Both the interactions between and within the organisations are significant to the study of the policy implementation with this approach. Therefore, the current study is going to compare the teachers' organisational perceptions between different school organisations (between organisations) and investigate the framework model of climate-behaviour-outcome relationship within the school organisation as a whole (within an organisation). No previous study has compared the organisational perceptions of HK workers from different school organisations, such as types and levels of school. Hence, with the application of an organisational approach, it will be beneficial to investigate the differences between teachers' organisational perceptions (social capital and OSH climate, knowledge, compliance and participation) according to their school organisations (types and levels). It is hypothesised that with different social organisational contexts, teachers' organisational perceptions also vary as follows:

Hypothesis 1: Teachers from different types of schools (Government, subsidized and private) differ in their organisational perceptions (social capital and OSH climate, knowledge, compliance and participation).

Hypothesis 2: Teachers from different levels of schools (primary and secondary) differ in their organisational perceptions (social capital and OSH climate, knowledge, compliance and participation).

The current study applies an organisational approach to study the framework model of climate-behaviour-outcome relationship within the school organisation. This framework model is structured by the concepts of social interaction of exchange with mutual interests (Bish, 1978; Tuite et al., 1972; White, 1974) and social behaviour expectancies (Bandura, 1986; Lawler, 1971; Vroom, 1964). Three proposed models were also designed to test the relationships between different determinants of teachers' OSH outcomes. The proposed models would provide a basis for the development of full model for the climate-behaviour-outcome relationship. Model 1 (Figure 3) aims to test the climate-behaviour-outcome relationship in the HK school context. It is proposed that the traditional climate-behaviour-outcome relationship with measure of system failure (OSH complaints), which has been tested in previous safety climate studies (e.g. Neal and Griffin, 2004) can also be applied to the current OSH context. In addition, with the inclusion of the system success (general well being) in the current study, this relationship is proposed to further enhance teachers' general well being. The two hypotheses of proposed model 1 are:

Hypothesis 3: OSH climate has a positive effect on OSH behaviours (compliance and participation) and a negative impact on the level of OSH complaints.

Hypothesis 4: The relationship between OSH behaviours and complaints will subsequently enhance teachers' general well being.

Proposed model 2 is designed to test OSH knowledge as a construct in the climate-behaviour-outcome relationship. Previous safety climate studies demonstrated that climate helped to enhance desired behaviours through knowledge (e.g. Campbell, et al., 1993). Other health studies also showed knowledge has a direct effect on health related behaviours (e.g. Gamba & Oskamp, 1994). In the current study, it is also proposed that OSH knowledge is a mediator of the climate-behaviour-outcome relationship, in order to investigate whether knowledge is the full mediator of the relationship, the direct effect of OSH knowledge on OSH outcomes will also be tested in the model. It is hypothesised that:

Hypothesis 5: OSH knowledge mediates the relationship between OSH climate and OSH behaviours (compliance and participation) and subsequently affects OSH outcomes (OSH complaints and general well being).

Hypothesis 6: OSH knowledge has a direct effect on OSH complaints and general well being.

In the final stage of the development of the full model, in the final proposed model, a proposed antecedent of the climate-behaviour-outcome relationship is added into model 2. This final model aims to demonstrate the full model of climate-behaviour-outcome relationship with the inclusion of a proposed antecedent. Previous studies have demonstrated that social capital was associated with workers' health (e.g. Kouvonen et al., 2006), therefore, social capital is also hypothesised to have direct effect on OSH outcomes. The full model hypothesises that:

Hypothesis 7: Social capital presents direct relationships with both teachers' OSH complaints and general well being.

Hypothesis 8: Social capital has a direct effect on OSH climate and further determines the other OSH variables.

The chapter is divided into introduction, methods, results and discussion sections. It begins with the overall introduction and methods of the quantitative study. The results section is organised in three parts to illustrate the results of the quantitative data analysis, they are the procedures of examining psychometric properties of the measurement scales; general and descriptive results of the study; and the results of testing the development of proposed models. The chapter concludes with the discussion of the study according to the nine hypotheses.

## **6.2 Methods**

The study explores the relationships between teachers' OSH outcomes and their possible antecedents and determinants, including measures of OSH climate, social capital, OSH behaviours, OSH knowledge, OSH complaints and general well being. A cross-sectional, correlation study design is employed based on a questionnaire survey. 704 teachers from 473 primary schools and 224 secondary schools completed a specially designed questionnaire (see Results section, p. 183). These data are analyzed using a variety of statistical techniques, including t-test, ANOVA and structural equation modelling (SEM) to determine both simple and mediated relationships between the variables (see the section on Data Analysis).

### *6.2.1 Sampling*

The population of the study consists of full time teachers in all primary and secondary schools in HK. With the collaboration with HK Professional Teachers Union (HKPTU), convenience sampling is used to distribute both online and paper questionnaires. HKPTU is the largest teacher trade union in HK and its membership includes over ninety per cent of the teachers in HK from kindergartens to universities. Online questionnaires are sent to all primary and secondary school teacher members of HKPTU through e-mails. The questionnaires are uploaded to a web based survey tool, called Survey Monkey. The address of the online

survey is attached in the emails. From March to September 2009, around 5300 emails are sent by the HKPTU and only 151 teachers responded and answered the questionnaire online, with response rate of 3 per cent. Similar organisational research has suggested 11.8 per cent as the thresholds of low response rate (Martin & Gardiner, 2007), which indicates that the current study has a very low response rate. The low response rate can be explained by teachers' busy work schedules in HK and the enormous numbers of research conducted recently in HK which was previously mentioned in Introduction chapter. Also, the online questionnaire website address is attached to the monthly bulletin, the large amount of information HKPTU sent out to its members at the same time would also influence the response rate of the survey. From collected online questionnaires, two have with missing data, and therefore are omitted from the data set.

Paper questionnaires are also distributed in the union centre by the researcher in person from July to August 2009. 700 paper-copied questionnaires are distributed in person and 555 were successfully collected back, with a response rate of 79 per cent. In order to ensure the participants complete only one type of questionnaires (either online or paper), the researcher has asked them verbally not to fill in the paper questionnaire if they have already completed the online one. In total, 704 questionnaires are collected by September 2009, 149 are online questionnaires and 555 are paper-copied questionnaires, there is no significant difference between the two types of questionnaire and presented in the results section. 473 are secondary school teachers and 224 are primary school teachers. Teachers also come from different types of schools from variety of locations. For a detailed description of the participants, refer to the results section.

There might be some potential bias resulting from the sampling technique. For example: the responders maybe more interested in the topic of health and safety; or they were more likely to be directly influenced by OSH legislation and policies, and therefore may have been more keened to participate in the study. Non-responders may not have participated due to their busy time schedule, but their responses may also be affected by their lack of awareness of the topic which may have been the reason why they did not participate. However, there is

great difficulty in obtaining teachers' consent for participation. The whole process of sampling requires extensive travel, negotiations and personal contacts by the researcher. The only possible adequate solution would be recruiting larger samples or compulsory participation by the schools and government. However, there are disadvantages of different sampling techniques, and they are beyond the scope and time frame of this research.

### *6.2.2 Procedure*

The data collection took place from March to September 2009. Each questionnaire is accompanied with a description of the nature and the purpose of the study. Clear instructions are also conveyed as the part of the questionnaire with a consent form explaining the ethical considerations. The consent form has to be signed before any respondents started answering any of the questions. To ensure confidentiality, teachers are encouraged to hand in their paper questionnaires to the researcher in person once they had completed it.

### *6.2.3 Pilot study*

The questionnaire is piloted with twenty participants, who are recruited by convenience sampling. All participants in the pilot study agreed that the questionnaire would be useful in accessing teachers' perceptions of different components of OSH in schools. They indicated that the statements were clear and simple and would be understood by primary and secondary school teachers. However, they suggested that questions on marital status and age might be very sensitive information for some teachers to disclose because they cannot find relationship between personal information with OSH in schools.

With the results of the pilot study, more effort is made by the researcher to explain the rationales of the each section of the questionnaires. It is also clearly indicated to the respondents that they have the right for not answering any undesirable questions.

#### 6.2.4 Instrument

The questionnaire is divided into five parts, namely OSH, social capital, self-rated health, availability for work and demographic information with occupational details. A few instruments are used in this study, they included: OSH climate, Social Capital, validated Chinese version of General Health Questionnaire 12 (GHQ-12), OSH knowledge, OSH behaviours (compliance and participation). Self-reported questions were used to measure teachers' availability for work, their demographic information, occupational details and health status. All questions, except the GHQ-12 were translated into Traditional Chinese using the back translation technique (Scott, 2004) by two independent bilingual applied psychologists. Please refer to Appendix VII for the complete set of questionnaires used in the current study.

#### Occupational Health and Safety

One of the hypotheses of the study is to investigate teachers' OSH climate-behaviour-outcomes, however, there is no reliable and well-validated OSH climate (or relevant) scale available in the reviewed literature. Neal & Griffin's (2006) scales on safety climate, behaviours and knowledge are the most recent validated safety climate scales which were adopted to measure the relationships of climate-behaviour-outcome. It has also been tested and found to be reliable and valid measure with different populations (e.g. Clarke & Robertson, 2005 and Neal & Griffin, 2000). In order to achieve the aims of the current study, the element of health has to be added into the validated safety climate scales. Meanwhile, Neal & Griffin's (2006) safety climate scales were designed for industry workers, it is also essential to modify the items to match the work context of teachers. Therefore, items in the OSH climate, OSH behaviours (compliance and participation), and OSH knowledge scales are modified from (Neal & Griffin, 2006a) safety climate, safety behaviour and safety knowledge scales. The original scales are validated and psychometrically tested with good internal consistency: safety climate scale (Cronbach's alpha = 0.72), safety behaviour scale (Cronbach's alpha = 0.89), and safety knowledge scale (Cronbach's alpha = 0.72). Previous studies which used the same scales found significant relationships between safety climate, safety behaviour,

knowledge and motivation (Neal & Griffin, 2006; Griffin & Neal, 2000; Clarke & Robertson, 2005). The reliability of the modified scales will be presented in the results section.

All twelve items in total from the original scales are modified based on the literature review and the results of the semi-structured interviews conducted in study one. As in the original scales, all items of these scales are measured on a 5-point rating scale ranging from 1 (strongly disagree) to 5 (strongly agree) with the same scoring system.

#### - OSH climate

OSH climate is assessed by an three item scale, and it consists of three items from the modified safety climate scale (Neal & Griffin, 2006).

The original items of the safety climate scale are about the degree to which managers valued safety in the workplace (3 items; Cronbach's  $\alpha = .72$ ). The full score of the scale is 15, which indicate the highest level of safety climate. An example item is "I think management is sincere in its efforts to ensure employee safety", and it has been modified to "I think management is sincere in its efforts to ensure employee health and safety".

#### - OSH behaviours

Two components of OSH behaviour are assessed: OSH compliance and OSH participation. Each OSH behaviour component is assessed by the modified version of the safety behaviour scale (Neal & Griffin, 2006), and there are three items in the modified scale. The full score of each safety behaviour scale is 15, which indicates highest level of safety behaviours. An example of the original item for safety compliance is "I use all the necessary safety equipment to do my job" (3 items; Cronbach's  $\alpha = .89$ ), and it has been modified to, "I use all the necessary equipment to protect my health and safety when I do my job (e.g. loud speaker)".

An example item from the original safety participation is, "I promote the safety programme

within the organisation” (3 items; Cronbach’s alpha = .89), this item is modified to “I promote the health and safety programme within the organisation”.

#### - OSH knowledge

OSH knowledge is assessed by three items that asked employees to rate their knowledge about OSH practices. It is modified from the safety knowledge scale by Neal and Griffin (2006) (3 items; Cronbach’s alpha = .73) (Neal & Griffin, 2006). The full score of the scale is 15, which indicates the highest level of safety knowledge. An example item from the original scale is “I know how to use safety equipment and standard work procedures”, and the modified OSH knowledge item is “I know how to use equipment to protect my health and safety at work”.

#### Social capital

Social capital at work is assessed with the social capital scale (Kouvonen et al., 2006). This 8-item measure of social capital at work is the first validated and reliable scale to measure workplace social capital. The original scale is validated in a large sample of Finnish public sector employees and revealed good psychometric properties. In brief, this scale taps both the cognitive and structural components of social capital at work as well as the three types of social capital: bonding, bridging and linking (Harpham et al., 2002a; Woolcock & Narayan, 2000). The scale measures shared attitudes and values among members of a work unit, reciprocity, mutual respect and trust between workmates, collective action and participation in the networks at work, and trust in and trustworthiness of a supervisor.

The measure consists of eight items: An example item of the scale is “Our supervisor treats us with kindness and consideration”. The responses are given in a five-point scale (1=totally disagree, 5=totally agree). The internal consistency of this measurement was good (Cronbach’s alpha = .87). The full score of the scale is 40, which indicates the highest level of social capital at work. The mean score reported in Oksanen et al (2008)’s study with 3640

professional workers in Finland was 29.84 (S.D. 0.70).

### Self-rated health

Self-rated health is used to measure health. It is one of the most widely used measures of health status (Krause & Jay, 1994), and has been shown to be related to a number of important medical outcomes (Idler & Benyamini, 1997; Idler et al., 2000; Kivimaki et al., 2003) and sensitive to changes in health status (Bailis et al., 2003; Idler et al., 2000).

Respondents are asked to rate their experience of work-related health and safety problems in the last six months on a Likert scale ranging from 1 (always) to 5 (never). If they have experience any work-related health and safety problems, they are asked to list out their problems. These are then content analysed and a general score was derived from the scale.

### The General Health Questionnaire (GHQ-12)

The GHQ-12 is employed to assess general well being, GHQ-12 has been widely used in many countries for detecting psychological morbidity and health related quality of life (Gao et al., 2004). Some major national studies such as the British Household Panel Survey (BHPS) also employed this instrument (Wiggins et al., 2004). The Chinese version of GHQ-12 has also been tested and validated with the Chinese population (Chan & Chan, 1983; Pan & Goldberg, 1990).

The GHQ-12 consists of 12 items, each assessing the severity of a mental problem over the past few weeks using a 4-point scale (ranging from 0 to 3). The score was used to generate a total score ranging from 0 to 36, with higher scores indicating worse conditions (Goldberg & Williams, 1988). The Chinese version of GHQ-12 used in this study had been validated (Chan & Chan, 1983; Pan & Goldberg, 1990) and has good reliability (Cronbach's alpha = .85). A previous study of the 60 and 30-item versions of English and Chinese GHQ yielded comparable scale scores, suggesting equivalence for the two language versions (Chan, 1985).

The mean score of the HK norm is 13.85 (Ip & Martin, 2006c). From the scoring manual of the GHQ-12, (Goldberg, 1992) noted that mean score of above 15 indicates a level of distress and a mean score of above 20 suggests severe problems and psychological distress.

#### Availability for work

The present study employed self-reported intention to withdraw as the criterion for their availability for work. Research has shown that attitudes or intentions have distinct advantages over those with behaviour as the dependent variable, e.g. (Shore et al., 1990). Also, in Theory of Planned Behaviour (Ajzen, 1991), knowledge of a persons' self expressed intentions is proved to be predictor of behaviours. The former can be used as the dependent variable and an assumption can be made that some action on the part of the employee is likely to follow. Although attitude and subjective norm also play a part in behavioural change, intention is one of the indicators of the change of behaviours. In this study, self-reported availability for work was used to measure teachers' turnover intention, absenteeism, job satisfaction, and working hours.

#### - Turnover intention

The intention of turnover and the likelihood of a respondent leaving the organisation is measured by one item: whether the respondent is planning to leave his/her job in the coming 6 months? (Yes/No).

#### - Absenteeism

Previous studies in HK have suggested that teachers' individual health problems have affected the organisation in various ways, including absenteeism (e.g. HKPTU, 2005). The current study also investigated this organisational outcome in order to tap teachers' frequency of sickness absence leave: Approximately, how many working days of sickness absence have you had over the past 12 months? Respondents were asked to fill in the number of days they

were absent due to health and safety problems.

#### - Job Satisfaction

Teachers' perception on their work life is inextricably associated with teaching quality (Perry et al., 1995). Therefore, teacher job satisfaction is often regarded as a significant determinant on the organisational outcomes (Lee, 2006). Job satisfaction is a concept that define as an affective reaction to one's job, and teachers were asked to rate how satisfied they are with their job on a 5-point Likert scale ranging from very satisfied to very unsatisfied.

#### - Working hours

In study two, the findings of the stakeholders' interviews have revealed that HK teachers are suffering from long working hours, it will be significant to measure HK teachers' number of working hours in the current study, in order to address this issue of concern. Respondents are asked to write down their average number of working hours in each week, including regular overtime work.

#### Demographic information and occupational details

Respondents are asked to fill in their personal biographical information, such as age, gender, and education background. Since all respondents are teachers, there are also items on their teaching experience, such as how many years they have been teaching and what subjects they are teaching. Information of their current school is also asked using items such as: the location of the school, and the type of the school (primary, secondary school, Government school, aided school, etc.)

### 6.2.5 Data analysis

The psychometric properties are tested for all modified and or translated measurement scales. The procedures consist of construct assessments Exploratory Factor Analysis (EFA) and tests of dimensionality (Confirmatory Factor Analysis (CFA) and Structural equation modelling (SEM). Convergent validity tests and discriminant validity tests are also conducted to test the validity of the measurements. Reliability is measured by assessing cronbach's alpha and all group level measures (social capital and OSH perceptions) are assessed by the test of homogeneity. T-tests, ANOVA and SEM are used to test the hypotheses. SPSS (v.16) and AMOS (v.16) are used for all analyses.

- Procedures to assess psychometric properties of modified and/or translated measurement scales

There are several modified and/or translated measurement scales (OSH climate, OSH knowledge, OSH behaviours and social capital) used in this study. This section is an explanation of the procedures used to assess how well instruments are measuring the intending constructs. It is important to ensure the modified and/or translated versions of the measurement scales are reliable and valid. The measurement of psychological variables (psychometric characteristics) of good instruments should possess a high reliability (internal consistency of at least .70); low standard error of measurement; good evidence of construct validity; and high discriminatory power (Kline, 1998).

EFA and CFA are employed to verify and validate the psychometric properties of the modified and/or translated measurement scales. Firstly, SPSS (v.16) is employed to determine the underlying factor structures in the data set using EFA. EFA allows the assessment of the extent to which the items are measuring the same concepts or variables, and items that are not measuring a particular construct will be identified (Bryman & Cramer, 2005). An examination of Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is adopted to measure the adequacy of the factor analysis for the data. A KMO >.60 suggests a strong

adequacy (Kaiser, 1974). Both the eigenvalues and the scree plot help to inform the decision of retaining items in the scales; in social sciences, an explained variance of 60%, and sometimes less, is acceptable (Hair et al., 1998). However, EFA is generally acknowledged as insufficient for the assessment of dimensionality (Hunter & Gerbing, 1982; Rubio et al., 2001) and is not able to test models with higher order factors (Hunter & Gerbing, 1982; Rubio et al., 2001), this can be done through CFA, namely using SEM.

The next step involves CFA which adopts AMOS (v.16) to assess construct validity of the different measurement scales. The CFA measurement model tests whether the indicators are loading onto the proposed underlying constructs and whether the latent variable is loading on only one common factor (McDonald & Ho, 2002).

#### - Structural equation modelling (SEM)

SEM is used to address the proposed models in the current study. AMOS (v.16) is used to evaluate the structural model. SEM procedures allow for the incorporation of both observed and latent variables (Byrne, 2001b; Hair et al., 1998) and express direct, indirect and total relationships between independent and dependent variables, even when the same variable is at the same time a dependent variable in one relationship and an independent one in another relationship (Hair et al, 1998). In SEM, the model is statistically tested through a simultaneous analysis of the entire system of variables in order to measure the extent to which it is consistent with the data (goodness-of-fit). In other words, the higher the goodness-of-fit, the stronger the support granted to the hypothesised associations among variables (Byrne, 1998). In addition, SEM has been proven to have more advantages than multiple regression in establishing the 'best fitting' model (Cheng, 2001). These seem to be the necessary characteristics of a technique to address the models proposed in this study.

#### - Model fit criteria

The estimated CFA measurement models and models tested were assessed across several

indices to determine the fit of the model with data. There is no consensus on the appropriate index for assessing overall goodness-of-fit of a model (Ping, 2004), however the chi-square statistic has been the most widely used fit index (Bagozzi & Heatherton, 1994; Baumgartener & Homburg, 1996; Ping, 2004). The chi-square test measures the discrepancy between a hypothesised model and data, by testing the null hypothesis that the estimated variance-covariance matrix deviated from the sample variance-covariance matrix only because of sampling error (Baumgartener & Homburg, 1996). Significant values of the chi-square test mean that there is a strong divergence between the data and the model, and that the latter should be rejected. However, the chi-square goodness-of-fit test tends to reject model-to-fit data as the sample size increases, leading to the rejection of models with only slight divergences from the data, which limits its practical usefulness (Baumgartener & Homburg, 1996). In this context, it is advisable to report additional measures of fit (Baumgartener & Homburg, 1996; Bagozzi & Heatherton, 1994). There are few indices suggested in the previous studies (Baumgartener & Homburg, 1996; Ping, 2004). Four of these indices are absolute fit indices, which assess the overall model-to-data fit for structural and measurement models together (Bollen, 1989; Hair et al., 1998): chi-square goodness-of-fit test ( $X^2$ ), ratio of  $X^2$  to degrees of freedom ( $X^2/df$ ), root mean squared error of approximation (RMSEA), goodness-of-fit index (GFI), and adjusted goodness-of-fit index (AGFI); whereas the remaining two are incremental fit indices, they compare the target model to the fit of a baseline model, normally one in which all observed variables are assumed to be uncorrelated (Baumgartener & Homburg, 1996): comparative fit index (CFI), and non-normed fit index (NNFI). Table 9 presents a description of these indices and suggested cut-offs.

**Table 9: Descriptions and thresholds of goodness-of-fit indices used in the assessment of both measurement and structural models**

<b>Fit Index</b>	<b>Description</b>	<b>Cut-Offs</b>
<b>X<sup>2</sup></b>	Indicates the discrepancy between the hypothesised model and data; Tests the null hypothesis that the estimated covariance variance matrix deviates from the sample variance-covariance matrix only because of sampling error.	p>.05
<b>X<sup>2</sup>/df</b>	Because the chi-square test is sensitive to sample size and is only meaningful if the degrees of freedom are taken into account, its value is divided by the number of degrees of freedom.	2 to 1 or 3 to 1
<b>RMSEA</b>	Shows how well the model fits the population covariance matrix, taken the number of degrees of freedom into consideration.	<.05: good fit; <.08: reasonable
<b>GFI</b>	Comparison of the squared residuals from prediction with the actual data, not adjusted for the degrees of freedom.	>.90
<b>AGFI</b>	GFI adjusted for the degrees of freedom in the model.	>.90
<b>NNFI</b>	Shows how much better the model fits, compared to a baseline model, normally the null model, adjusted for the degrees of freedom (can take values greater than one).	>.90
<b>CFI</b>	Shows how much better the model fits, compared to a baseline model, normally the null model, adjusted for the degrees of freedom.	>.90
	Source: Based on (Bagozzi & Yi, 1998; Baumgartener & Homburg, 1996; Ping, 2004; Diamantopoulos & Winklhofer, 2001; Cote et al., 2001; Ping, 2004; Armando Luís Lima de Campos Vieira, 2008)	

The validity of the modified and/or translated measurement scales was assessed by using convergent validity test and discriminant validity test.

- Convergent validity

Convergent validity is the extent to which the items in a scale converge or load together on a

single construct in the measurement model. In this study, it will be supported if each observable variable loads significantly (i.e., coefficients must be greater than twice its standard error) on the latent variable that they are purported to measure (Steenkamp & H.van Trijp, 1991; Anderson & Gerbing, 1988; Hair et al., 1998). The general benchmark for convergent validity is indicated by relatively high standardised loadings of indicators to its underlying construct with a value of more than .50 (Steenkamp & H.van Trijp, 1991; Hildebrandt, 1987).

#### - Discriminant validity

Discriminant validity, the extent to which the scales developed to measure different constructs are actually measuring different constructs. The correlation between the factors are measured, and if they do not exceed .70, it shows a signal of distinctiveness (Ping, 2004). According to Steenkamp and H. van Trijp (1991), these correlations are significantly different from unity, which suggests evidence for discriminant validity.

#### -Reliability tests

Reliability is examined after assessing unidimensionality and convergent validity, given that a construct can exhibit an acceptable reliability even if it does not meet the convergent validity criteria (Steenkamp & H.van Trijp, 1991). Cronbach's alpha should be assessed only after unidimensionality has been proven (Gerbing & Anderson, 1988), because it is possible for a number of items to be interrelated which show internal consistency and still not be homogeneous (Hulin et al., 2001). Nunnally (1978)'s threshold of .70 is adopted to show the reliability of the measurement scales (Nunnally, 1978).

#### -Tests for homogeneity

Since all modified and/or translated measurement scales (Items in the OSH climate, OSH behaviours (compliance and participation), OSH knowledge scales) are group level

measurements, homogeneity of these perceptions was assessed with the *rwg* index (James et al., 1993). (Glick, 1985) suggested that the aggregation of individual responses requires an above threshold consensus (*rwg* > .70, assuming uniform null distribution). T tests are used to assess the between-groups comparison to further confirm the within-group homogeneity.

## **6.3 Results**

### *6.3.1 Psychometric properties of the modified and/or translated measures*

The scales measuring OSH climate, OSH knowledge, OSH compliance and OSH participation were modified from (Griffin & Neal, 2000d) scales for measuring safety climate, safety knowledge, safety performance (compliance and participation). All the items were modified with references to the literature review and the results of the previous qualitative study. They were then back translated to traditional Chinese. The social capital scale for measuring social capital at work was also back translated to translated Chinese from the original scale adapted from (Kouvonen et al., 2006). In order to prove the validity and reliability of the above modified scales, a convergent validity test, a discriminant validity test, an assessment of *rwg* index and a Cronbach's alpha test were conducted.

### *6.3.2 Assessment of OSH climate, knowledge, compliance and participation*

The results of the EFA conducted for the 12 items measuring teachers' OSH (Climate, knowledge, compliance and participation) identified a four-factor structure (see Table 10). The values observed for the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO=0.862) are strong and significant, suggesting that factor analysis is adequate for this data. An examination of the eigenvalues helped inform the decision to retain these four factors of OSH

items, accounting for a total variance explained of 70% or more. In social sciences, an explained variance of 60%, and sometimes less, is acceptable (Hair et al., 1998).

**Table 10: Principal Components Analysis for OSH items**

	F1' HSC	F2' HSK	F3' HSBC	F4' HSBP
HSC1. Management places a strong emphasis on workplace health and safety.	0.874	.145	.149	.151
HSC2. Health and safety is given a high priority by management.	0.845	.175	.106	.160
HSC3. Management considers health and safety to be important.	0.846	.200	.222	.031
HSK1. I know how to use equipment/ correct procedures to protect my health and safety at work.	.201	0.819	.188	.140
HSK2. I know how to maintain or improve workplace health and safety.	.190	0.862	.157	.196
HSK3. I know how to reduce the risk of accidents and health related problems in the workplace.	.163	0.825	.196	.214
HSBC1. I use all the necessary equipment (e.g. microphone speakers) to protect my health and safety when I do my job.	.100	.098	0.864	.090
HSBC2. I use the correct health and safety procedures for doing my work.	.135	.357	0.735	.111
HSBC3. I ensure the highest levels of health and safety when I do my work.	.186	.338	0.726	.245
HSBP1. I promote the health and safety programme within the organisation.	.254	.174	.079	0.732
HSBP2. I put in extra effort to improve the health and safety of the workplace.	.129	.082	.259	0.871
HSBP3. I voluntarily carry out tasks or activities that help to improve workplace health and safety.	.076	.269	.430	0.705
<sup>1</sup> All Values significant at p<.05; Values <.40 have been suppressed				
HSC: Climate; HSK: Knowledge; HSBC: Compliance; HSBP: Participation				
<b>Explained Variance</b>	44.6%	12.7%	10.1%	7.8%
<b>Cronbach's Alpha</b>	0.878	0.877	0.757	0.756

#### Dimensionality tests

EFA suggested that four factors emerged from the set of OSH items, and they reached a certain degree of correlation (Ping, 2004). According to Byrne (2001), the fit statistics resulting from the model will be equivalent, either if it is parameterized as different factor structures, in this case four different constructs of OSH. In the present study, EFA suggests a factor structure comprising OSH climate, OSH knowledge, OSH compliance and OSH participation, with each of these factors being, in turn, unidimensional to the construct of OSH

perceptions. The object of analysis is, therefore, whether unidimensionality holds for each of the four factors or dimensions (Steenkamp & H.van Trijp, 1991). SEM was used to clarify the different components of OSH perceptions in the current context.

A series of four CFA models were compared, and the results of each model are presented in Table 12. First, a null model that specified no covariation among items was estimated. This null model provides a baseline for comparison with subsequent models. Second, a one factor model was estimated to test the possibility that all items loaded on a general factor regarding OSH. The one-factor model was a significantly better fit than the null model,  $\Delta X^2 (12, N = 645) = 2325.46, p < .001$ . Thirdly, a three-factor model was estimated that specified the components, determinants and antecedents of OSH behaviour. This model allows for the possibility that different dimensions are perceived by teachers but that distinctions among specific sub-dimensions are not meaningful. The model shows a significant improvement in fit,  $\Delta X^2 (3, N = 645) = 1081.14, p < .001$ . Fourth, a four-factor model that differentiated the two components of OSH behaviours was estimated. This model also shows a further significant improvement in fit,  $\Delta X^2 (3, N = 645) = 164.44, p < .001$ . (See Table 12)

The overall model fit statistics in AMOS are within the generally accepted thresholds and suggest an acceptable goodness-of-fit (see Table 11). The Chi-Square test is significant ( $X^2 = 226.4, (p < 0.0001, df = 48)$ ). In addition, the Goodness of Fit Index (GFI = .95), the Adjusted Goodness of Fit Index (AGFI = .92), as well as the Root Mean Square Error of Approximation (RMSEA = .07) are indicating good fit (Diamantopoulos & Winklhofer, 2001; MacCallum et al., 1996).

The results support the proposition that individual teachers' perceptions of OSH can be differentiated in terms of the antecedents, determinants, and components of OSH behaviours. The distinction between OSH compliance and OSH participation as different components of OSH behaviours has also been supported.

In terms of the validity of the modified version of OSH items, the current assessment of the dimensionality of the items addresses the issue of construct validity.

**Table 11: Confirmatory Factor Analysis for OSH**

<b>ITEMS AND STANDARDIZED FACTOR COEFFICIENTS*</b>	HSC	HSK	HSBC	HSBP
HSC1. Management places a strong emphasis on workplace health and safety.	0.88			
HSC2. Health and safety is given a high priority by management.	0.87			
HSC3. Management considers health and safety to be important.	0.78			
HSK1. I know how to use equipment/ correct procedures to protect my health and safety at work.		0.80		
HSK2. I know how to maintain or improve workplace health and safety.		0.89		
HSK3. I know how to reduce the risk of accidents and health related problems in the workplace.		0.83		
HSBC1. I use all the necessary equipment (e.g. microphone speakers) to protect my health and safety when I do my job.			0.57	
HSBC2. I use the correct health and safety procedures for doing my work.			0.77	
HSBC3. I ensure the highest levels of health and safety when I do my work.			0.83	
HSBP1. I promote the health and safety programme within the organisation.				0.68
HSBP2. I put in extra effort to improve the health and safety of the workplace.				0.72
HSBP3. I voluntarily carry out tasks or activities that help to improve workplace health and safety.				0.78
*All Values significant at p<.05; Values <.40 have been suppressed				
HSC: Climate; HSK: Knowledge; HSBC: Compliance; HSBP: Participation				
<b>GOODNESS OF FIT STATISTICS</b>	20.4 %	21.2 %	15.0%	18.6 %
X <sup>2</sup> = 226.4, (p=0.0001), df = 48				
GFI = .95, AGFI = .92, NFI, = .95, RMSEA = .07, NNFI, = .94, CFI = .96				
<b>CORRELATION BETWEEN FACTORS</b>	HSC ↔HS K	HSK ↔HS BC	HSBC ↔HSB P	HSPB ↔HS C
	0.48	0.69	0.67	0.48

**Table 12: Assessment of measurement model for individual responses to OSH survey items**

Model	X <sup>2</sup>	df	ΔX <sup>2</sup>	GFI	AGFI	NFI	NNFI	CFI	RMSE A
Measurement models									
Null Covariance model	3780.8	8		0.37	0.26				
One-factor model	1455.4	2	2325.46***	0.70	0.57	0.62	0.54	0.62	201.00
Three-factor model: One climate dimension One knowledge dimension One performance dimension	374.28	51.00	1081.14***	0.91	0.86	0.90	0.89	0.91	0.10
Four-factor model: One climate dimension One knowledge dimension Two performance dimensions	209.84	48.00	164.44***	0.95	0.92	0.95	0.94	0.96	0.07

Convergent validity test

In this study, all 12 items were retained (3 for OSH climate, 3 for OSH knowledge, 3 for OSH compliance, and 3 for OSH participation). All items loaded significantly within each factor, it is reinforced by the strong loadings, which is, larger than .50 (Steenkamp & H.van Trijp, 1991; Hildebrandt, 1987) for all the times (see Table 11). In addition, the evidence of convergent validity is further strengthened by the good overall fit of the four-factor model (Steenkamp & H.van Trijp, 1991).

### Discriminant validity test

Results also support the discriminant validity of the measures. To begin with, the correlation between the factors did not exceed .70, a signal of the measure distinctness of each construct of OSH (Ping 2004) (see Table 11). In fact, correlations are significantly different from unity, which suggests that to a large extent these measures are discriminated which provides an evidence for discriminant validity, according to Steenkamp and van Trijp (1991).

In addition, the comparisons between a series of CFA models were performed previously under the dimensionality test for OSH items. Discriminant validity is supported as was seen in the rejection of the null model and the change in the  $X^2$  between different models (see Table 12).

### Reliability tests

As observed in Table 10, Cronbach's alphas are above, the threshold of .70 (Nunnally, 1978) for all four variables, namely OSH climate (alpha = 0.88), knowledge (alpha = 0.88), compliance (alpha = 0.76) and participation (alpha = 0.76), suggesting adequate reliability.

### Tests for homogeneity

Homogeneity of climate perceptions was assessed using the *rwg* index. The mean *rwg* value for group OSH climate is .84 (SD = .008), which represents adequate levels of agreement. The between –groups comparison was assessed using t-test analysis. Different groups of teachers were compared according to the subjects they teach. Results show significant differences of homogeneity between different groups of teachers ( $t = -4.73$ ,  $df = 653$ ,  $p < .001$ ).

Assessments of homogeneity were also conducted for OSH knowledge, compliance and participation. The mean *rwg* values are .89 (SD = .004), .89 (SD = .004) and .88 (SD = .016) respectively. The t-test results for comparing *rwg* between groups of teachers are ( $t = -4.74$ ,

df = 599 p = .001), (t = 4.81, df = 599, p = .001), and (t = 9.71, df = 599, p = .001) for OSH knowledge, compliance and participation respectively.

In short, the average deviation of an individual's perceptions of OSH climate, knowledge, compliance and participation from the mean level of his/her work unit is no less than 0.84 for all four scales, indicating a significant homogeneity in the perceptions of OSH climate, knowledge, compliance and participation within a work unit. This supported the aggregation of unit members' OSH measures to the work unit level.

### *6.3.3 Assessment of social capital*

To begin the analysis relating to the construct of translated social capital, an EFA was performed. The results in Table 13 suggest a one-factor structure. The value of the KMO (.930) is high and significant, and all items loaded highly and significantly onto the factor. The total variance explained is 71.9%.

After executing an EFA on items measuring social capital, a CFA was conducted as a complementary tool for assessing the psychometric properties of the construct. Table 14 presents the results for the CFA conducted on the translated items relating to social capital.

**Table 13: Principal Components Analysis for Social Capital**

	<b>F1<sup>1</sup></b> <b>SC</b>
SC1 Our supervisor treats us with kindness and considerate.	0.87
SC2 Our supervisor shows concern for our rights as an employee.	0.87
SC3 We have a 'we are together' attitude.	0.88
SC4 People keep each other informed about work-related issues in the work unit.	0.87
SC5 People feel understood and accepted by each other.	0.86
SC6 Members of the work unit build on each other's ideas in order to achieve the best possible outcome.	0.82
SC7 People in the work unit cooperate in order to help develop and apply new ideas.	0.81
SC8 We can trust our supervisor.	0.80
<sup>1</sup> All Values significant at p<.05; Values <.40 have been suppressed	
SC: Social Capital	
<b>Explained Variance</b>	71.9%
<b>Cronbach's Alpha</b>	0.944

Dimensionality tests for social capital

The high and significant loadings suggested a good indication of unidimensionality. The overall model fit statistics in SEM are quite respectable, considering the generally established thresholds. Though the RMSEA is not fit, the null hypothesis concerning the Chi-square test is rejected at .001, while the GFI, NFI, NNFI and CFI indices, give indications of good fit (see Table 14). Taken together these goodness-of-fit indicators suggest support for the unidimensionality of social capital.

Convergent validity tests for social capital

As mentioned above, each of the eight retained items loaded strongly on the latent variable it is supposed to measure with a coefficient greater than twice its standard error, suggesting support for convergent validity. The evidence for convergent validity is further reinforced by the overall fit of the model, together with the robust loadings (all higher than .75) and parameter estimates (all higher than .65) (see Table 14).

Discriminant validity tests for social capital

The CFA results also suggested support for the construct's discriminant validity, when the social capital model is compared with the OSH CFA model,  $\Delta X^2 = 109.5$ ,  $p = .001$ . The significant difference between the models verified the discriminant validity of social capital.

Reliability tests for social capital

As presented in Table 13, Cronbach's alpha is .944, which is above .70, therefore suggesting a good reliability for the scale (Nunnally 1978).

**Table 14: Confirmatory Factor Analysis for Social Capital**

Confirmatory Factor Analysis for Social Capital (SC)	
<b>ITEMS AND STANDARDIZED FACTOR COEFFICIENTS*</b>	<b>SC</b>
SC1 Our supervisor treats us with kindness and considerate.	0.87
SC2 Our supervisor shows concern for our rights as an employee.	0.87
SC3 We have a 'we are together' attitude.	0.86
SC4 People keep each other informed about work-related issues in the work unit.	0.78
SC5 People feel understood and accepted by each other.	0.83
SC6 Members of the work unit build on each other's ideas in order to achieve the best possible outcome.	0.77
SC7 People in the work unit cooperate in order to help develop and apply new ideas.	0.76
SC8 We can trust our supervisor.	0.86
*All Values significant at $p < .05$ ; Values $< .40$ have been suppressed	
SC: Social Capital	
<b>GOODNESS OF FIT STATISTICS</b>	
$X^2 = 351.8$ , ( $p = 0.0001$ ), $df = 20$ $GFI = .87$ , $AGFI = .77$ , $NFI = .92$ , $RMSEA = .15$ , $NNFI = .87$ , $CFI = .93$	

**Table 15: Correlations between each organisational measure**

<b>Scale</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
1. OSH Climate	–	0.43	0.39	0.41	0.60	-0.25	-0.25
2. OSH Knowledge	–	–	0.56	0.46	0.30	-0.30	-0.16
3. OSH Behaviour: Compliance	–	–	–	0.53	0.30	-0.25	-0.15
4. OSH Behaviour: Participation	–	–	–	–	0.29	-0.16	-0.02
5. Social Capital	–	–	–	–	–	-0.36	-0.24
6. GHQ-12	–	–	–	–	–	–	0.28
7. Experience of injuries and health problems (OSH complaints)	–	–	–	–	–	–	–
<i>Note: All correlations are significant at <math>p &lt; .05</math></i>							

#### Relationship between online questionnaires and paper questionnaires

Results of the major scales of the questionnaires were compared according to the methods of collecting the data. T-tests were conducted to test for differences on the scales of OSH climate, OSH knowledge, OSH behaviours, social capital, self-rated health complaints and general well being. With the significance level of 0.01 (Bonferonni correction), there were no significant differences found between the online questionnaires and paper questionnaire results.

#### 6.3.4 General and descriptive results

This section of the chapter presents the general and descriptive results of the study. It examines the nature of and relationships between the antecedents, determinants and outcomes of the study. These organisational and individual variables were compared between different groups of teachers.

#### Demographic profile

Of both online and traditional paper questionnaires, 704 cases were analyzed, and 31% were male and 68% were female. 10% were below the age of 26, 41% were between ages of 26

and 35, 20% were between the age of 36 to 45, 14% were between the age of 46 and 55, and almost 3% were over 55 years of age, the mean age is 35.83 years old (SD = 9.61). Slightly more than half of the respondents in this study were single and 47% of them were married. Only around 1% were widowed, separated or divorced. Sample characteristics are examined in Table 16.

#### Length of experience

Teachers' mean length of service at their present school was 9.20 years (SD = 7.95), although this varied between types of school: government schools (M = 6.42, SD = 6.97), subsidized schools (M = 10.22, SD = 8.06), and private schools (M = 8.39, SD = 7.72) [ $F(679) = 13.94, p < .01$ ]. There were also significant differences between school levels [ $F(679) = 10.59, p < .05$ ], with less years of experience being reported in primary schools (M = 5.49, SD = 5.90) than in secondary schools (M = 8.39, SD = 8.56).

Half of the respondents had taught in the same school for less than 10 years, 29% of them taught in the same school for 11 to 20 years, around 19% of them taught for more than 20 years in the same school.

A similar pattern existed with regards to the overall length of teachers' work experience. The mean length of teaching experience was 12.39 years (SD = 9.25). This also varied between the school levels: primary schools (M = 11.62, SD = 9.19) and secondary schools (M = 13.91, SD = 9.23), [ $F(688) = 9.31, p < .01$ ]. It was also significantly different among different types of schools: Government schools (M = 11.87, SD = 9.07), subsidized schools (M = 13.54, SD = 9.08) and private schools (M = 9.03, SD = 9.08), [ $F(688) = 14.62, p < .01$ ].

More than half of the respondents have had less than 10 years of teaching experience, 28% of them had experience of 11 to 20 years and also around 8% of teachers taught for more than 20 years.

**Table 16: Means and standard deviation (SD) of personal demographic information**

<b>Personal Characteristic</b>	<b>Sample</b> N = 704	<b>%</b>	<b>Mean</b>	<b>SD</b>
<b>Gender</b>				
Male	214	31		
Female	481	68		
Missing	9	1		
<b>Age</b>			35.83	9.61
Under 25 years	69	10		
26-35	287	41		
36-45	142	20		
46-55	101	14		
Over 55 years	18	3		
Missing	87	12		
<b>Marital status</b>				
Single	354	50		
Married	334	47		
Widowed/divorced/separated	5	1		
Missing	11	2		
<b>Years of education received</b>			17.8	2.29
Under 15 years	69	10		
16 to 20	531	75		
21 to 25	71	10		
Over 26 years	2	1		
Missing	31	4		
<b>Number of years in present school</b>			9.20	7.95
Less than 10 years	354	50		
11 to 20	205	29		
21 to 30	106	15		
More than 30 years	27	4		
Missing	12	2		
<b>Years of teaching experience</b>			12.39	9.25
Less than 10 years	425	60		
11 to 20	198	28		
21 to 30	50	7		
More than 30 years	9	1		
Missing	22	3		

## Organisational and composition of work

To describe the work carried out by HK teachers at different levels and school types, a table (Table 17) is presented which describes the subjects and the number of students in each school and class.

### Levels and school type

In this study, 9% of the respondents taught in Government schools, 68% of them were teaching in subsidized schools and 22% taught in private schools. The distribution of participants matches the actual proportion of types of schools in HK, where there are approximately 7 % of Government schools, 81% of subsidized schools and 12% of private schools (Committee on Home-School Co-operation, 2009a; Committee on Home-School Co-operation, 2009b).

Respondents were also from different levels of schools, 67% of them taught in primary school and 32% taught in secondary school.

### Teaching subject

Teachers who teach different subjects would potentially have different concerns on OSH. This is observable from the OSH guidance for teachers provided by the Government, where there are separate sections for teachers who teach home economics, arts, physical education, science and relevant subjects. This is mainly due to the physical health and safety risks and hazards involved in teaching these subjects. In this study, therefore, we grouped teaching subjects into two categories.

Teachers who taught home economics, arts, physical education, science and relevant subjects were grouped together, and teachers who teach other subjects (e.g. language, cultural subjects, etc) were grouped into a second group. If teachers teach subjects from both

categories, they will be grouped into the high risk group. For instance, if someone teaches Chinese and Integrated Science, he/she will be grouped into the group of science subjects instead of the other group.

There are 20% of the respondents taught home economics, arts, physical education, science and relevant subjects, and 73% taught other subjects in their schools.

Number of students in schools and classes

In general, the mean number of students in each school was 933 students (SD = 298.19) and the average class size for all schools was 36 students (SD = 6.20). They were more students in each school and class in primary schools when compared with secondary schools: school size: [ $F(676) = 19.75, p < .01$ ], class size: [ $F(691) = 1.50, p < .01$ ].

**Table 17: Means and standard deviation (SD) of school characteristics**

<b>School characteristic</b>	<b>Sample</b>	<b>%</b>
	N=704	
Type of school		
Primary	473	67
Secondary	224	32
Missing	7	1
Type of school		
Government	61	9
Aided	478	68
Private	158	22
Missing	7	1
Location of school		
Hong Kong island	132	19
Kowloon east	155	22
Kowloon west	147	21
New Territories east	92	13
New Territories west	168	24
Missing	10	1
Subjects teaching		
Language and other cultural subjects	516	73
Home economics, physical education and science related subjects	139	20
Missing	49	7
	<b>Mean</b>	<b>SD</b>
Number of students in each school	932.56	298.19
Number of students in each class	35.84	6.20

### 6.3.5 Nature of different variables

The framework model of climate-behavioural-outcome relationship was examined in terms of teachers' perceptions of OSH, which included measures of OSH climate, OSH knowledge, OSH behaviours (compliance and participation); social capital; and positive and negative OSH outcomes (including measures of general well being and self-rated OSH complaints, job satisfaction, absenteeism, intention to leave job and number of working hours).

## Organisational variables

Teachers' social capital at work was measured by the translated version of the social capital measure (Kouvonen et al., 2006). Social Capital is defined as the structure and context of individuals' networks and the density of interaction between work colleagues, superiors, and subordinates. The eight item scale was rated by the respondents in a five point Likert scale. The full score for the scale was 40, indicating the highest level of social capital and the lowest score was 8 which represented the lowest level of social capital. Teachers' mean score for social capital is presented in Table 18. The mean score reported in Kouvonen et al. (2006)'s study with 70961 workers in Finland was 28.8, compared with the score we have in this study (M = 26.7), our respondents showed a lower level of social capital when compared with the Finnish norm.

Teachers' perceptions of OSH were examined in terms of several different types of measures. Four different groups of such measures were considered: OSH climate, OSH knowledge, OSH behaviours: compliance and participation. These are modified and translated from the safety climate, safety knowledge, and safety performance (compliance and participation) scales (Griffin & Neal, 2000e; Neal & Griffin, 2006c).

Items in all four measures were rated by the respondents on a five point Likert scale. Since these are modified scales, and first tested with the current context, there was no norms scores for comparison. However, the full score indicating the highest level of all OSH perceptions measures (e.g. high level of OSH climate within the workplace) was 15 and the lowest score was 3, represent the lowest levels of OSH perceptions. Teachers' mean scores for OSH perceptions are presented in Table 18. Since there is no comparable norm for all the modified OSH perceptions measures, the mean score is compared with the full score for each scale, of which the full score indicates highest level of OSH perceptions. To some extent, HK teachers have a quite high level of OSH perceptions (mean scores ranging from 9.79 to 10.83) when compared with the full score of 15 for each scale.

**Table 18: Means and standard deviations (SD) for Organisational perceptions measures**

	<b>N</b>	<b>Mean</b>	<b>SD</b>
Social Capital	668	26.66	6.07
OSH Climate	681	9.99	2.29
OSH Knowledge	680	10.67	1.98
OSH Behaviour: Compliance	676	10.83	1.87
OSH Behaviour: Participation	668	9.79	1.93

Relationship between organisational perceptive variables and personal and school characteristics

Analyses of Variance (ANOVA) showed that school type (Government, subsidized and private) had no significant effects on social capital and OSH perceptions variables. A t-test was also used to compare these variables among different school levels (primary and secondary). However, the more tests that are performed on a set of data, the more likely it is that we will reject the null hypothesis when it is true (i.e. *Type I error*). In order to correct the error, this current study has adopted the Bonferonni correction.

Correction for multiple comparisons

In the investigation of the relationship between organisational perception variables and personal and school characteristics, we conducted multiple comparisons analysis. The more tests that are performed on a set of data, the more likely it is that we will reject the null hypothesis when it is true (i.e. *Type I error*). In order to correct the error, this current study has adopted the Bonferonni correction. Bonferonni correction is a correction applied to the  $\alpha$ -level to control the overall *Type I error* rate when multiple significance tests are carried out. It is a simple but effective correction (Field, 2005). With the Bonferonni approximation, a test reaches significance if its associated probability is smaller than a value of .0127 (Abdi, 2007). Hence, in the current study, the t-tests comparisons will be significant when the p-value is lower or equal to 0.01.

In the current study, the t-tests comparisons will be significant when the p-value is lower or equal to 0.01. Only social capital was significantly different from primary school and secondary school teachers [ $t(660) = 2.50, p \leq .01$ ], with secondary school teachers having a higher level of social capital ( $M = 27.07, SD = 5.87$ ) than primary school teachers ( $M = 25.81, SD = 6.45$ ).

**Table 19: Means and standard deviations (SD) for Organisational perceptions and levels of schools**

	Primary			Secondary			<i>t</i>	<i>df</i>
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>		
OSH climate	454	9.83	2.62	454	10.07	2.12	1.28	672.00
OSH knowledge	455	10.74	2.07	455	10.64	1.95	-0.60	671.00
OSH behaviour: Compliance	454	10.96	1.98	454	10.78	1.83	-1.18	671.00
OSH behaviour: Participation	451	9.99	1.98	451	9.69	1.91	2.50	660.00
Social Capital	448	25.81	6.45	448	27.07	5.87	1.12*	657.00

*Note.* \* =  $p \leq .01$

#### OSH outcomes variables

There were several measures of OSH outcomes in this study: measures of teachers' general well being and OSH complaints, job satisfaction, absenteeism, intention to leave job and number of working hours. The mean scores and standard deviations for the traditional Chinese version of the General Health Questionnaire (GHQ-12) are presented in Table 21. An important finding was that HK teachers reported a significantly higher mean score in GHQ-12 ( $M = 16.50, SD = 4.47$ ) than the mean score reported in the study of GHQ-12 among two hundred and ninety two women in HK ( $M = 13.85, SD = 5.23$ ) (Ip & Martin, 2006b). According to the general scoring scale, if the mean score of GHQ is 15 or over, it means that there is evidence of distress among the participants. If the mean score is 20 or higher, the results suggest that there is severe problems and psychological distress (Schnall, 2004). In the current study, the mean score of GHQ is higher than 15, which means the participants were reported to have some evidence of psychological distress.

Teachers' experience of work-related injuries and health complaints were examined in two questions, when they were asked how often they experience work-related injuries and health problems in the last six months. The results are shown in Table 20.

44.6% of the respondents reported that they experienced work-related injuries in the last six months. The most common work-related injuries reported by the participants were arms and legs injuries caused by accidental falls and cuts by broken test tubes and papers. 69.6% of respondents experienced work-related health problems, and the most common health problems were flu, headache, insomnia, stomach-ache and stress. It is worth noting that 8.8% of respondents experienced work-related health problems often or all the time, which indicate a HK teachers were suffering from serious work-related health problems (See Table 20).

Job satisfaction was assessed by a question asking the respondents about how satisfied they were with their job on a five point Likert scale ranging from very satisfied to very unsatisfied. More than half of the respondents were very satisfied or satisfied with their job (68%), while 10% of them were unsatisfied or very unsatisfied (See Table 20), this is showing a high percentage of job satisfaction among HK teachers but this needs to be compared with the norms in previous studies and will be further discussed in the discussion section.

**Table 20: Range, number and percentage of job satisfaction and injury and health complaints**

Range	Injuries N (%)	Health problems N (%)	Range	Job Satisfaction N (%)
All the time	1 (0.1)	8 (1.2)	Very Satisfied	24 (3.6)
Often	10 (1.5)	51 (7.6)	Satisfied	436 (64.5)
Sometimes	77 (11.5)	154 (23.0)	Neutral	148 (21.9)
Rarely	211 (31.5)	253 (37.8)	Unsatisfied	59 (8.7)
Never	370 (55.4)	203 (30.4)	Very Unsatisfied	9 (1.3)

The mean work hours reported by the participating teachers were 56.74 hours per week, which is high in comparison with the maximum weekly working hours in other countries (e.g. 48 hours in the UK). Teachers were also asked to indicate their intention to leave their job in

the coming six months. 6.8% of the respondents were planning to leave their job, which indicates that there is low percentage of participants that wish to live their job. Their absenteeism was examined by asking participants how many days of sick leave they have taken in the past 12 months. The mean of the days of sick leave was 3.4 days (see Table 21).

**Table 21: Means and standard deviations (SD) of OSH outcomes**

	<b>N</b>	<b>Mean</b>	<b>SD</b>
General Health (GHQ-12)	666	16.50	4.47
Working hours per week	626	56.74	2.40
Sickness absenteeism (no. of days)	661	3.40	8.57
	<b>N</b>	<b>%</b>	
Intended to leave the job in the coming 6 months	48	6.80	

In short, the general well being of the participants were worse than the scores indicated in many HK studies with the same scale. There were also a high per cent of participants self-reported that they have experienced work-related health problems, meanwhile, working for long hours per week. However, they indicated themselves quite satisfied with their job and did not have a very strong intention to leave the job in the coming six months. These findings will be further discussed in the discussion section.

### 6.3.6 Models testing results

This section of the chapter provides the results of testing the three proposed models in order to demonstrate the relationships between different variables and to investigate the best model fit. The models aimed to provide indications for the main research problem: What are the possible antecedents (social capital) and determinants (OSH climate, knowledge, compliance and participation) of teachers' OSH outcomes (General well being and OSH complaints)?

The results of three model data analyses are included in this part of the chapter. SEM is used to determine the effects of social capital, OSH climate, knowledge, compliance on teachers' health and safety outcomes (General well being and OSH complaints).

In examining the structural models, attention is focused on the proposed hypotheses that reflect the relationships between the variables. The purpose is to assess whether the data supports the proposed conceptualisation. The issues of interest are: 1) to determine whether the goodness of fit between the hypothesised model and the sample data (this can be observed from the goodness of fit indices); 2) to see whether the directions of the relationships between the constructs are as hypothesised, which can be examined by looking at the signs of the respective parameters; and 3) to determine the strength of the hypothesised links, reflected by the estimated parameters, which should be at least significant (Diamantopoulos & Winklhofer, 2001).

#### Model 1: Hypothesis 3 and 4

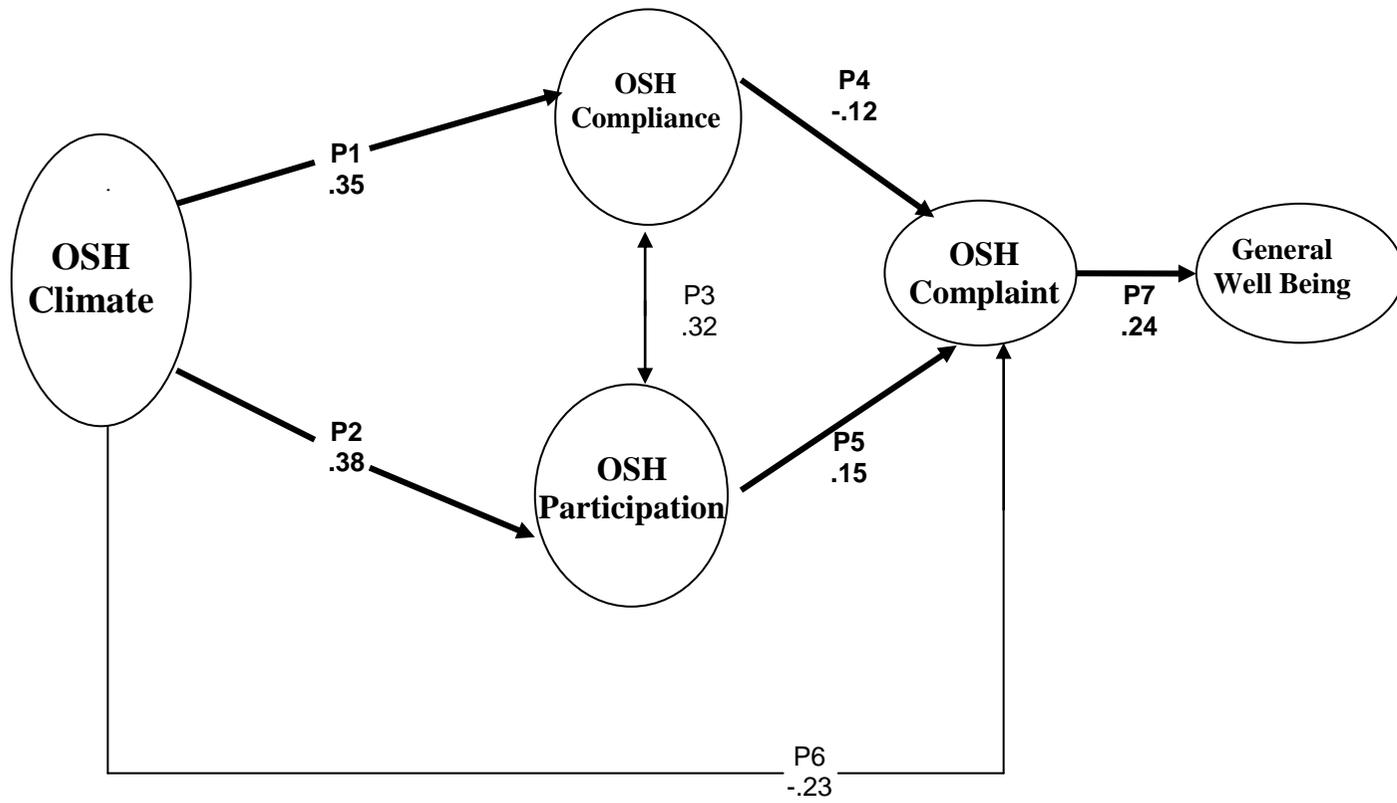
SEM was used to provide an indication for the third and fourth hypotheses (see below), and to test the hypotheses displayed in the proposed structural model to investigate the effects of the proposed determinants of teachers' OSH outcomes. Some studies have been conducted to examine the safety climate-behaviour-outcome relationship in industrial settings, while no study has examined the OSH climate-behaviour-outcome relationship in education sectors. Also, previous studies have neglected the role of positive safety outcomes, here it is proposed

that the traditional climate-behaviour-outcome relationship would further enhance teachers' general well being. This analysis is concerned with addressing the above concern, in order to provide an investigation of the following hypotheses (see Figure 3):

Hypothesis 3: OSH climate has a positive effect on OSH behaviours (compliance and participation) and negatively affect OSH complaints.

Hypothesis 4: The relationship will subsequently enhance teachers' general well being.

Figure 3: Model 1



To begin with, in terms of overall fit, goodness of fit indices for the structural regression model are  $X^2 = 36.19$  ( $p < 0.001$ ),  $df = 3$ ,  $X^2 / df = 12.06$ ,  $X^2 / df$  is over the acceptable range between 2 to 5. However,  $GFI = .98$ ,  $AGFI = .89$ ,  $CFI = .92$ . Apart from  $AGFI$  which was marginally over the acceptable level of .90, the other indices indicate a good fit.  $RMSEA = .13$  is over the upper limit of .08 to .10 and  $NNFI = .75$  is also over the acceptable level of .90 (see Table 30). Although some of the goodness of fit indices did not meet some statistical criteria for model fit, some researchers argued the importance of each goodness of fit index, (Bentler, 1990) argued that  $CFI$  should be the index of choice in indicating the model fit. In model 1,  $CFI$  is over .90, which is within the threshold of a good fit model. Also, Byrne (2001) suggested that there is no single way to assess whether a model is plausible, and the decisions have to be made by the researchers (Byrne, 2001), thus it was advised to consider multiple criteria in assessing a model adequacy. Therefore, Model 1 shows an acceptable level of model fit in representing the population of interest.

Turning now to the significance of the parameters representing the hypotheses incorporated into the model, the results of the test of the structural model indicate that all signs of the associates between the constructs in the model under analysis (except OSH participation and OSH complaints) were in accordance with hypothesised relationship (see Table 22).

**Table 22: Results for structural model assessment - Model 1**

Parameter	Standardized Estimate	SE	R <sup>2</sup>	Paths	Result
OSH Climate → OSH Compliance	0.35	0.03	0.12	P1	Support
OSH Climate → OSH Participation	0.38	0.03	0.14	P2	Support
OSH Compliance → OSH Complaints	-0.12	0.04		P4	Support
OSH Participation → OSH Complaints	0.15	0.04		P5	Not Support
OSH Climate → OSH Complaints	-0.23	0.03	0.08	P6	Support
OSH Complaints → General Well Being	0.24	0.11	0.08	P7	Support

*Parameters significant at p<.05*

Indeed, as hypothesised, results indicate that OSH climate and OSH behaviours (compliance and participation) act as important determinants of both OSH complaints and general well being. The significant correlation between the two constructs of OSH behaviours (compliance and participation) is observed in the results (P3 supported). The significant positive associations between OSH climate and OSH behaviours (compliance and participation) bring support to P1 and P2. Results show that one of the constructs of OSH behaviours, OSH compliance is negatively associated with OSH complaints, which supported P4. Although the parameter of OSH participation and OSH complaints was statistically significant, however, the relationship was positive, where more OSH participation from participants was associated with reported more OSH complaints they reported. This does not support our hypothesis.

As reflected by the strong relationships between OSH climate and, not only OSH behaviours (compliance and participation), but also OSH complaints and its indirect association with general well being. OSH climate acts as an important driver of the other variables in Model 1. Finally, P7 is supported, given the significant positive association between OSH complaints and general well being.

In effect, as can be read from Table 23, all of the parameter estimates were statistically significant at  $p < .05$  or better. In terms of the strength of significant path estimates, and by order of relative importance, OSH climate stands out as the strongest determinant in the model, with both direct and indirect relatively strong effects. Also, the role of OSH behaviours (compliance and participation) is significant in the model, not only as a direct determinant of OSH complaints, but also as a mediator between OSH climate and OSH complaints and general well being. OSH complaints, on the other hand, has a strong direct effect on general well being, but also acts as a mediator of part of the impacts exerted by both OSH climate and OSH behaviours (compliance and participation).

**Table 23: Decomposition of structural effects for Model 1**

<b>Effects on General Well Being</b>	<b>Direct</b>	<b>Indirect</b>	<b>Total</b>
OSH Climate		-0.07	-0.07
OSH Compliance		-0.04	-0.04
OSH Participation		0.04	0.04
OSH Complaints	0.28		0.28
<b>Effects on Health Complaints</b>			
OSH Climate	-0.25	0.003	-0.24
OSH Compliance	-0.14		-0.14
OSH Participation	0.14		0.14
<b>Effects on OSH Compliance</b>			
OSH Climate	0.35		0.35
<b>Effects on OSH Participation</b>			
OSH Climate	0.38		0.38

Model 2: Hypothesis 5 and 6

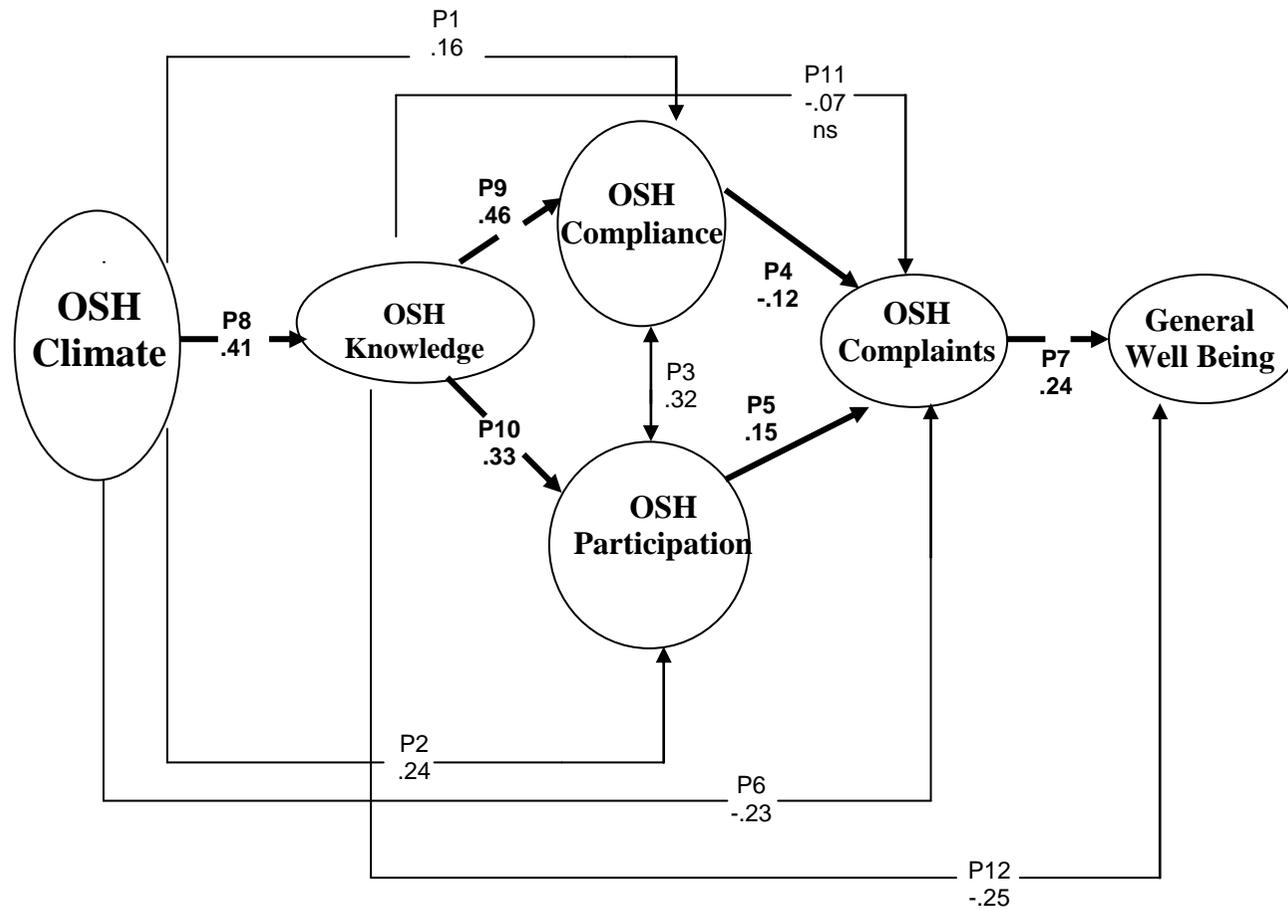
The previous section had examined a proposed model to predict teachers' general well being by the OSH climate-behaviour-outcome relationship. In order to build up the full model, this section aims to examine the role of teachers' perceived OSH knowledge in the OSH climate-behaviour-outcome relationship. The direct relationship of knowledge and OSH outcomes was also investigated in order to address the extent of knowledge as a mediator. SEM again was used to test the mediation effect of OSH knowledge in Model 2, which has been

examined in the previous section (see Figure 4). The hypotheses to be tested in this section are:

Hypothesis 5: OSH knowledge mediates the relationship between OSH climate and OSH behaviours (compliance and participation) and subsequently affects OSH outcomes (OSH complaints and general well being).

Hypothesis 6: OSH knowledge's direct effect on OSH complaints and general well being.

Figure 4: Model 2



OSH Knowledge is added to Model 1 as a mediator of OSH climate, OSH behaviours (compliance and participation) and OSH outcomes (OSH complaints and general well being). SEM revealed the following fit statistics for the structural model to determine teachers' general well being:  $X^2 = 7.99$ ,  $df = 3$ ,  $X^2/df = 2.66$ ,  $p$ -value .05, goodness of fit indices like GFI, NFI, NNFI, CFI, AGFI values are all beyond the recommended guideline of .90 and RMSEA is .05, which meets the acceptable benchmark of .05. Given the favourable goodness of it indices, Model 2, illustrated in Figure 4, represents a good-fitting model with the data (see Table 24).

**Table 24: Results for structural model assessment - Model 2**

Parameter	Standardized Estimate	SE	R <sup>2</sup>	Paths	Result
OSH Climate → OSH Knowledge	0.41	0.03	0.17	P8	Support
OSH Climate → OSH Compliance	0.16	0.03		P1	Support
OSH Knowledge → OSH Compliance	0.46	0.03	0.30	P9	Support
OSH Climate → OSH Participation	0.24	0.03		P2	Support
OSH Knowledge → OSH Participation	0.33	0.04	0.23	P10	Support
OSH Knowledge → OSH Complaints	-0.07 (insignificant)	0.04		P11	Not Support
OSH Compliance → OSH Complaints	-0.12	0.04		P4	Support
OSH Participation → OSH Complaints	0.15	0.04		P5	Not Support
OSH Climate → OSH Complaints	-0.23	0.03	0.08	P6	Support
OSH Complaints → General Well Being	0.24	0.11		P7	Support
OSH Knowledge → General Well Being	-0.25	0.09	0.14	P12	Support

*Parameters significant at  $p < .05$*

**Table 25: Decomposition of structural effects for Model for Model 2**

<b>Effects on General Well Being</b>	<b>Direct</b>	<b>Indirect</b>	<b>Total</b>
OSH Climate		-0.16	-0.16
OSH Knowledge	-0.25	-0.02	-0.27
OSH Compliance		-0.03	-0.03
OSH Participation		0.04	0.04
OSH Complaints	0.24		0.24
<b>Effects on Health Complaints</b>			
OSH Climate	-0.23	-0.012	-0.24
OSH Knowledge	-0.07	-0.004	-0.07
OSH Compliance	-0.12		-0.12
OSH Participation	0.15		0.15
<b>Effects on OSH Compliance</b>			
OSH Climate	0.16	0.19	0.35
OSH Knowledge	0.46		0.46
<b>Effects on OSH Participation</b>			
OSH Climate	0.24	0.14	0.38
OSH Knowledge	0.33		0.33
<b>Effects on OSH Knowledge</b>			
OSH Climate	0.41		0.41

In testing the parameters of the structural model, all parameters tested in Model 1 are statistically significant. P8, P9, P10, P11 and P12 are tested for the mediating effect of OSH knowledge on the OSH climate-behaviour-outcome relationship, as well as its direct effect on OSH outcomes (OSH complaints and general well being). See Table 24 for the results of the parameter assessments, and Table 25 for the structural effects of each parameter in the model.

All parameters are statistically significant, except the relationship between OSH knowledge and OSH complaints. The structural regression model shows an insignificant relationship between OSH knowledge and OSH complaints, which means that the influence of OSH knowledge on OSH complaints was exerted only through OSH behaviours (compliance and participation). Therefore P11 is not supported.

However, the mediating role of OSH knowledge in the climate-behaviour-outcome relationship is supported with its strong effect on OSH behaviours (compliance and participation), and

indirect effect on OSH outcomes (OSH complaints and general well being). There is also a strong association between OSH climate and OSH knowledge (see Table 25). Hence, P8, P10, P9 are supported.

Besides, P12 is supported by the significant direct effect OSH knowledge had on general well being, which shows that OSH knowledge is not only the mediator of climate-behaviour-outcome relationship, but also associated with general well being directly.

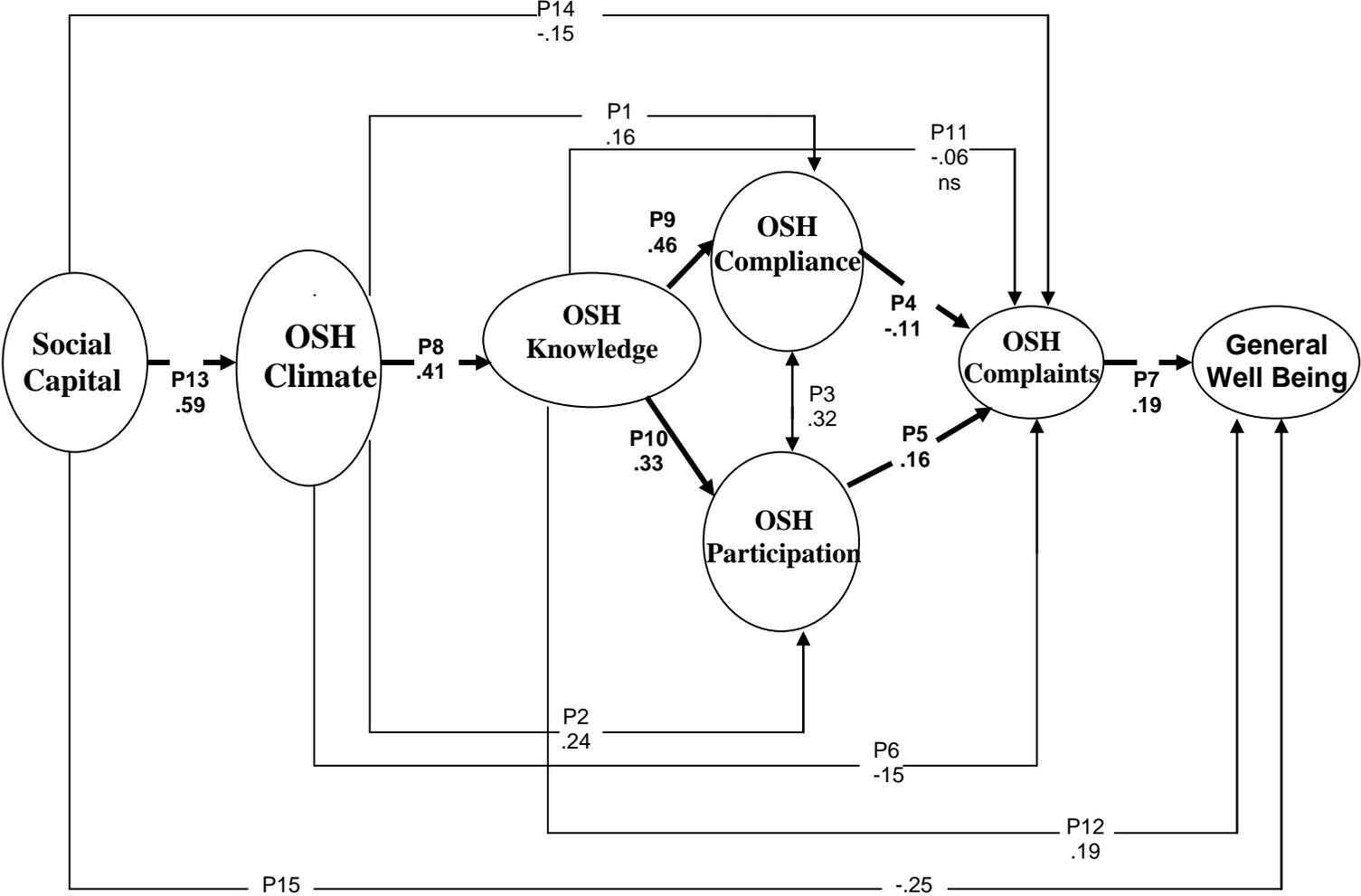
Model 3 – Final model: Hypothesis 7 and 8

SEM in the previous sections examined the OSH climate-behaviour-outcome relationship with the mediating effect of OSH knowledge. The SEM here now turns to examine the antecedent of the health OSH climate-behaviour-outcome relationship (see Figure 5). The analysis here is concerned with the following hypotheses:

Hypothesis 7: Social capital presents direct relationships with both teachers' OSH complaints and general well being.

Hypothesis 8: Social capital has a direct effect on OSH climate and further determines the other OSH variables.

Figure 5: Model 3 - Full Model



Social capital as a new variable is added into Model 2, the full model aims to test whether social capital is an antecedent of the previous tested relationships. The goodness of fit indices showed that Model 3 is a good fitting model with the data:  $\chi^2 = 10.92$ ,  $df = 6$ ,  $\chi^2/df = 1.82$ , p-value .05, goodness of fit indices like GFI, NFI, NNFI, CFI, AGFI values are all beyond the recommended guideline of .90 and RMSEA is .04, which meets the acceptable benchmark of .05 (see Table 30). Together with the low level of  $\chi^2/df$ , between 1-2, and the insignificant p-value of the model shows that Model 3 represents the good-fitting model with the data given.

Three parameters are added into the previous model, they are the relationships between social capital, OSH climate and OSH outcomes. See Table 26 for the results of the parameter assessments and structural effects of each parameter in the model.

**Table 26: Results for structural model assessment - Model 3**

Parameter	Standardized Estimate	SE	R <sup>2</sup>	Paths	Result
Social Capital → OSH Climate	0.59	0.01	0.34	P13	Support
OSH Climate → OSH Knowledge	0.41	0.03	0.17	P8	Support
OSH Climate → OSH Compliance	0.16	0.03		P1	Support
OSH Knowledge → OSH Compliance	0.46	0.03	0.30	P9	Support
OSH Climate → OSH Participation	0.24	0.03		P2	Support
OSH Knowledge → OSH Participation	0.33	0.04	0.23	P10	Support
Social Capital → OSH Complaints	-0.15	0.01		P14	Support
OSH Climate → OSH Complaints	-0.15	0.03		P6	Support
OSH Knowledge → OSH Complaints	-0.06 (insignificant)	0.04		P11	Not Support
OSH Compliance → OSH Complaints	-0.11	0.04		P4	Support
OSH Participation → OSH Complaints	0.16	0.04	0.10	P5	Not Support
Social Capital → General Well Being	-0.25	0.03		P15	Support
OSH Knowledge → General Well Being	-0.19	0.08		P12	Support
OSH Complaints → General Well Being	0.19	0.11	0.19	P7	Support

*Parameters significant at p<.05*

From the results of the structural model assessment, all new added parameters are supported in the final model. P13, P14 and P15 are supported in the structural model. This is indicating that social capital has significant relationships with the OSH climate and OSH outcomes.

**Table 27: Decomposition of structural effects for Model for Model 3**

<b>Effects on General Well Being</b>	<b>Direct</b>	<b>Indirect</b>	<b>Total</b>
Social Capital	-0.25	-0.09	-0.34
OSH Climate		-0.11	-0.11
OSH Knowledge	-0.19	-0.01	-0.20
OSH Compliance		-0.02	-0.02
OSH Participation		0.03	0.03
OSH Complaints	0.19		0.19
<b>Effects on Health Complaints</b>			
Social Capital	-0.15	-0.09	-0.24
OSH Climate	-0.15	-0.01	-0.16
OSH Knowledge	-0.06	0.00	-0.06
OSH Compliance	-0.11		-0.11
OSH Participation	0.16		0.16
<b>Effects on OSH Compliance</b>			
Social Capital		0.20	0.20
OSH Climate	0.16	0.19	0.35
OSH Knowledge	0.46		0.46
<b>Effects on OSH Participation</b>			
Social Capital		0.22	0.22
OSH Climate	0.24	0.14	0.38
OSH Knowledge	0.33		0.46
<b>Effects on OSH Knowledge</b>			
Social Capital		0.24	0.24
OSH Climate	0.41		0.41
<b>Effects on OSH Climate</b>			
Social Capital	0.59		0.59

As seen in Table 27, there are significant strong direct effects on OSH climate and OSH outcomes (OSH complaints and general well being). The indirect effects on the OSH climate, knowledge, OSH behaviours (compliance and participation), OSH complaints and finally general well being demonstrate social capital as an antecedent of the OSH climate-behaviour-outcome relationship.

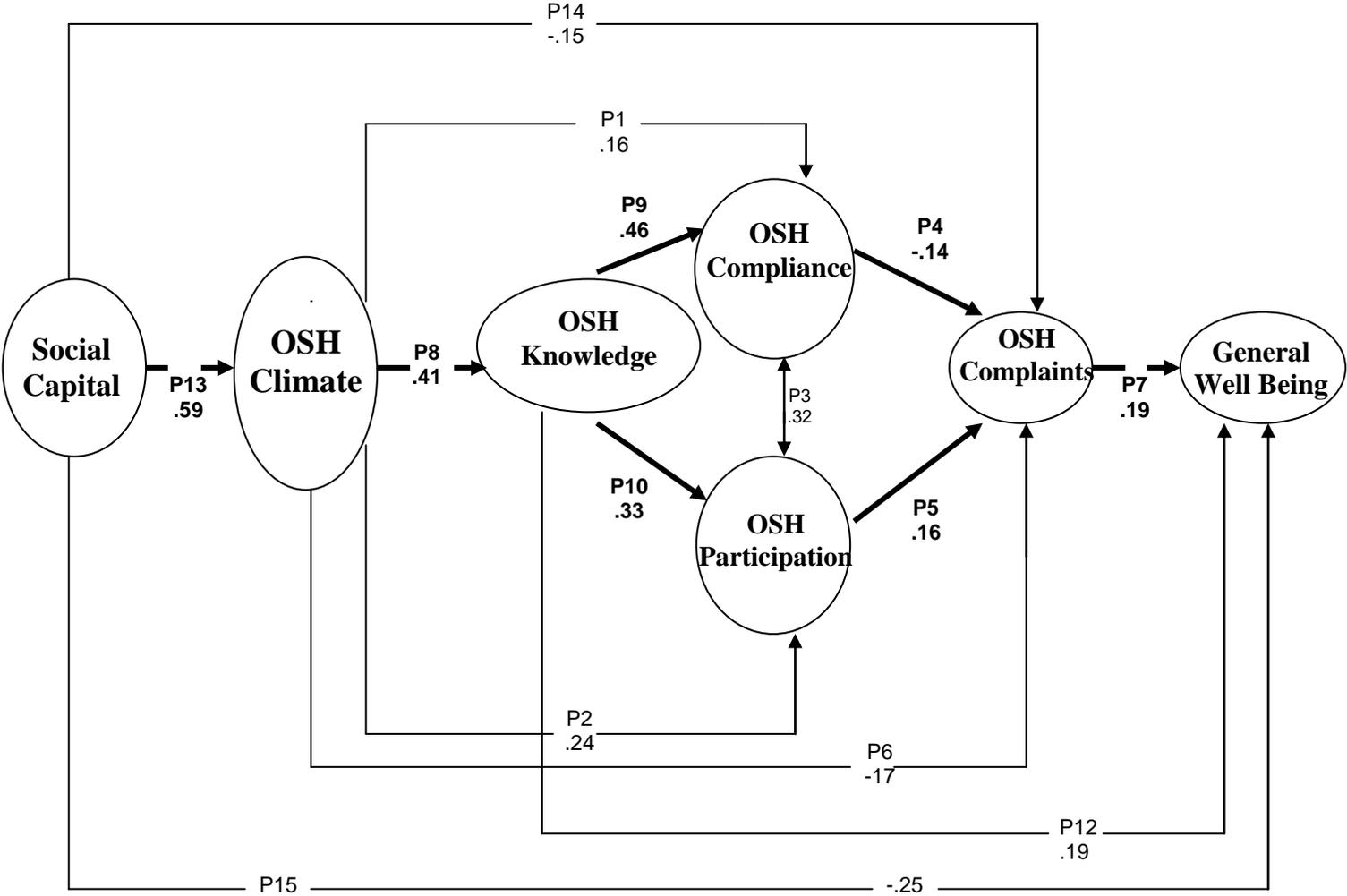
Modification of Model 3 – Final model

As far as the non-significant link is concerned, which corresponds to the proposed association between OSH knowledge and OSH complaints in Hypothesis 7, the estimated parameter is

very low and close to zero, posing questions as to whether or not to include it in the model. A parameter estimate does not deviate significantly from zero which would mean that we cannot reject the hypothesis that it is zero, and recommend to fix this parameter value at zero (Diamantopoulos & Winklhofer, 2001).

In this context, a version of Model 3 without the non-significant link was tested (see Figure 6).

Figure 6: Revised Full Model- Final model



Both models' goodness of fit indices are very similar and within thresholds indicating good fit:  $X^2 = 12.83$  ( $p=.08$ ),  $df = 7$ ,  $X^2/df = 1.83$ ,  $RMSEA = .04$ ,  $GFI = .99$ ,  $AGFI = .98$ ,  $CFI = .99$  for revised Model 3.  $X^2 = 10.92$  ( $p=.09$ ),  $df = 6$ ,  $X^2/df = 1.82$ ,  $RMSEA = .04$ ,  $GFI = .99$ ,  $AGFI = .98$ ,  $CFI = .99$  for the initial Model 3 (See Table 30). Under the above circumstance, the revision of the model was undertaken to improve the model, not in terms of fit, but for the sake of simplicity. This kind of model modification is only appropriate when the revised model is theoretically justified and fits almost as well as the initial model (Diamantopoulos & Winklhofer, 2001), which is the case here. As seen in Table 28 and Table 29, the insignificant relationships between knowledge and complaints; and participation and complaints are deleted. However, to compare the results of the revised model and the previous final model, the structural effects of each parameter were similar, which means that the revised model is justified without significant changes of the fitness indices and parameter strengths (Diamantopoulos & Winklhofer, 2001).

**Table 28: Results for structural model assessment – Revised Model 3**

Parameter	Standardized Estimate	SE	R <sup>2</sup>	Paths	Result
Social Capital → OSH Climate	0.59	0.01	0.34	P13	Support
OSH Climate → OSH Knowledge	0.41	0.03	0.17	P8	Support
OSH Climate → OSH Compliance	0.16	0.03		P1	Support
OSH Knowledge → OSH Compliance	0.46	0.03	0.30	P9	Support
OSH Climate → OSH Participation	0.24	0.03		P2	Support
OSH Knowledge → OSH Participation	0.33	0.04	0.23	P10	Support
Social Capital → OSH Complaints	-0.15	0.01		P14	Support
OSH Climate → OSH Complaints	-0.17	0.11		P6	Support
OSH Compliance → OSH Complaints	-0.14	0.04		P4	Support
OSH Participation → OSH Complaints	0.15	0.04	0.09	P5	Support
Social Capital → General Well Being	-0.25	0.03		P15	Support
OSH Knowledge → General Well Being	-0.19	0.08		P12	Support
OSH Complaints → General Well Being	0.19	0.11	0.19	P7	Support

*Parameters significant at  $p<.05$*

**Table 29: Decomposition of structural effects for Model for Revised Model 3**

<b>Effects on General Well Being</b>	<b>Direct</b>	<b>Indirect</b>	<b>Total</b>
Social Capital	-0.25	-0.09	-0.34
OSH Climate		-0.11	-0.11
OSH Knowledge	-0.19	0.00	-0.19
OSH Compliance		-0.03	-0.03
OSH Participation		0.03	0.03
OSH Complaints	0.19		0.19
<b>Effects on Health Complaints</b>			
Social Capital	-0.15	-0.09	-0.24
OSH Climate	-0.17	0.01	-0.16
OSH Knowledge		-0.01	-0.01
OSH Compliance	-0.14		-0.14
OSH Participation	0.15		0.15
<b>Effects on OSH Compliance</b>			
Social Capital		0.20	0.20
OSH Climate	0.16	0.19	0.35
OSH Knowledge	0.46		0.46
<b>Effects on OSH Participation</b>			
Social Capital		0.22	0.22
OSH Climate	0.24	0.14	0.38
OSH Knowledge	0.33		0.33
<b>Effects on OSH Knowledge</b>			
Social Capital		0.24	0.24
OSH Climate	0.41		0.41
<b>Effects on OSH Climate</b>			
Social Capital	0.59		0.59

Without a significant change of the model fit indices from the initial Model 3 to revised Model 3, the analysis results of the 3 models: Model 1, Model 2 and revised Model 3 provide a support to the robustness of the models proposed in this investigation (see Table 30).

**Table 30: Summary of different models evaluation**

<b>Comparison Criteria / Different Models</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Revised Model 3</b>
ECVI (Expected Cross Validation Index)	0.09	0.07	0.09	0.09
AIC (Akaike's Information Criterion)	60.19	43.99	54.92	54.83
PNFI (Parsimonious Normed Fit Index)	0.28	0.20	0.28	0.33
CFI (Comparative Fit Index)	0.92	0.99	0.99	0.99
X <sup>2</sup> (Chi-square Goodness-of-Fit Test)	36.19	7.99	10.92	12.83
df (Degrees of freedom)	3	3	6	7
X <sup>2</sup> / df	12.06	2.66	1.82	1.83
P -Value	0.00	0.05	0.09	0.08
RMSEA (Root Mean Squared Error of Approximation)	0.13	0.05	0.04	0.04
GFI (Goodness-of-Fit Index)	0.98	0.99	0.99	0.99
AGFI (Adjusted Goodness-of-Fit Index)	0.89	0.97	0.98	0.98
NNFI (Non-Normed Fit Index)	0.75	0.97	0.95	0.98

From the above summary of the different models evaluation, Model 2 performs better than Model 1 and revised model 3 (as well as Model 3) performs better than Model 1 and 2 in virtually all comparison criteria. In terms of goodness of fit indices, there are significant differences with respect to all indices, with the dropping of X<sup>2</sup> as well as ratio X<sup>2</sup>/df indicating better fit than the two proposed model. The p values in Model 2 and revised Model 3 are marginally significant and insignificant respectively (p <.05 as significant level), this suggests that the fit of the data to the hypothesised model is adequate (Byrne, 2001).

The overall better fit of revised Model 3 than Model 1 and 2 shows the significant role of OSH knowledge as a mediator and social capital as an antecedent to the climate-behaviour-outcome relationship.

## **6.4 Discussion**

Unlike the previous two qualitative studies, the current quantitative study adopted another approach to study the implementation of OSH legislation and policies. It integrated several social factors that are presented in the literature review and the

findings of the interviews into a framework model, in order to study the compliance of the target group (teachers) and the outcomes of the implementation. By adopting the organisational approach, this study took a position to study how organisations or sub-units of an organisation work with one another in the implementation process. The study investigated the interaction of HK teachers and their organisations in order to understand more about factors affecting OSH legislation and policies implementation. The results found out that social capital was an antecedent to the OSH climate-behaviour-outcome relationship, while OSH knowledge was a full mediator.

With the current organisational perspective, both the interactions between and within the organisations are significant to the study of the policy implementation. Therefore, the current study compared the teachers' organisational perceptions between different school organisations (between organisations) and investigated the framework model of climate-behaviour-outcome relationship within the school organisation as a whole (within an organisation). Eight hypotheses were generated and tested by quantitative methods. The discussion is going to be divided into three parts: organisational contexts and organisational perceptions, which discusses the results in testing hypotheses 1 and 2; OSH outcomes in HK schools; and finally the discussion of the results of the models testing (hypothesis 3-8).

#### *6.4.1 Organisational contexts and organisational perceptions*

In testing hypothesis 1, the results showed that school type (Government, subsidised and private) had no significant effects on social capital and OSH perceptions. This can be explained by the definition of social capital which shows that the formation of social capital is highly related to the social relations and links derived from the belonging to social networks (Putnam, 1993; Kawachi, 1999). The results showed that HK teachers' social relations and social networks did not differentiate according to the types of schools. In fact, teachers' rights and benefits were mostly fixed for all teachers in HK, despite the funding system of the schools. Hence the social relations among teachers

may be influenced by factors, such as the social culture of particular organisations rather than the funding sources of the schools. In particular, HK is a collectivist society, in such collectivist culture people are born and integrated into strong, cohesive in-groups, which provide them protection throughout their lives in exchange for loyalty (Hofstede, 1991). The extension of hierarchy relationships in the schools has been intensified by the Confucius moral education; these social relationships are linked up by families, society and schools. In short, inter-personal relationships in Chinese societies are never a one to one business, and it has little association with the schools' funding system. The social capital between different social organisations requires further investigation.

Furthermore, the results did not support the hypothesis that the types of school lead to teachers' having different perceptions of OSH. Similar to social capital, teachers' OSH perceptions were strongly related to some organisational factors (e.g. management safety priorities), the type of schools did not have any significant effect on teachers' OSH perceptions. In defining each of the OSH perceptions, OSH climate focused on employees' perceptions on management value on OSH policies, while OSH knowledge and behaviours are more related to employees' OSH awareness. The results showed that the funding sources of the schools are not significantly related to different OSH perceptions. However, since the money came from either the Government, charity organisations and/or the students, the students were always the priority of school administration and budget plans, they were more willing to spend money on students' health and safety education than teachers' OSH. The emphasis on students in the OSH policy was also suggested in the findings of study two - interviews with key stakeholders (see Chapter Five - Interviews with key stakeholders). Therefore, it was reasonable for teachers' OSH perceptions to be unified among different types of schools.

In the comparisons between primary and secondary school teachers' perceptions of social capital and OSH (climate, knowledge and behaviours) (Hypothesis 2), similar results were found in the tests for different types of schools. As mentioned previously, teachers' OSH perceptions were mainly affected by the management and individual's

OSH awareness and values. It was possible that there was a very similar OSH management style in different levels of schools. Also, since the rights and benefits were fixed with not much difference between different levels of schools (Education Bureau, 2009), there is no difference between teachers' OSH perceptions.

However, the testing of the hypothesis demonstrated that teachers from different levels of schools (primary and secondary) differ in their perceptions of social capital is supported. The most recent education reform issues have received a lot of attention among secondary school teachers in recent times (Hong Kong Professional Teachers' Union, 2009). The 'through train mode' and the reform of the academic structure of senior secondary school education were implemented in HK secondary schools (Education Commission, 2006). The increase of discussion and understanding among secondary school teachers on education reform facilitated a stronger in-group network among secondary schools teachers. This was because network resources were likely to be formed for both career interests and socio-emotional support for individuals (Fombrun, 1982; Ibarra, 1993). The findings were consistent with the conceptualizations of social capital, where 'networking' is a component of social capital at work (Bozionelos & Wang, 2006).

The findings of hypotheses 1 and 2 testing demonstrated the relationship between different school organisations (types and levels). The indifferent OSH perceptions in school organisations provided some evidence of the current situation OSH management among HK schools. With the similar perceptions of OSH climate, knowledge and behaviours, the results indicated that the OSH management system in HK schools is similar among schools organisations and social capital also did not differ from the types of school. These findings provided some indications for future planning for OSH policies implementation. Since there is a unified OSH management system among schools organisations in HK and teachers perceived their OSH situation similarly, the promotion of OSH policies could be done in schools as a whole. More effort should be put into targeting teachers as a whole group, whether than teachers from different types or levels

of schools. However, the higher level of social capital in secondary schools had its potential to foster OSH policy implementation in secondary schools. Since there had been debates and discussions on the education reforms among teachers in secondary schools, the Government should take this opportunity to counter teachers' discontent with the promotions of existing OSH policies. The role of social capital in OSH climate in schools as a whole will be discussed further in the results of the model-testing.

#### *6.4.2 OSH outcomes in HK schools*

There were few OSH outcomes measures in this study, and most of them indicated teachers' individual and organisational well being. Some of the OSH outcome findings are worth discussing; measures of teachers' general well being, OSH complaints, job satisfaction, and the number of working hours. The results of general well being and OSH complaints were used to indicate the OSH outcomes in the proposed models and job satisfaction and the number of working hours were mentioned as significant by the respondents in study two, interviews with key stakeholders (see Chapter Five - Interviews with key stakeholders).

The GHQ-12 was used to measure teachers' general well being. An important finding was that HK teachers reported significantly higher mean scores than (Ip & Martin, 2006) study with the HK norm. When compared to the general scoring scale (Schnall, 2004), the mean scores of the participants is higher than 15, which indicated that HK teachers who participated in this study reported a high level of psychological distress. In fact, the findings are not surprising due to the large amount of work-related health complaints among HK teachers in the last decade. The findings are similar to the previous teachers' health research conducted in HK. For example: in Chan Kam Lam (2002)'s study, the author also found that over 60 per cent of HK teachers who participated in the studies said that they are stressed or very stressed since 2001. The Foundation of Education Fund also conducted research on HK teachers' psychological / mental health, and showed that there were up to 23 per cent of teachers who suffered from

psychological / mental problems and who were recommended to immediately seek medical treatment (Hon Lin Shan, 2008).

Teachers' health problems, teachers' experience of work-related injuries and health complaints were examined in two questions which asked them how often they experienced work-related injuries and health problems in the last six months. The results indicated that nearly 70% of the participants reported experiencing work-related injuries in the last six months and slightly more than 60% of the participants reported experiencing work-related health problems. It was worth noting that 8.8% of the participants reported that they had work-related health problem either 'often' or 'all the time'. The high level of work-related health and injury problems was similar to the study conducted with HK teachers in 2007 (Chung & Chan, 2007). Although Chung and Chan (2007) had a higher percentage of participants teachers reported one or more than one symptom of work-related health problems in the past 30 days (99.5% were found). The figures relating to the experience of work-related injuries and health problems in the current study was similarly high.

The current study also measured teachers' job satisfaction. More than half of the participants were very satisfied or satisfied with their job (69%). The results were similar to another study conducted in HK, where 57% of the participating teachers indicated that they were satisfied with their work (Hui & Chan, 1996). However, contrasted with Tse (1982)'s study conducted with HK teachers nearly 30 years ago (Tse, 1982). 93% of secondary school teachers reported that they were satisfied or very satisfied with their job. Even though the current study did not recruit the same group of participants, both samples were HK teachers. The current study is suggesting a potential decline of job satisfaction among HK teachers. To compare with studies conducted in other countries, HK teachers seem to derive a lower level of job satisfactory among teachers in countries, such as the UK (Borg & Riding, 1991) and Australia (Laughlin, 1984).

The mean working hours among the teachers was 56.74 hours per week. Since there is no regulation on the number of working hours in HK, the results were compared with the UK regulation, Government and unions' recommendations. The results indicated that HK teachers were having long working hours compared with the maximum 48 hour working per week suggested in the regulations (UK Statutory Instrument 1998 No.1833, 2010; UK Statutory Instrument 2003 No.1684, 2003). Even though there was an exception on maximum working hours for teaching professions in the UK, the UK Government recommended a target of a 45 hour working week for teachers (BBC news, 2002b; Sneddon, 2008). The UK teachers' unions are even fighting for a 35 hour working week (Sneddon, 2008). In this case, HK teachers are generally working 9-22 hours more than the UK Government and unions suggested. Similar to the findings in study two – interviews with key stakeholders, HK teachers are suffering from long working hours, and this is an issue of concern in teachers' well being.

The current study results demonstrated that HK teachers' individual and organisational well being were similar to previous reports on HK teachers' health and well being, where more attention is needed. It will be important to look into the antecedents and determinants of these OSH outcomes (general well being and OSH complaints). The models testing of these relationships are presented in the following section.

#### *6.4.3 Models testing*

##### Model 1

The climate-behaviour-outcome relationship has been tested in Model 1. It was hypothesised that OSH climate has a positive effect on OSH behaviours (compliance and participation) and negatively affected OSH complaints (hypothesis 3). The relationship will subsequently enhance teachers' general well being (hypothesis 4). Hypothesis 3 is supported in line with the previous safety climate literature (Zohar, 2003; Neal & Griffin, 2000, 2006; Garcia et al., 2004, etc). The relationship between safety

climate, safety performance and accident and/or injury rate (climate-behaviour-outcome relationship model) was modified and applied to the education sectors in HK. With changes in working life, there was a need for organisations to promote and develop a climate that is relevant to quality of life and well being. It is essential to incorporate elements of both safety and health in the study of fact-specific climate in HK schools. The significant relationships between OSH climate, OSH behaviours (compliance and participation) and OSH complaints indicated that climate behaviour-outcome expectancies can be applied to contexts other than physically demanding work contexts.

It was hypothesised that teachers pay attention to enact OSH policies because they can foresee the possible consequences, which inform OSH behaviour-outcome expectancies. The expectancies of OSH behaviours is based on the social exchange theory model which consists of social learning theory and expected valence utility constructs (Bandura, 1986; Lawler, 1971; Vroom, 1964). In this case, teachers perceive the likelihood of obtaining results (their health and well being) by certain action (OSH behaviours) and the more teachers value the outcome, the more they are motivated to behave accordingly. This social exchange theory model has applied to the HK teaching context, and demonstrated in the OSH climate-behaviour-outcome relationship. Different from the previous safety climate studies, the relationship was significant with the incorporation of health into safety climate (OSH climate) which has a direct effect on OSH behaviours (compliance and participation) and subsequently influences the numbers of OSH complaints among teachers.

In reaction to the previous studies which focused mainly on reactive and infrequent outcome measurements, for instance: interpretations of accidents (Hofmann & Stetzer, 1998), accidents (Dedobbeleer & Beland, 1998; Hofmann & Stetzer, 1996; Oliver et al., 2002) and injury rates (Hofmann & Stetzer, 1996; Zohar, 2000e), the current study adopts a more proactive approach to measuring the organisational success rather than its failure, and includes the measurement of general well being. It was hypothesised that the climate-behaviour-outcome relationship subsequently enhances teachers'

general well being (hypothesis 4). The hypothesis was supported in the model with the direct positive relationship between OSH complaints and general well being. This was similar to the previous safety climate (e.g. Griffin & Neal, 2000) and health climate studies (e.g. Ribisl & Reischl, 1993), where high level of climate indirectly lead to employees' positive health outcomes with behaviours as moderators.

Generally, the results showed that OSH climate had a positive direct effect on OSH behaviours (compliance and participation) which was similar to the previous safety climate and health climate studies (Christian et al., 2009a), however not all aspects of OSH behaviours affect OSH outcomes in a similar way. As hypothesised, OSH compliance positively influence respondents' OSH complaints, which showed the positive association between their compliance with the OSH policies in schools, and their reported work-related health problems and injuries. Interestingly, the results were different from the previous studies on safety participations (e.g. Zohar, 2003; Neal & Griffin, 2000, 2006; Garcia et al., 2004), OSH participation had a negative impact on OSH complaints, in that there was a positive correlation between OSH participation and teachers and self-reported work-related health problems and injuries. This unexpected relationship can be explained by the recent studies on negative aspects of Organisational Citizenship Behaviour (OCB). Since OSH participation is conceptually very similar to OCB (see Chapter Two - Conceptualization of key elements), it also shares the negative consequences of OCBs. Studies have shown that the role ambiguity of in-role and extra-role work behaviour leads to employee confusion in distinguishing OCBs from their in-role behaviours (Morrison, 1994; Tepper et al., 2001). This ambiguity may have a dysfunctional impact on an employee's well being (Bolino et al., 2004). Teachers are suffering from heavy workloads and long working hours. They have the obligation to manage multi-tasking in their work, for example: teaching, communicating with parents and students, and handling administrative work. If OSH participation is ill defined and subject to multiple interpretations, for example: some teachers may be assigned to an OSH committee officially and they may perceive their volunteer role in promoting OSH in schools as part of their in-role work. This ambiguity

potentially leads to stress and job dissatisfaction and hence more work-related health problems and injuries.

Another explanation of the significant negative relationship between OSH participation and OSH complaints is related to “escalating citizenship”. This is a phenomenon which employees continually increase their OCBs until they are going above and beyond their call of duty (Bolino et al., 2004). Consequently, employees may feel pressured to engage in high levels of OCBs to ensure that they are cooperative and committed to their work. Studies have shown the negative consequences of escalating citizenship, such as work overload, work-related stress, work-family conflict and other negative outcomes (e.g. Reich, 2001; Schor, 1991). The role of teaching professionals is complex and their work is a social construct, it is hard to define teachers’ work and duties. Therefore, it is very likely that teachers were pressurized due to the engagement in OSH participation, which further increased their workload and extends their working hours. This escalating citizenship phenomenon potentially led to teachers’ negative health outcomes and subsequently influenced their general well being in the model.

## Model 2

Knowledge was added into Model 1, as a mediator of the Climate-behaviour-outcome relationship to assist the development of the full model. The mediating role of OSH knowledge in the model was similar to the results in previous safety climate research (e.g. Brown & Leigh, 1996; Morrison et al., 1997; Griffin & Neal, 2000 & 2006). The results demonstrate the significant role of OSH knowledge in promoting OSH behaviours in schools. As explained in Model 1, the climate-behaviour-outcome expectancies affect an employee’s behaviour through their perceptions and values of the possible consequences. OSH knowledge in this model provides evidence of its role in facilitating OSH behaviours accordingly.

OSH knowledge as a full mediator in Model 2 further establishes the role of OSH behaviours (compliance and participation) in the OSH climate-behaviour-outcome

relationship. Its role was essential for transferring OSH climate into favourable OSH outcomes. Similar results were presented in Probst and Bubaker (2001)'s study of safety compliance and outcomes, in which perceptions of job security and job satisfaction influenced safety compliance indirectly by the way of safety knowledge and that safety compliance, in turn, influenced workplace accidents and injuries.

With the inclusion of positive OSH outcomes in the current models, OSH knowledge also directly affects general well being and indirectly enhanced it through OSH behaviours. These findings are consistent with previous health psychology research (e.g. Theory of Planned Behaviour studies) where the construct of health related knowledge contributed to the behaviour change and general well being (e.g. Cheng et al., 1999).

#### Model 3 – Full model

Social capital is hypothesised as the antecedent of the OSH climate-behaviour-outcome relationship (Hypothesis 7) and had direct effects on OSH outcomes (OSH complaints and general well being) (Hypothesis 8). Model 3 was consistent with the previous social capital literature, where social capital was a significant determinant of employees' health and well being (e.g. Requena, 2003; Liukkonen et al., 2004; Kouvonen et al., 2006). Further, despite the studies carried out in neighbourhoods (e.g. Kawachi et al., 1999), communities (e.g. Kim et al., 2006) and general workplaces (e.g. Kouvonen et al., 2006), the current study demonstrated the significant relationship between social capital and health in schools with Chinese workers.

More importantly, social capital had a direct effect on OSH climate and further determines the other OSH variables in Model 3. The results had verified social capital as an antecedent of the OSH climate-behaviour-outcome relationship in HK schools (hypothesis 8). Previous studies on safety climate presented factors which related to safety climate and safety outcomes, many of the determinants of safety climate are related to the constructs in social capital. For instance: LMX and safety role definition

were moderated by safety climate in Hofmann et al. (2003)'s study; communication was related to safety climate and subsequently influenced workplace hazards (Cheyne et al., 1998) and accidents (Hofmann & Stetzer, 1998) and trust was also associated with management commitment on safety and workplace injuries (Zaharatos et al., 2005; Barling et al., 2003). Although there was a profound research base on safety climate and related factors, it was unclear what antecedent factors promote favourable climate (Mearns & Hope, 2005). The current study suggested that apart from individual factors (such as leadership, trust and communication that were related to safety climate), there was another social construct that integrated these factors and associated with OSH climate.

Different from the other social constructs which have been studied in many health research (e.g. social support and communication), the concept of social capital emphasises the importance of social networks and mutual benefits. This concept of social capital also resembles the core principle of the organisational exchange approach in the current study of policy implementation, in which employees' interaction of exchange is structured by mutual interests (Bish, 1978; Tuite et al., 1972; White, 1974). Therefore, social capital has been proved to be a unique, innovative and significant antecedent of the climate-behaviour-outcome relationship. The development of social capital in HK schools can enhance the level of OSH climate, this would facilitate OSH behaviours and thus promote positive health outcomes and general well being among teachers.

In addition, with the strong emphasis of "social network" in Chinese workplaces, the collectivist culture of HK teachers has been intensified by the Confucius moral education, in which relationships and networks in school mean a lot to teachers. Social capital as a construct of the climate-behaviour-outcome relationship model has a strong implication to the OSH policies implementation in Chinese schools, it has been proven to be a strong facilitator of the OSH climate and management in schools.

Model 3 is the full model of the study which also demonstrates the best fit relationships among the variables in the data than Model 1 and 2. It is of further significance to the study that this final model not only confirmed the climate-behaviour-outcome relationship in the current context, but also suggested social capital as an antecedent and general well being as a positive outcome.

## **6.5 Conclusion**

The first two qualitative studies have studied the content and implementation of the current legislation and policies that govern HK teachers' OSH with the top-down perspective. The studies provided an insight of some potential factors (e.g. climate and social capital) that may influence the effectiveness of the implementation of OSH legislation and policies, and this left a room for further investigations in the subsequent study. This quantitative part of the research project adopted another approach to study the implementation of OSH legislation and policies, it integrated several social factors that presented in the literature review and findings of the interviews into a new framework model. By taking this organisational perspective, the study took a position to study how organisations or sub-units of an organisation work with one another in the implementation process through the development of models. The study aimed to investigate the interaction of HK teachers and their organisations in order to understand more about factors affecting OSH legislation and policies implementation. In precise, the study compared teachers' organisational perceptions (OSH perceptions and social capital according to their school organisations (types and levels of schools), in order to study how organisations different in the implementation of OSH polices. The study also examined its original framework model of climate-behaviour-outcome relationship, so as to assess the relationships of the model constructs, they are: social capital, OSH climate, OSH knowledge, OSH behaviours (compliance and participation) and OSH outcomes (OSH complaints and general well being).

The findings significantly demonstrated that different school organisations did not differ in their teachers' organisational perceptions, however, only social capital varied in different levels of schools. The differences may be due to the enormous debates and discussions of education reform and its consequences on teachers' health. These results suggested that the Government could make use of the unified teachers' organisational perceptions in the implementation of OSH policies, in which they could focus teaching profession as a whole in promotion and education. The OSH outcome measures, such as health and injury complaints and general well being also demonstrated similar results which have been found in previous teachers' health literature. In other words, even though there have been many researches conducted on teachers' health, while OSH policies have been enacted and implemented in schools, teachers' OSH problems are still existing. More resources should be invested to fill in the gap between research, policy and practice.

The testing of its newly designed model of climate-behaviour-outcome relationships confirmed that this traditional framework model can be applied to a climate setting that integrated both health and safety. In addition, knowledge has been proved to be the full mediator of this climate-behaviour-outcome relationship. With the lack of studies in climate antecedent and the significance of "social network" in Chinese society, the current study demonstrated social capital as an antecedent of the relationship, with OSH climate and behaviours as the predictor of positive outcomes (i.e. employees' general well being). Also, the relationship between OSH participation and OSH outcomes presented the role of OCBs in Chinese schools settings, which give some future directions to OSH policies implementation in similar settings. Most significantly, these findings confirmed that the OSH climate-behaviour-outcome relationship with social capital as an antecedent was applicable in school settings, with the Chinese population.

To conclude, the majority of the findings in this quantitative study provide evidence of the current implementation of OSH policies in HK schools. The between and within school organisation investigations indicated that there was HK teachers shared similar

organisational perceptions, and OSH climate and social capital are significant to the change of OSH behaviours and hence health outcomes. However, school implementers should put more attention in teachers' OSH participation behaviours. The study provided some implications for future OSH legislation and policy implementation and this will be discussed in the following chapter.

## **Chapter 7: Conclusions and future directions**

This final chapter seeks to bring together the findings and conclusions from the previous chapters. Significant issues that are relevant to implications of the present research will be presented in a broader framework of policy implementation. The strengths and weaknesses of this research are also discussed, followed by some directions for future research.

### **7.1 Summary of the research project**

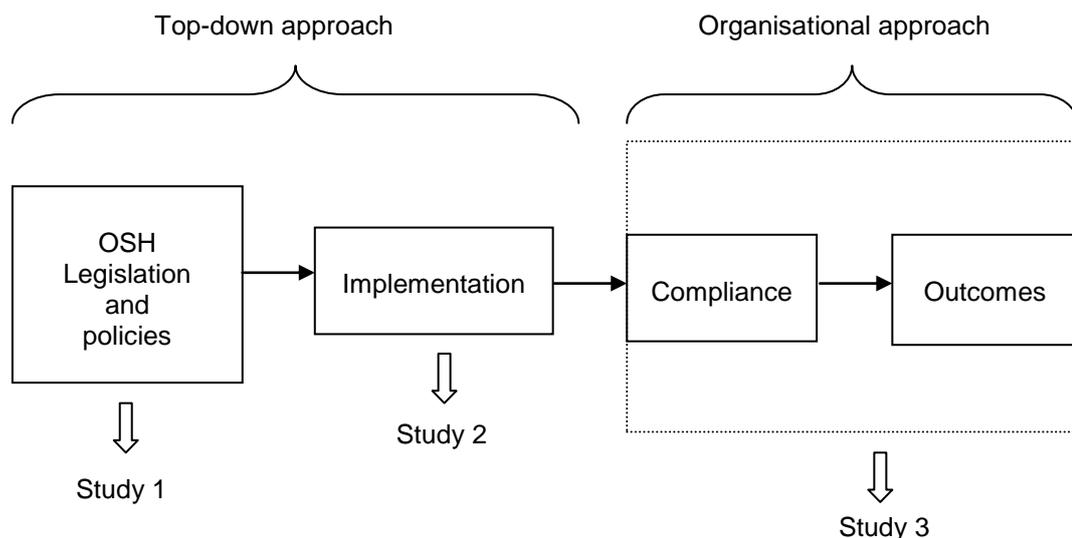
As a result of work changes in the past centuries, employees are often exposed to new types of occupational hazards. Knowledge-base economies should not ignore occupational safety issues that commonly exist in the industrial sectors but also consider the promotion of well being at work (Taylor et al., 2004). There is a growing body of evidence demonstrates the association between work-related health complaints and exposure to psychosocial hazards at both individual and organisational levels (Cox et al., 2000). However, the impact of work-related psychosocial hazards varies across different occupations. Some occupations are at greater risk of psychosocial problems than others, such as teachers (e.g. Smith et al., 2000).

In Hong Kong (HK), it is widely acknowledged that teachers are suffering from work-related health and safety problems (HKPTU, 2005). Particularly, HK teachers' work-related health has received increasingly attention in recent years due to various educational reforms and innovations since 1990s. In order to resolve the problems, previous literature has recognised the importance of policy level interventions (WHO, 2005b). The development of OSH legislation and policies is one of the most significant achievements in HK among different forms of policy initiatives. It is generally understood that OSH legislation and policy are adopted to maintain and protect workers' OSH, and they lay minimum standards which are compulsory and applicable to all

workers. However, similar to other policy interventions, OSH legislation and policy in relation to the teaching profession are under-studied and not well evaluated (Murphy & Sauter 2004; Cox et al, 2007). Previous literature has suggested that it is important to have both an increase of national capabilities of OSH knowledge and a systematic evaluation of policies focusing on OSH, in particular the evaluation of the implementation of the policy plan is a crucial step (Leka et al., 2008b). Therefore, it will be rewarding to review the content, implementations, compliance and outcomes of HK OSH policy interventions.

The basic rationale of the research project was presented in Chapter 2. At this part of the thesis, it is useful to review the initial rationale presented based on the research findings. The general objective of this research project stemmed from the study of the implementation of OSH policy level interventions. It focused on the macro level of OSH interventions in schools by studying OSH policy implementation from the top-down and organisational perspectives in three studies (See Figure 7)

**Figure 7: Rationale framework model of this research project**



The study of policy implementation is significant due to its role in the policy process and its relevance to other parts of the policy cycle (Birkland, 2005). The formal definition of implementation by Mazmanian and Sabatier (1989) suggested that there are several key

elements in the study of policy implementation. The rationale of the current study has captured these elements and summarized in a framework model (as shown in Figure 7). The elements in the model consist of the basic statute, implementation, compliance and outcomes of the OSH legislation and policies. These elements are built around three main studies: First, a narrative systematic review of OSH legislation and policy that is applicable to HK schools, which aimed to review the existing OSH legislation and policies in HK that governs teachers. Second, exploratory interviews were conducted with key stakeholders, in order to evaluate their levels of knowledge, awareness of OSH issues for teachers, their role of existing legislation and policy, and their views on the current legislation and policy implementation. Third, the further examination of factors related to the compliance and outcomes of policies at school level with quantitative methods. In precise, it aimed to investigate the implementation of OSH legislation and policy by testing the climate-behaviour-outcome relationship framework model in the current setting, also to assess the model constructs within and between school organisations. The following section is going to demonstrate how the findings of the three studies integrated into the implementation process as a whole.

As seen in Figure 7, the currently research project investigated the characteristics and relationships of the key elements in a rationale model that has been inspired by the definition of policy implementation (Mazmanian & Sabatier, 1989). This aimed to give readers an insight of the broad context of OSH policy and practices in HK schools. The project started with the study of the basic statute of the OSH policy implementation with a top-down approach. The policy implementation normally begins with passage of the basic statute (Mazmanian & Sabatier, 1989). It was, therefore, important to understand current OSH legislation and policies before any examination of their implementation. The major legislation content was reviewed scientifically by using the modified WHO checklist on Mental Health Legislation. The Government bodies, their work and relevant policies on the enforcement of the policies were also reviewed.

In general, the review is notably valuable in both theory and practice, as it highlighted the HK OSH culture in terms of policy implementation. It was found that the development of HK policies is usually one reactive response to problems prevails rather than preventing problems proactively. The review showed that the content of the legislation is unclear for implementation, the ambiguous instructions in it was insufficient to carry out the implementation effectively. In particular, the legislation has the problem of ambiguity in defining the key terms, OSH services, and responsibility of different bodies in existing OSH legislation. For example, there is no definition of “health” in OSO (Cap 509) PART II. This could possibly lead to different practices when it comes to the implementation of legislation.

The unpromising aims and objectives of government work were demonstrated by the lack of official records showing their implementation work in schools. School specific records should be officially published, in order to increase school stakeholders’ awareness of OSH in schools.

In addition, since there was considerable research attesting that the OSH challenges of teachers lie in the psychosocial work environment (Peeters & Rutte, 2005). The published OSH guidelines were inappropriate by over-emphasizing teachers’ safety issues at work, but neglecting the importance of psychosocial risk management in schools. Even though there was a brief illustration of stress in the guidelines, it was too brief and inadequate.

Although the above findings suggested that there were potential obstacles in the implementation of OSH legislation and policies, they provided good understandings of the basic statute. This background knowledge was crucial for the subsequent implementation which involved policy decisions of the implementing agencies and compliance of target groups with those decisions (Mazmanian & Sabatier, 1989). Hence, investigations of the ‘decisions’ of these implementing agencies and target groups were essential to get the full picture of the implementation process. With the basis of the first

study, it was understood that the process of policy implementation was elaborate and complex: it involved not only the policy itself but also groups of stakeholders. Therefore, interviews with different levels of key stakeholders were conducted to explore their understanding and knowledge of issues concerning OSH legislation and policies from the top to the bottom of the implementation process. It also aimed to explore the key factors affecting the implementation of OSH policy in schools, in terms of target group compliance.

The study investigated different levels of OSH legislation and policy implementation in HK schools by interviewing the policy makers, implementers and teachers' representatives. The findings showed that there were some themes recognised by the three groups of stakeholders: the understanding of OSH issues, psychosocial factors and legislation and policy. Some issues and concerns within these themes were consistent among different levels of implementation and some were not, which reflected the responses of the different stakeholders. These patterns of consistency provided evidence regarding the effectiveness of the current OSH legislation and policies implementation.

Stakeholders generally agreed that teachers were facing some major psychosocial problems relating to stress, heavy workload and long working hours. These findings were similar to the previous studies conducted with teachers in HK (e.g. Cheng, 2009; Leung, 1994). Even though most stakeholders recognised the relevance and prevalence of psychosocial hazards in schools, school stakeholders were not able to establish the connections between psychosocial hazards and OSH policy. This reflected the possibility of communication breakdown in the implementation process. With reference to the review of OSH policy, there was an over-emphasis on occupational safety issues in the policy which also contributed to the fact that OSH policy has failed to address teachers' needs.

In terms of OSH policy awareness, the government implementers were very knowledgeable, whereas teachers' representatives had little or no knowledge about relevant policy. This perceptual gap was possibly an obstacle in policy implementation, and it was also found in previous study conducted in Europe (Leka et al., 2008b).

Most stakeholders mentioned the importance of teachers' OSH perceptions and the role of management; meanwhile, they also emphasised the significance of trust, communication and inter-personal relationships in the process of implementation. The findings gave a hint to the factors that affect the compliance of the teachers (target group) in the policy implementation as well as the outcomes of it.

In order to test the relationships of these factors, a quantitative study was conducted and adopted an organisational approach to study the compliance and outcomes of the implementation process. Questionnaires were conducted with HK teachers to investigate those potential factors affecting the OSH policy outcomes. One of these factors was teachers' perceptions of OSH and the role of management. A context specific climate is defined as the concept to comprise the combined perceptions of organisational members describing a particular atmosphere in their organisation (Dastmalchian et al., 1991) or with regard to its facet-specific properties – in other words, policies, procedures and practices (Reichers & Schneider, 1990; Rentsch, 1990). In the context of the current research project, a consensus should occur when management and the Government display a commitment to an internally consistent pattern of action concerning health and safety at different levels. Therefore, in regards to the opinions of the stakeholders in the previous study, the OSH climate was proposed to be associated with the effectiveness of the implementation of OSH policy in schools. The study of framework model of climate-behaviour-outcome relationship was proposed to be significant to the implementation of OSH policies within the school organisation.

On the other hand, the school key stakeholders also emphasised the importance of trust, communication and inter-personal relationships in the implementation of OSH policy as

well as their impact on teachers' psychosocial health. These factors were actually strongly linked to the concept of social capital at work (Putnam, 1993; Kawachi, 1999). Together with the organisational exchange perspective of the study and the collectivist cultural background of the participants, the study of social capital is significant to the current research project. Previous studies have found that factors similar to the concept of social capital (e.g. trust, leadership and inter-personal relationship) were strongly related to safety climate (e.g. Zacharatos et al., 2005; Barling et al., 2003). It was, therefore, proposed that social capital was the antecedent of the climate-behaviour-outcome relationship.

The literature review together with the findings of the previous two studies gave satisfactory support to the hypothesis design. These hypotheses intended to test the relationships between social capital, OSH climate, OSH knowledge, OSH behaviours (compliance and participation) and OSH outcomes (OSH complaints and general well being) in models. Since the study aimed to study policy implementation with an organisational approach, the relationships between and within social organisations were also of interest. Therefore, the study also examined how teachers' organisational perceptions (OSH perceptions and social capital) differ from school organisations (types and levels). This would also provide us a broader picture of the actual impacts of the implementation.

The results of the questionnaires confirmed the findings in previous HK teachers' health literature. Similar to those studies, the outcome measures in the current research demonstrated that HK teachers are suffering from work-related health problems (e.g. Chan, 2002; Chung & Chan, 2007) and long working hours. Meanwhile, between different school organisations, most of the teachers' organisational perceptions did not differ from the organisations, only social capital was varied in different levels of schools.

The model-testing of climate-behaviour-outcome relationships within the school organisation enriched the understanding of the compliance and outcomes relationships

in the implementation process (as seen in Figure 7) in the literature. The findings formed importance evidence that the traditional safety climate-behaviour-outcome relationship can be applied to the current context of OSH, nevertheless, the element of 'health' should not be excluded. In addition, knowledge was found as the key mediator of the relationship. In turn, this study showed that social capital is an important antecedent of the relationship with OSH climate and behaviours as the predictor of positive outcomes (i.e. employees' general well being). The study also demonstrated the role of OSH participation in the current context, which was different from the findings of previous climate studies. Most importantly, this is the very first study to investigate the OSH climate-behaviour-outcome relationship with social capital as the antecedent was found to be applicable in Chinese school settings, which provided indications of future OHS policies implementation.

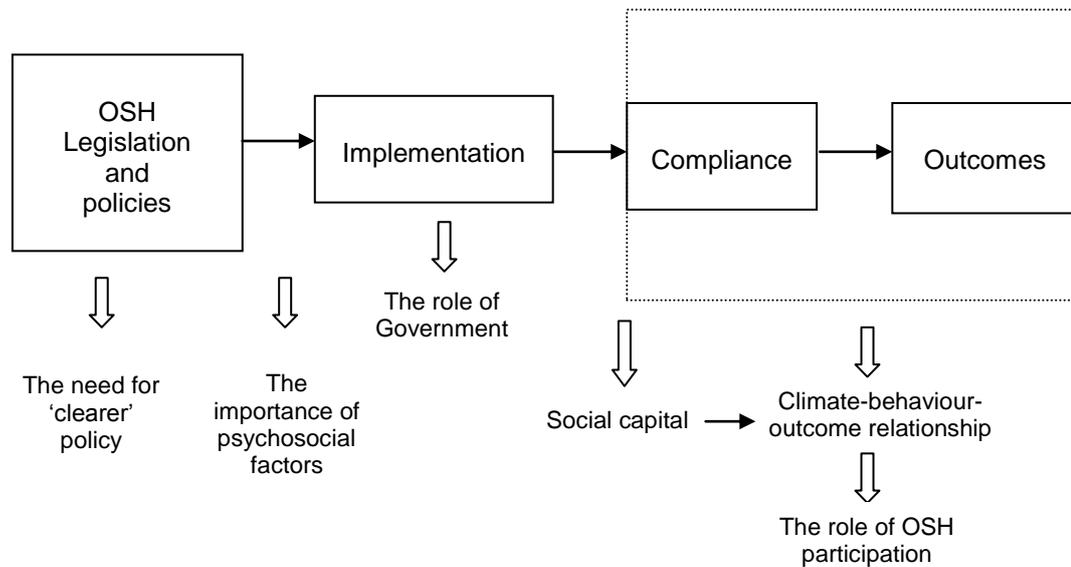
To conclude, the findings of the three studies contributed significantly to both literature and practice of policy implementation, particularly in HK. It presented a full picture of the OSH legislation and policy implementation in HK schools from the basic statute to the outcomes of implementation (as shown in Figure 7). Mixed methods have been adopted to investigate the key elements in the framework of implementation. Findings from the three main studies linked up these key elements in the framework model designed in this thesis and paved a way to develop and carry out better future implementations. As mentioned, the study of implementation is important due to its relevance of the other parts of the policy cycle, such as future design and evaluation (Mazmanian & Sabatier, 1989). The implications of the research findings in this thesis relate to different aspects of theory and practice. The following section presents the implications of the research project by highlighting the significant issues and suggesting recommendations for future practice.

## 7.2 Implications: significant issues

Previous literature has confirmed that the failure of OSH policy initiatives is often associated with the gap that exists between policy and practice (Levi, 2005). Effective policy implementation and compliance are the key elements to fill in this gap. However, the process of implementation is elaborate and complex, it involves not only the policy but also the decisions made by implementing agencies and the compliance of the target group. Literature has suggested that OSH experts had difficulties in answering the question how (e.g. how to develop, implement and design interventions), but not the question what (e.g. what are the interventions about) (Leka et al., 2008c). This can be explained by the lack of systematic evaluations in OSH interventions (Murphy & Sauter, 2004). To answer the 'how' question, the best way is to conduct strong scientific longitudinal controlled trials to evaluate OSH policy interventions. However, these 'strong scientific' designs are logistically difficult to apply in policy implementation settings and not of practical importance from a practitioner perspective (Leka et al., 2008c). This also explains scientists' comments on policy studies as being not "scientific" enough (Birkland, 2005). The present research project has found a balance between scientific theory and practice, and provided a translation between the two by discussing policy implementation in a framework model with mixed methodologies. It addressed the unique challenges faced by HK schools and to give them a provisional answer to the question 'how'.

The findings of the three studies in the previous section have come across some ideas for future design and implementation of OSH legislation and policies in HK schools. These ideas of implications are summarised into six significant issues in the figure below.

**Figure 8: Implications of this research project**



In order to highlight the implications of the research project, the initial rationale model (Figure 7) was modified in accordance with the significant issues identified as having an impact on the whole implementation process (see Figure 8).

#### 7.1.1 OSH legislation and policy: the need for 'clearer' policy

A statute is very critical to the implementation, because its role in connecting the policy decision and output. Both the policy review and interviews revealed that there were insufficient and unclear definitions of key terms and guidelines in the legislation and policies. These ambiguities directly affect the implementation of OSH legislations where implementers and employers may easily take advantages from the 'straight and simple' regulations. The 'loose' definitions of key terms in the OSH legislation, for example "health" and "risk assessment", would possibly lead to different practices when it comes to the practice of the law.

The importance of clear definitions of key terms in OSH legislation and policies was also recognised in Widerszal-Bazyl et al (2008)'s review of psychosocial standards at work. It stated that it was important for national regulations to explicitly define psychosocial key

terms in order to obligate the employer's responsibility of monitoring and preventing relevant risks. The WHO Resource Book on Mental Health, Human Rights and Legislation also made it very clear that legislation should precisely define all technical terms that are used in order to remove any ambiguity and help with the interpretation of law (WHO, 2005).

Therefore, with the findings of this research project, it is very important to have 'clearer' OSH legislation and policies for HK schools. In particular, there should be explicit definitions of the key terms in the statute. A more transparent and effective surveillance system is also essential for not only implementation purposes but also to increase school stakeholders' awareness of OSH in schools. Stakeholders should aware that clear instructions and records of OSH inspections are essential for building up such a system.

#### *7.1.2 OSH legislation and policy implementation: the importance of psychosocial factors*

There was a greater risk of psychosocial problems and work-related mental illnesses in the teaching profession that have been addressed in previous literature (e.g. British Occupational Health Research Foundation, 2005; Stansfield et al., 2003). The problems of psychosocial health and well being were also recognised in current HK studies on teachers (e.g. Cheung, 2009; Leung, 1994). It was not surprising that most stakeholders in the interviews stated that teachers are facing major psychosocial problems relating to stress, heavy workload and long working hours. This has confirmed the results in previous teachers' health studies conducted in HK (e.g. Hui & Chan, 1996; Lau, 2002; Yu, 2002) and showed that HK teachers were suffering from different psychosocial problems, hence induced various individual and organisational consequences.

Similarly, the results of the OSH outcome measures in the quantitative study also found that participated teachers reported that they had worse general well being than the HK

norm (Ip & Martin, 2006). When compared to the general scoring scale (Schnall, 2004), the mean scores indicated that HK teachers who participated in this study reported a high level of psychological distress. The high scores in GHQ demonstrated the fact that the problems of teachers' health complaints still exist (e.g. Chung & Chan, 2007) within the group of participated teachers in the current study.

In terms of work hours, since there is no regulation on the number of working hours in HK, the results were compared with the UK regulation, Government and unions' recommendations. The results indicated that HK teachers have long working hours compared with the maximum 48 hour working per week suggested in the regulations (UK Statutory Instrument 1998 No.1833, 2010; UK Statutory Instrument 2003 No.1684, 2003). Even though there is an exception of maximum working hours for teaching professions in the UK, the UK Government recommended a target 45 hour working week for teachers (BBC news, 2002; Sneddon, 2008a). With the long working hours reported by the participated teachers in the current study, this is an important issue of concern in teachers' well being.

Even though the findings showed that HK teachers were suffering from psychosocial problems, it was interesting that the stakeholders did not find significant connections between these hazards and OSH policy. This inconsistency between stakeholders' OSH hazard perceptions and their awareness of relevant policy was relevant to the findings in the policy review. This thesis found that the design of OSH guidelines for teachers and schools was not comprehensive enough, and mainly focused on traditional occupational safety issues. In fact, the importance of psychosocial risks in OSH has already been widely recognised in the literature (European Agency for Health and Safety at Work, 2007). It was inappropriate to only emphasise teachers' safety issues at work and neglect the importance of psychosocial risk management in schools.

In order to raise stakeholders' awareness on OSH issues (particularly psychosocial hazards) and relevant legislation and policies, there is a pressing need for an

amendment of OSH legislation and policies. Previous research found that the availability of guidance, education, information and tools were important for implementing systematic psychosocial risk assessment (e.g. Natali et al., 2008). Hence, policy makers and government departments should openly consult schools stakeholders' opinions in designing the policy and education programmes. OSH guidance for schools should also be more comprehensive and practical, in order to meet the needs and concerns of the HK teachers. For instance, guidance and educational tool should emphasise the need of psychosocial risk assessment in schools and give guidelines to teacher on working hours. Also, there should be more detailed guidelines for all key stakeholders on implementing work stress management. Effective OSH guidance for HK schools would certainly help to promote a better understanding of teachers' psychosocial health at work so as to identify the major concerns of HK teachers' well being.

### *7.1.3 OSH legislation and policy implementation: the role of government*

Previous literature demonstrated that perceptions of psychosocial issues among different levels of stakeholders were possible obstacles in policy implementation (Natali et al., 2008; Leka et al., 2009). Another important aspect of this research was the exploration of different stakeholders' understandings of OSH legislation, policies and relevant issues. It was found in the interviews that the Government implementers' opinions were quite distinct from those of other stakeholders. They were very knowledgeable of policy and OSH issues but they did not comment on psychosocial issues. These findings are significant to the actual implementation of OSH policy in HK, because these issues were identified by all other stakeholders as being a top priority for the teaching profession in HK. In short, this thesis reflected the possibility of lack of awareness and/or a communication breakdown in the implementation process. This gap in the OSH legislation and policy implementation process can be explained by the lack of clarification and coverage of the legislation and policies. These problems would

potentially lead to misinterpretation of the legislation and policies by the Government implementers, this entails extra attention from the key stakeholders.

The Government's role in policy implementation is recognised in the literature, there is no other means to replace Government's responsibility to safeguard of workers' OSH (Widerszal-Bazyl et al., 2008). In order to eliminate the gap in the implementation process, there is an urgent need to clarify definitions of key terms in the OSH legislation as mentioned earlier. Moreover, it is essential for the key stakeholders to take initiatives to communicate with different levels of implementers by different means. When interpreting the OSH legislation and policies, for best implementation outcomes, both the policy makers and Government implementers should spend more time together to understand the main purposes of the policies. For instance, policy makers should make clear guidance especially for the Government implementers for effective OSH implementations in schools. Detailed official records of schools inspections should be published for both the policy makers and school stakeholders, in order to show the Government implementers' work on implementation to different stakeholders.

Nevertheless, the study of teachers' OSH perceptions between different school organisations showed that teachers' perceptions of OSH were similar across different types and levels of schools. The government should take advantage of the homogeneity of teachers' perceptions of OSH, and put fewer resources in the design of OSH policy implementation for the variety of schools. Besides, more effort and resources should be allocated in the needs of teaching profession as a whole, for example, the development of OSH promotions in Staff Development Day for all HK schools.

#### *7.1.4 Social Capital: a capital for effective implementation of OSH policy*

The results of the interviews with school stakeholders demonstrate that trust, communication and interpersonal relationships are important to teachers' psychosocial

health and the implementation of OSH policy in schools. These factors are strongly related to the concept of social capital at work (Putnam, 1993; Kawachi, 1999), especially in Chinese school settings with a collectivist culture. A model has been designed in the quantitative study of this thesis to investigate the impact of social capital on teachers' OSH. The results showed that social capital is a significant determinant of teachers' general well being and also an antecedent of OSH climate and can subsequently enhance favourable OSH outcomes. On the other hand, the findings also demonstrated the fact that secondary school teachers have higher level of social capital, which may due to the strong debates and discussions on the education reforms among the group (Hong Kong Professional Teachers Union, 2009). These discussions facilitated a stronger in-group network among secondary school teachers which enhanced the level of social capital.

In fact, previous literature has recognised social capital as a useful concept in explaining and understanding the international and inter-organisational variation in productivity and the quality of working life (Liukkonen et al., 2004). There is general acceptance that social capital is an important determinant of health and well being (Yip et al., 2007). Research has also proved that that social capital is positively associated with employees' health and well being in work organisations (Requena, 2003; Liukkonen et al., 2004; Kouvonen et al., 2006). However, social capital is multifaceted and its relationship with health (and recently well being) is complex (Ziersch et al., 2005b). There were also limited studies conducted in Chinese culture (Yip et al., 2009) and workplaces like schools. Hence, this thesis provided important findings to the OSH and social capital literature. Firstly, the findings provided evidence to apply social capital in schools, which stakeholders can make use of social capital in HK schools to facilitate OSH climate. The present research project is the first attempt in the literature to look at the relationship between social capital and OSH climate. The findings have demonstrated significant relationships of social capital and climate – behaviour – outcome. The influence of strong level of social capital and positive OSH climate in schools, teachers will be more likely to have positive OSH behaviour change and

subsequently enhanced their well being. Previous social capital research were mostly conducted in neighbourhood and community settings (e.g. Ziersch et al., 2005; Kawachi et al., 1997), this thesis has taken a big step forward by applying social capital in HK schools. Secondly, the antecedent factors in promoting favourable climate were unclear (Mearns & Hope, 2005) in the literature. The findings of the current research presented social capital as an antecedent of climate-behaviour-outcome relationship. Together with establishment of climate as a promoting factor of behaviour change and well being, this study shed a light into future OSH intervention strategies by presenting social capital as significant antecedent of OSH climate.

On the other hand, the notion of social capital is a multidimensional concept in which interpersonal associations are fostered to derive benefits from them (Watson et al., 2005). Different levels of stakeholders should invest in these associations and put collective effort to protect and promotion teachers' well being. From the literature review, there are three types of social capital in the workplace; bonding social capital refers to workers with similar socio demographic characteristics; bridging social capital refers to people from different races, classes or ages cut across barriers in workplaces with much diversity; and linking social capital refers the vertical networks between employers and employees with different degrees of institutional power (Kouvonen, et al., 2006). All these ties that cut across different individuals in schools can be good resources to enhance better well being and foster better implementation of OSH policy. In fact, the concept of "social" has always been an important factor in organisations, for example, interpersonal relationships, trust, leadership and social network. In particular, social capital characterized by social groups rather than individuals, and it is seen as an asset of the individuals and therefore born of shared experience which fosters mutual trust and reciprocity (Shortt, 2004), this resembles the collectivist culture in Chinese organisations that they have very stronger emphasis on the "social" aspect (Hofstede, 1991). School key stakeholders should apply these social relationships in schools to implement OSH policies, for instance, OSH promotional activities can be designed to strengthen the level of bridging social capital in schools, such as to enhance their the trust and

communication between older and younger teachers. Also, with the higher level of social capital in secondary schools has its potential to foster OSH policies implementation in secondary schools. The Government can take the opportunity to counter teachers' discontent of the education reform with the promotions of existing OSH policies.

In short, the current research does not only contribute to the social capital literature by studying it with the Chinese population and OSH climate, but also informs the design of effective OSH implementation strategy in HK schools. HK schools as Chinese organisations should make use of "social" as a valuable "capital" to implement OSH policy.

#### *7.1.5 OSH climate: a key to the improvement of OSH policy implementation*

Organisational climate in schools has been studied since the 1960's, but there are problems in studying organisational climate due to the "lack of boundaries differentiating what climate is from what it is not" (Rousseau, 1988). To solve the problem, researchers should study facet specific climate which provides a convergent measure of employees' appraisals or interpretations of relevant policies, procedures, and practices aggregated to the unit of analysis of theoretical interest (Kozlowski & Klein, 2000). Study three has conceptualized a facet specific climate in school with the interest of OSH in a group level.

With the over-emphasis on safety in previous climate studies (e.g. Griffin & Neal, 2006; Zohar, 2000) the current research presents valuable support for a significant facet specific organisational climate in schools, which captures the shared aspect of climate (Guldenmund, 2000), first-order factors of climate (Neal et al., 2000), and covered more than just the aspect of "safety". In fact, the emphasis on safety in the literature was conceptually illogical because the constructs of 'occupational safety and health' are strongly linked. As mentioned in the literature review, with the change of working life, it

was essential for work organisations to promote quality of life and well being of their employees. In study three, the models designed with the evidence of the literature review and findings of the qualitative studies has innovatively incorporated health into safety climate and demonstrated the climate-behaviour-outcome relationship in the school context. The results reflected the extent to which teachers believed that health and safety is valued within their schools and how this relates to teachers' OSH behaviours and well being.

The current research also combined both proactive and reactive approaches in measuring OSH outcomes. Previous safety outcome studies usually focused on the measurement of accident rates and compensation costs, Cooper and Phillips (2004) suggested that the previous measurements are "notoriously problematic". Under this assumption, the success of OSH is measured by lower levels of system failure (Cohen, 2002). To overcome this problem, some studies have taken a more proactive approach in measuring the safety behavioural outcomes (Strickoff, 2000; Cooper & Phillips, 2004). This proactive approach focuses on current safety activities to establish system success rather than system failure. In order to ascertain the effects of the OSH policy level interventions in schools, different from most of the previous safety climate research, this study combined both approaches by measuring both OSH complaints and teachers' general well being.

In short, this thesis does not only contributed to the climate literature, but more importantly it has demonstrated the importance of OSH climate in HK schools. In general, climate is a way to measure culture and it is more generalisable than culture (Payne, 2000). The results of the current research helped us to understand more about OSH culture in HK, and gave directions to school key stakeholders for policy implementation and the design of intervention programmes, such as employees' behaviour change. Stakeholders' should make use of the management role in the implementation of OSH legislation and policies, especially within the school as an organisation.

The current OSH climate study has indicated that management value and commitment on OSH was influential to teachers' OSH behaviours and outcomes. Therefore, more effort should be put into educating the school management, e.g. the Government should allocate more resources to educate them on the importance of OSH, the role of OSH legislation and policies in schools and the benefits for implementing them effectively. The more the school management is committed to and valued OSH in schools, it is more likely that the implementation of relevant legislation and policies will be effective. Another issue raised from the results of the study is the role of OSH participation in climate-behaviour-outcome relationship, which will be discussed next.

#### *7.1.6 OSH participation: influence on teachers' OSH*

As mentioned previously, the quantitative study investigated its original framework model of the climate-behaviour-outcome relationship. One of the models has tested the role of OSH knowledge in the climate-behaviour-outcome relationship. The results showed that knowledge contributed to employees' general well being, which was similar as the findings of previous health research (e.g. Cheng, et al., 1999). Furthermore, it was found that OSH knowledge was the full mediator of climate-behaviour relationship in the school settings. With the mediating effect of knowledge, the role of OSH behaviours is further established, because it is critical to transfer OSH climate into favourable OSH outcomes. Although the results showed a significant role of OSH behaviours in the OSH policy implementation process, the study of different OSH behaviours (compliance and participation) provide additional information on the implications of the model.

The role of OSH participation in the climate-behaviour-outcome relationship found in the current study is different from the previous findings on participation in climate-behaviour-outcome relationship (e.g. Zohar, 2003; Neal & Griffin, 2000). It showed that the role ambiguity of in-role and extra-role work behaviour at work may lead to teachers' confusion in distinguishing organisational citizenship behaviours (OCB)(OSH

participation in this study) from their in-role behaviours (Morrison, 1994; Tepper et al., 2001). The previous OCB studies showed that this ambiguity may have a dysfunctional impact on employee's well being by "escalating citizenship" (Bolino et al., 2004; Reich, 2001; Schor, 1991) and this resembles to quantitative study results. It showed that teachers are suffering from long working hours and heavy workload. Together with their multi-task work in schools, it is very likely that teachers are pressurized due to the engagement in OSH participation. This means that ill-defined OSH participation with multiple interpretations may lead to stress and job dissatisfaction and further increase their work-related health problems and injuries.

Therefore, it is very important for the school management and the Government to well define teachers' in-role duties and state clearly that they are required to comply with OSH legislation. For instance, teachers should be given clear health and safety instructions for OSH legislation compliance. Then they will be more likely to distinguish their in-role behaviours with the extra-role work behaviours, and hence the management will also be more likely to obtain the most from OSH participation behaviours in OSH policy implementation.

To conclude, this thesis has several important implications to the literature and practice. As seen in Figure 8, these implications were summarized into numbers of significant issues, such as the need for clearer policy, the importance of psychosocial factors, the role of government, social capital, and the importance of climate and behaviours. These significant issues are embedded in the policy implementation process and significantly affect the outcomes of the policy decisions. Together with the recommendations for practice, it is hoped that the present research can provide more guidance in translating OSH knowledge into practice and address the unique concerns of OSH in HK schools. Moreover, any research would have its limitations, the following section is going to discuss the strengths and weaknesses of this research.

### **7.3 Strengths and limitations of this research**

As mentioned, any research would have its limitations, the main one in the current research is the low response rates in quantitative study. These response rates were achieved despite active efforts by the researcher at reminders and follow-up. There are two main reasons for this; firstly, HK teachers are suffering from heavy workload and long working hours, it is hard for them to spend time on filling up questionnaires; secondly, as mentioned previously, the education system has received a lot of attention these years, much research has been conducted in HK within a short period of time making teachers reluctant to participate in research; finally, the current research shows that HK teachers are not aware of the importance of OSH policy to their psychosocial well being; hence they may not have been able to understand the benefits of participating in this research and so refused to take part.

However, if stakeholders take the implications of this research project on board in their policy evaluations. With the improvement of policy implementation, HK teachers will be more aware of the connections between OSH policy and their psychosocial well being. It will be more likely for them to participate in policy research in the future. Also, researchers can make use of both online and paper questionnaires, as the results of the current study showed no differences between the two data collection methods. Teachers will be more accessible with different means of data collection.

Although there are weaknesses in the present research, its strengths have added significance to OSH practice and literature. In the previous section, the theoretical and practical implications have been discussed and came across some strengths of this research project. Moreover, if we overview the design of the research project, the study of OSH legislation and policies at the macro level represents some major strengths. There are very few studies that investigate the effectiveness of policy level interventions (primarily in legislation) in solving teachers' OSH problems. Given that learning from the problems of policy implementation can foster ways to structure policies (Birland, 2005), it

is significant to understand the implementation of OSH legislation and policies with different approaches.

A major strength of this research was its multidisciplinary perspective that facilitated flexibility in the examination of the research questions. The triangulation approach with different research methods was employed to address these appropriately. To date, there has been no empirical study in HK to study the implementation of OSH legislation and policies in schools using top-down and organisational approaches to date. From our knowledge, this thesis is the very first attempt to apply theories and techniques from different disciplines in the study of teachers' OSH.

The review of OSH legislation and policy in schools and interviews with school key stakeholders with the top-down approach also adds to strengths due to: first, the limited studies of systematic policy review with OSH policy interventions; and second, the limited attempts to explore OSH understanding, knowledge and awareness between different levels of key stakeholders in HK.

The current research has also integrated social capital into its original framework model of climate-behaviour-outcome relationship is also an innovative idea that forms evidence in the application of social capital in different settings. This part of the research has its power in filling the gap in the literature by investigating the antecedents of OSH climate. Nevertheless, it also shows directions to apply social capital in the practice of OSH policy implementation.

Further, the study of OSH climate with both reactive and proactive approaches also represents a strength of this work, as limited climate studies have focused on the Chinese population and school context; there are also very few attempts to incorporate health into safety climate with measurements of organisational success. The current research addressed the problem of measuring OSH in terms of the level of system failure (Cohen, 2002), by measuring teachers' OSH complaints and general well being.

The combination of reactive and proactive approaches in the current research project stressed the importance of system success in OSH research. The positive outcomes of OSH policies do not only rely on the low level of OSH failure. The ultimate goal of OSH policies implementation should be measured by the level of success in OSH promotions. In short, the current research project has contributed to the climate literature and provided further implications to OSH management in schools.

Finally, despite being home of a fifth of the world's population, there has been very limited research in China on health and safety climate, social capital and most importantly OSH policy implementation. In addition to benefiting the Chinese population, findings from China can also offer insight to other populations with similar cultural background and contribute to the generalisability of practice in occupational health psychology.

Together with the implications of the current research project, the strengths of the project formed some evidence for future research. The following section is going to discuss the future direction of research in OSH.

#### **7.4 The future direction of research**

The present research represents a first effort for the study of OSH policy and practices in HK schools. A number of issues have been investigated by means of a triangulation approach, including systematic policy review, key stakeholders' understandings of and involvement with OSH, organisational contexts of different HK schools, teachers' OSH perceptions and the relevant outcomes of OSH policy.

The characteristics of HK policy implementation and school health and safety climate, call for longitudinal research in order to examine the effects of the implementation of OSH policy in longer time frame, such as three years to a decade. This could potentially

capture the changes of OSH climate in HK schools. The approach followed in this work, based both on qualitative and quantitative research, is useful both for the purposes of generalisation, in-depth exploration of the questions investigated, and hypothesis testing. However, due to constraints in the research process, like funding, time and nature of the study, investigation of the situation before and after the implementation of OSH policy was not possible. Nevertheless, this research has bravely moved a step forward to promote understanding of OSH legislation and policies in HK schools and its relation to teachers' well being. The key findings also encouraged the incorporation of health into safety climate research and the role of social capital as an antecedent of the climate-behaviour-outcome relationship in Chinese school settings.

Future research needs to be systematic and employ a variety of research techniques with in-depth discussion of the whole policy process. The conduct of such research with the majority of workers (such as teachers) in HK will promote and further explore the significance of OSH legislation and policies. As the psychosocial health and safety work conditions in HK appear to have a detrimental effect on worker's health, safety and lives in general, research focussing on these issues should represent a priority.

## **7.5 Final conclusion**

The line between pure and applied science, in other words, theory and practice, is often rather blurred (Birkland, 2005). Therefore, applied scientists should take up the role to translate knowledge from the theory into practice. The author of this research project is not an exception, this research project aimed to form evidence for different levels of stakeholders to implement OSH legislation and policies more effectively in the future. With the findings of the research, this thesis adds knowledge in the field of OSH in a manner that will facilitate further research. It is also aimed that the research can promote the understanding of workers' needs and contribute to the enhancement of effective policy level interventions.

The future of HK lies in the hands of the next generation and teachers have a mission to educate them. It is the hope of the author that this thesis will contribute to paving the way for the development and future implementation of OSH legislation and policies for HK teachers. Such might be considered significance to the improvement of teachers' health and the development of research, policy and practice.

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## Appendix I

List of the 41 International Labour Conventions Applied to the HKSAR

Conventi on no.	Titles
2	Unemployment Convention, 1919
3	Maternity Protection Convention, 1919
8	Unemployment Indemnity (Shipwreck) Convention, 1920
11	Right of Association (Agriculture) Convention, 1921
12	Workmen's Compensation (Agriculture) Convention, 1921
14	Weekly Rest (Industry) Convention, 1921
16	Medical Examination of Young Persons (Sea) Convention, 1921
17	Workmen's compensation (Accidents) Convention, 1925
19	Equality of Treatment (Accident Compensation) Convention, 1925
22	Seamen's Articles of Agreement Convention, 1926
23	Repatriation of Seamen Convention, 1926
29	Forced Labour Convention, 1930
32	Protection against Accidents (Dockers) Convention (Revised), 1932
42	Workmen's Compensation (Occupational Diseases) Convention (Revised), 1934
50	Recruiting of Indigenous Workers Convention, 1936
64	Contracts of Employment (Indigenous Workers) Convention, 1939
65	Penal Sanctions (Indigenous Workers) Convention, 1939
74	Certification of Able Seamen Convention, 1946
81	Labour Inspection Convention, 1947
87	Freedom of Association and Protection of the Right to Organise Convention, 1948
90	Night Work of Young Persons (Industry) Convention (Revised), 1948
92	Accommodation of Crews Convention (Revised), 1949
97	Migration for Employment Convention (Revised), 1949
98	Right to Organise and Collective Bargaining Convention, 1949
101	Holidays with Pay (Agriculture) Convention, 1952
105	Abolition of Forced Labour Convention, 1957
108	Seafarers' Identity Documents Convention, 1958
115	Radiation Protection Convention, 1960
122	Employment Policy Convention, 1964
124	Medical Examination of Young Persons (Underground Work) Convention, 1965
133	Accommodation of Crews (Supplementary Provisions) Convention, 1970
138	Minimum Age Convention, 1973
141	Rural Workers' Organisations Convention, 1975
142	Human Resources Development Convention, 1975
144	Tripartite Consultation (International Labour Standards) Convention, 1976
147	Merchant Shipping (Minimum Standards) Convention, 1976
148	Working Environment (Air Pollution, Noise and Vibration) Convention, 1977

- |     |  |
|-----|--|
| 150 | Labour Administration Convention, 1978             |
| 151 | Labour Relations (Public Service) Convention, 1978 |
| 160 | Labour Statistics Convention, 1985                 |
| 182 | Worst Forms of Child Labour Convention, 1999       |

Sources from: Hong Kong Government, Labour Department Annual Report 2007 (Labour Department HKSAR Government, 2007)

## Appendix II

List of the OSHO (Cap 509) and its subsidiary regulations

Chapter/section/ schedule no.	Legislation Chapter/section/schedule headings
CAP 509	OCCUPATIONAL SAFETY AND HEALTH ORDINANCE
Cap 509	Long title
Cap 509 s 1	Short title
Cap 509 s 2	Purposes of Ordinance
Cap 509 s 3	Interpretation
Cap 509 s 4	Application of Ordinance to certain persons
Cap 509 s 5	Ordinance to bind Government
Cap 509 s 6	Employers to ensure safety and health of employees
Cap 509 s 7	Occupier of premises to ensure safety and health of persons employed at those premises
Cap 509 s 8	Employees at work to take care of others and to co-operate with employer
Cap 509 s 9	Commissioner may serve improvement notice on employer or occupier
Cap 509 s 10	Commissioner may serve suspension notice on employer or occupier
Cap 509 s 11	Right of employer or occupier to have suspension notice reviewed
Cap 509 s 12	Employer or occupier may appeal to Appeal Board against Commissioner's decision
Cap 509 s 13	Person responsible for workplace to notify accidents and other matters
Cap 509 s 14	Occupier of relevant premises to report dangerous occurrence to occupational safety officer
Cap 509 s 15	Medical practitioner to notify occupational disease to Commissioner
Cap 509 s 16	Holding of informal inquiry into workplace accident or dangerous occurrence
Cap 509 s 17	Holding of formal inquiry into workplace accident or dangerous occurrence
Cap 509 s 18	Coronial inquest not affected by inquiry under section 17
Cap 509 s 19	Appointment of officers to administer Ordinance
Cap 509 s 20	Commissioner may assign designations to officers
Cap 509 s 21	Exercise or performance of functions by occupational safety officers
Cap 509 s 22	Power to enter premises where workplace is located
Cap 509 s 23	Powers of occupational safety officers who have entered premises
Cap 509 s 24	Occupational safety officer may request certain information
Cap 509 s 25	Occupational safety officer may require responsible person to exhibit notice in workplace
Cap 509 s 26	Offence to obstruct occupational safety officers and others exercising or performing functions under Ordinance
Cap 509 s 27	Offence to impersonate occupational safety officer
Cap 509 s 28	Public officers not personally liable for certain acts and omissions
Cap 509 s 29	Offence for public officers and others to disclose certain information
Cap 509 s 30	Offence for person to interfere with or misuse article provided for safety or health of employees
Cap 509 s 31	Offence for employer to charge employees for anything done to

	fulfil statutory requirement
Cap 509 s 32	Offence to prevent aid from being given to employee at workplace
Cap 509 s 33	Liability of directors, partners, etc.
Cap 509 s 34	Prosecution for offence may be brought in Commissioner's name
Cap 509 s 35	Not necessary to specify certain matters in summons for offence
Cap 509 s 36	Evidentiary statements
Cap 509 s 37	Evidence of employer-employee relationship
Cap 509 s 38	Onus on defendant to prove certain matters
Cap 509 s 39	Person not liable to be prosecuted twice for same act or omission
Cap 509 s 40	Workplace codes of practice
Cap 509 s 41	Effect of workplace code of practice
Cap 509 s 42	Commissioner may make regulations
Cap 509 s 43	Commissioner may amend Schedules
Cap 509 s 44	Commissioner may grant exemptions from operation of Ordinance Requirements imposed by Ordinance on 2 or more different persons
Cap 509 s 45	
Cap 509 s 46	Regulations and codes of practice under Ordinance to prevail
Cap 509 s 47	How documents are to be served for purposes of Ordinance
Cap 509 s 51	Savings and transitional provisions
Cap 509 Sched 1	Dangerous occurrences
Cap 509 Sched 2	Notifiable occupational diseases
Cap 509 Sched 5	Savings and transitional provisions
CAP 509 A	OCCUPATIONAL SAFETY AND HEALTH REGULATION
CAP 509 A	Empowering section
CAP 509 A s 2	Interpretation
CAP 509 A s 3	Responsible person to ensure safe design and maintenance of plant
CAP 509 A s 4	Responsible person to ensure dangerous parts of plant are guarded
CAP 509 A s 5	Responsible person to ensure young persons do not clean plant
CAP 509 A s 6	Responsible person to ensure that certain parts of workplace are securely fenced
CAP 509 A s 7	Responsibilities of responsible person with respect to means of egress from workplace
CAP 509 A s 8	Responsible person to ensure that means of escape are properly maintained
CAP 509 A s 9	Offences relating to means of escape from workplace
CAP 509 A s 10	Commissioner may require additional fire safety measures
CAP 509 A s 11	Offence to damage or interfere with fire safety measures provided at workplace
CAP 509 A s 12	Responsible person to keep workplace clean and adequately ventilated
CAP 509 A s 13	Responsible person to ensure that workplace is sufficiently lit
CAP 509 A s 14	Responsible person to ensure that floors of workplace are adequately drained
CAP 509 A s 15	Workplace to be provided with sanitary conveniences, etc.
CAP 509 A s 16	Employees to be provided with adequate supplies of drinking water
CAP 509 A s 17	Definitions (Part VI)
CAP 509 A s 18	First aid facilities to be provided at workplace

CAP 509 A s 19	Commissioner may require additional first aid items to be provided
CAP 509 A s 20	Responsible person to designate employees to be in charge of first aid facilities
CAP 509 A s 21	Commissioner may exempt responsible person from requirements of this Part in certain circumstances
CAP 509 A s 22	Definitions (Part VII)
CAP 509 A s 23	Responsible person to make preliminary assessment of risks
CAP 509 A s 24	Responsible person to avoid need to undertake certain manual handling operations
CAP 509 A s 25	Responsible person to make further assessment of risks
CAP 509 A s 26	Responsible person to keep record of assessment of manual handling operations
CAP 509 A s 27	Responsible person to reduce risks and make arrangements for preventive and protective measures
CAP 509 A s 28	Responsible person to appoint assistants
CAP 509 A s 29	Responsible person to provide certain information to employees
CAP 509 A s 30	Duty of employer when allocating work tasks to employees
CAP 509 A s 31	Employer to provide adequate training to employees Employees at work to take care of others and to co-operate with employer
CAP 509 A s 32	
CAP 509 A Sched 1	Dangerous parts of plant
CAP 509 A Sched 2	Items contained in first aid facility
CAP 509 A Sched 3	Matters and questions to be considered when making assessment of risks of undertaking manual handling operations
CAP 509 B	OCCUPATIONAL SAFETY AND HEALTH (DISPLAY SCREEN EQUIPMENT) REGULATION
CAP 509 B	Empowering section
CAP 509 B s 2	Interpretation
CAP 509 B s 3	Application
CAP 509 B s 4	Risk assessment
CAP 509 B s 5	Reduction of risks
CAP 509 B s 6	Provision of information
CAP 509 B s 7	Requirements for workstation
CAP 509 B s 8	Provision of safety and health training
CAP 509 B s 9	Users to co-operate with responsible person
CAP 509 B s 10	Effect of workplace code of practice
CAP 509 B s 11	Offences
Sources: Bilingual Law Information System (Hong Kong Government Department of Justice, 2009)	

## Appendix III

### Interview Schedule

#### **General understanding of occupational safety and health issues**

##### **職業健康及安全的基本認識**

1. What is your understanding of the term “occupational safety and health”?  
請描述你對職業健康及安全(職安健)之認識.
2. How would you define a “safe” and “healthy” work environment?  
你會怎樣界定”安全”及”健康”的工作環境?
3. How would you define employees’ occupational “safety” and “health” at work?  
你會怎樣界定容員工的”安全”及”健康”?
4. How do you think we measure these things?  
你會怎樣量度以上提及的事宜?
5. How would you define work related and occupational health problems?  
你會怎樣形容跟工作有關的安全及健康問題?

#### **Understanding of psychosocial issues**

##### **社會及心理事宜之了解**

6. What is your understanding of the term ‘psychosocial (psychological and social) hazards’?  
請描述你對工作上的社會及心理危害的認識.
7. Do you think psychosocial factors are one of the leading factors to occupational safety and health outcomes you mentioned above? And why?  
你是否贊同工作上的社會及心理條件會是影響員工職安健的主要因素? 為什麼?
8. Do you think that such hazards have a negative influence on the working population? Teaching professions?  
你是否贊同工作上的社會及心理的危機會對員工職安健有負面影響? 特別是教師?

#### **Knowledge of health and safety**

##### **職業健康及安全的知識**

9. What do you know about the importance of these occupational safety and health issues in Hong Kong?  
你對職安健在香港的重要性有多了解?
10. What is your understanding of the potential “risk to health” in school as a workplace?

學校作為一個工作環境, 你會怎樣形容當中潛在的健康風險?

11. What is it needed to be done to improve occupational safety and health in schools?

你認為有什麼措施能夠改善學校的職業健康及安全?

12. How do you think these actions should be taken?

你認為該措施應怎樣實行?

13. What are the biggest challenges of improving and maintaining the health and safety at work in schools?

你認為改善及保持學校(工作環境)的健康及安全的最大障礙是什麼?

14. Who do you think is responsible for the occupational safety and health in schools? And what are their responsibilities?

你認為學校裡的職安健事宜應由誰負責? 他們又應該負責什麼?

15. Do you believe that the management style adopted in an organization has an effect on occupational safety and health practices in organizations? And Why?

你認為公司的管理方式會否影響在職安健有關的習慣和行為? 為什麼?

16. Do you think the relationship between upper management and employees will affect health and safety at work? And Why?

你認為僱員與管理層的關係會影響員工的職安健嗎? 為什麼?

17. In particular, do you think trust and communication between social partners will affect the occupational safety and health outcomes? And Why?

你認為僱員與管理層的溝通及信任會影響員工的職安健嗎? 為什麼?

18. Do you think employees' perception of occupational safety and health policies, procedures and practices will affect the occupational safety and health outcome of an organization? If yes, what are they? If no, why?

你認為員工對職安健政策, 步驟及工作應有的習慣的看法會影響職安健有關的後果? 如有, 是什麼影響? 如沒有, 為什麼?

### **Legislation and policies**

#### **職業健康及安全法例/政策**

19. Are you aware of any government policy and/or legislation that deal with occupational safety and work in school? If yes, what are they?

你有否留意到政府任特別針對學校的職安健何法例/政策? 如有, 它們是什麼?

20. Are you aware of any occupational health and safety services available for schools in Hong Kong? If yes, what are they?

你有否留意到政府任何針對學校的職安健之服務? 如有, 它們是什麼?

21. Are you aware of any organizations that deal with occupational safety and health in Hong Kong? If yes, what are they?

你有否留意到政府特別負責處理職安健事宜之機構? 如有, 它們是什麼?

22. Have you been involved in any design of the occupational safety and health policy and/or legislation? What was your role?

你有否曾經參與任何的職安健法例/政策的設計及討論? 當時你是參與那一部分及角色?

23. What do you think it's the main drivers for the development of these occupational safety and health policy and/or legislation?

你認為什麼是推動職安健法例/政策是推動職安健的發展的重要關鍵?

24. Have you been involved in any implementation of the occupational safety and health policy and/or legislation? What was your role?

你有否曾經參與任何實施職安健法例/政策的活動? 當時你是參與那一部分及角色?

25. Have you been involved in any evaluation of the occupational safety and health policy and/or legislation?

你有否曾經參與任何政府有關職安健法例/政策的評估活動? 當時你是參與那一部分及角色?

26. What do you think are the main priorities at the policy level in relation to occupational safety and health in Hong Kong schools?

你認為政府在有關學校職安健之首要立法方針是甚麼?

27. Is there anything you would like to add in the context of this interview?

請問你有沒有任何事宜希望補充?

## Appendix IV

Summary of the emerged sub-themes of understanding of OSH issues

Themes	Sub-themes	Similarities	Policy Makers	Implementers	Teachers' Representatives
Understanding of OSH issues	Physical health	<ul style="list-style-type: none"> <li>Recognised common physical health problems.</li> </ul>	<ul style="list-style-type: none"> <li>Knowledgeable in general OSH related physical problems.</li> </ul>	<ul style="list-style-type: none"> <li>Understand teachers' risk of physical health problems.</li> </ul>	<ul style="list-style-type: none"> <li>Drew a strong connection between physical health problems and teachers' OSH.</li> </ul>
	Psychological health	<ul style="list-style-type: none"> <li>Recognised teachers' psychological health problems.</li> <li>Mentioned the source of teachers' psychological health problems.</li> </ul>	<ul style="list-style-type: none"> <li>Mentioned the sources of psychological health problems for general workers.</li> </ul>	<ul style="list-style-type: none"> <li>Local implementers were knowledgeable in teachers' common psychological health problems.</li> <li>Government implementers did not comment a lot on this issue.</li> </ul>	<ul style="list-style-type: none"> <li>Realised psychological health problems affect teaching quality.</li> </ul>
	Knowledge and awareness of OSH issues		<ul style="list-style-type: none"> <li>Knowledgeable in general OSH issues, particularly on safety aspects.</li> </ul>	<ul style="list-style-type: none"> <li>Local implementers are more knowledgeable in OSH issues in schools.</li> <li>Comparatively, the Government implementers were the most knowledgeable group.</li> </ul>	<ul style="list-style-type: none"> <li>Apart from the trade union representatives, most of the teachers' representatives had very limited level of knowledge on OSH.</li> </ul>
	Promotion and education		<ul style="list-style-type: none"> <li>Experienced in doing OSH promotions and education.</li> <li>The OSH committees complained the Government's policy on promotion and education.</li> </ul>	<ul style="list-style-type: none"> <li>Local implementers were not enthusiastic in promoting OSH in schools, due to insufficient guidelines.</li> <li>Government implementers believed that OSH promotions and education</li> </ul>	<ul style="list-style-type: none"> <li>Lack of awareness of promotion and education in schools.</li> </ul>

				provided by the Government are appropriate and sufficient.	
	Importance of management	<ul style="list-style-type: none"> <li>Recognised the importance of management in the implementation of OSH policy.</li> </ul>	<ul style="list-style-type: none"> <li>Recognised the importance of the roles of government and school upper management.</li> </ul>	<ul style="list-style-type: none"> <li>Mentioned that management style affects teachers' psychosocial health.</li> </ul>	<ul style="list-style-type: none"> <li>Emphasised the role of middle management.</li> </ul>

## Appendix V

### Summary of the emerged sub-themes of psychosocial factors

Themes	Sub-themes	Similarities	Policy Makers	Implementers	Teachers' Representatives
Psychosocial factors	Stress	<ul style="list-style-type: none"> <li>• Showed understanding of the sources and consequences of stress.</li> </ul>	<ul style="list-style-type: none"> <li>• Mentioned the negative consequences of stress to HK in general.</li> </ul>	<ul style="list-style-type: none"> <li>• Local implementers believed teachers are more stressful than other occupation.</li> <li>• Government implementers: did not comment on teachers' stress.</li> </ul>	<ul style="list-style-type: none"> <li>• Pointed out that they are suffering from serious stress problems.</li> </ul>
	Work culture		<ul style="list-style-type: none"> <li>• Talked about HK working culture in general.</li> </ul>	<ul style="list-style-type: none"> <li>• Recognised a strong OSH culture in schools would facilitate the implementation of OSH policy.</li> </ul>	<ul style="list-style-type: none"> <li>• Pointed out the importance of teachers-oriented culture in managing a school.</li> </ul>
	Workload and working hours	<ul style="list-style-type: none"> <li>• Recognised the problems of heavy workload and long working hours due to education reform.</li> </ul>		<ul style="list-style-type: none"> <li>• Some local implementers claimed that they tried to solve the problems.</li> </ul>	<ul style="list-style-type: none"> <li>• Related the problems with government allocation of resources.</li> </ul>
	Communication and trust	<ul style="list-style-type: none"> <li>• Significant to OSH as well as organisational aspects.</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on general workplaces.</li> </ul>	<ul style="list-style-type: none"> <li>• Local implementers focused more on schools and claimed that they put effort to facilitate communications in schools.</li> </ul>	
	Inter-personal relationships	<ul style="list-style-type: none"> <li>• Teacher-student relationship had a negative impact on teachers' OSH.</li> <li>• Harmonious collegial</li> </ul>		<ul style="list-style-type: none"> <li>• Local implementers suggested the positive impact of teacher-student relationship on teachers.</li> </ul>	<ul style="list-style-type: none"> <li>• Different from the other two groups, they thought the relationship and teachers'</li> </ul>

		relationship would facilitate OSH implementation.			<p>OSH is interrelated.</p> <ul style="list-style-type: none"> <li>• Suggested that teacher-student relationship related to job satisfaction.</li> <li>• Suggested the negative impact of unhealthy collegial relationship.</li> </ul>
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## Appendix VI

Summary of the emerged sub-themes of legislation and policy

Themes	Sub-themes	Similarities	Policy Makers	Implementers	Teachers' Representatives
Legislation and policy	Awareness of OSH legislation and policy		<ul style="list-style-type: none"> <li>• Good awareness of the current OSH legislation and policy.</li> </ul>	<ul style="list-style-type: none"> <li>• Local implementers showed low awareness of OSH legislation and policy, but did not think schools are risky workplaces.</li> <li>• The government implementers showed the highest awareness of OSH legislation and policy among all three groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers showed little awareness of OSH legislation and policy.</li> </ul>
	Implementation of the legislation and policy		<ul style="list-style-type: none"> <li>• Suggested that there were good legislation but lack of effective implementation</li> </ul>	<ul style="list-style-type: none"> <li>• Most of the local implementers did not aware of any government OSH inspections.</li> <li>• Government implementers claimed that they did regular inspections in all schools.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of knowledge to comment on the implementation of legislation and policy.</li> </ul>
	Future directions of legislation	<ul style="list-style-type: none"> <li>• There should be legislation on maximum working hours.</li> <li>• Staff Development Day could be a</li> </ul>	<ul style="list-style-type: none"> <li>• Suggested some future directions of education policy.</li> </ul>	<ul style="list-style-type: none"> <li>• Government implementers suggested legal guidelines on safety management in schools.</li> </ul>	

		good platform to conduct OSH education programmes.			
	Local OSH policies		<ul style="list-style-type: none"> <li>• Mentioned only local policy in general workplaces.</li> </ul>	<ul style="list-style-type: none"> <li>• Local implementers mentioned about the local safety committees in schools.</li> <li>• Better knowledge of the local policy in schools than the other two groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of awareness of the local policy in their schools.</li> </ul>

## Appendix VII



### Institute of Work, Health & Organisations

The project is being undertaken by the Institute of Work, Health and Organisations (I-WHO), which is supervised by Dr. Nigel Hunt, Dr. Sara Cox, Dr Stavroula Leka and conducted by Miss Jessica Janice Tang. The overall purpose of the project is to review the occupational safety and health policies and services in Hong Kong schools and the implementation of such policies.

The purpose of this questionnaire is to investigate your understanding of occupational safety and health; and psychosocial issues.

In completing the questionnaire, please be honest and frank; there are no right or wrong answers. Identifiable personal details have deliberately been omitted to ensure anonymity of responses. Feedback will be in the form of reports or presentations that include summary results. Any personal comments from the returned questionnaires that are used in project reports, academic papers or feedback to the organisation will be quoted anonymously and anything that might identify you will be removed.

This questionnaire asks about your own experiences. Completion and return are entirely voluntary. Should you experience any form of distress while completing the questionnaire, you should approach Jessica Tang

The Implementation of Occupational Safety and Health Policy in Hong Kong Schools

Consent to participate and assurance of confidentiality

I, the undersigned, agree to be interviewed as part of the project "Evaluation of the Implementation of Occupational Safety and Health Policy in Hong Kong Schools". I have been given an explanation of the study and have been assured that:

I will not have to answer any questions that I find upsetting;

I may withdraw from filling in the questionnaire at any time without having to justify my decision and may withdraw my consent for the use of any information already gained from the survey; academic papers or feedback to the organisation will be used anonymously and will not identify me in any way. We hope that you will find the questionnaire interesting and will assist us by returning it as soon as possible. After you have completed the questionnaire, please e-mail / post it to the research team.

Thank you for your time and assistance. If you require more information about the study, please contact any member of the research team below.

<b>Names and contact details (e-mail / tel no.):</b>	<b>Signature and date:</b>
<b>Research Team:</b> <i>Dr. Nigel Hunt, Dr. Sara Cox, Dr Stavroula Leka, Miss Jessica Janice Tang</i>	<b>E-mail:</b> <i>lwxt1@nottingham.ac.uk</i>

## PART 1: YOU

Please complete the information below. This information will be used in order to better understand the above questionnaires. Under no circumstances it will be used to identify the individuals who have participated in the study.

1. Age:

2. Sex: Male  Female

3. How many years have you been teaching?

 *years*

4. How many years have you taught in your current school?

 *years*

5. How many students are there in your school?

 *students*

6. What type of school is your current school?

Aided school  Government school  Private school  Direct Subsidy Scheme  
Schools  Caput Schools

7. What is the location of your school?

Hong Kong Island  Kowloon East  Kowloon West  New Territories East   
New Territories West

8. How many students are there in each class on average?

 *students*

9. Please list out the subjects you teach in your current schools:

10. How many total years of school (including college) of education do you have (from primary school)?

 *years*

11. Please indicate your marital status: single  Married

12. How many children do you have

13.

## PART 2 : WORKPLACE HEALTH & SAFETY

Listed below are a number of statements that could be used to describe a variety of factors relating to health and safety within your workplace. These factors have the potential to influence both your physical and personal health and safety. Please read each statement carefully and indicate the extent to which you AGREE with each statement by circling the appropriate number on the following scale.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
1. Management places a strong emphasis on workplace health and safety.	5	4	3	2	1
2. Health and safety is given a high priority by management.	5	4	3	2	1
3. Management considers health and safety to be important.	5	4	3	2	1
4. At my workplace, sometimes we talk with each other about improving our health and preventing disease	5	4	3	2	1
5. Most employees here are very health conscious.	5	4	3	2	1
6. Around here have look at how well you take care of your health when they consider you for promotion	5	4	3	2	1
7. My supervisor encourages me to make changes to improve my health	5	4	3	2	1
8. Supervisors always enforce health related rules (smoking policies requirements about medical examinations, etc.)	5	4	3	2	1
9. I know how to use equipment/ correct procedures to protect my health and safety at work.	5	4	3	2	1
10. I know how to maintain or improve workplace health and safety.	5	4	3	2	1
11. I know how to reduce the risk of accidents and health related problems in the workplace.	5	4	3	2	1
12. I use all the necessary equipment to protect my health and safety when I do my job.	5	4	3	2	1
13. I use the correct health and safety procedures for doing my work.	5	4	3	2	1
14. I ensure the highest levels of health and safety when I do my work.	5	4	3	2	1
15. I promote the health and safety program within the organization.	5	4	3	2	1
16. I put in extra effort to improve the health and safety of the workplace.	5	4	3	2	1
17. I voluntarily carry out tasks or activities that help to improve workplace health and safety.	5	4	3	2	1

### PART 3 : SOCIAL CAPITAL

Please look at the items below and indicate how each of the following things about your job has been for you (please circle the number).

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
1. Our supervisor treats us with kindness and considerate.	5	4	3	2	1
2. Our supervisor shows concern for our rights as an employee.	5	4	3	2	1
3. We have a 'we are together' attitude.	5	4	3	2	1
4. People keep each other informed about work-related issues in the work unit.	5	4	3	2	1
5. People feel understood and accepted by each other.	5	4	3	2	1
6. Members of the work unit build on each other's ideas in order to achieve the best possible outcome.	5	4	3	2	1
7. People in the work unit cooperate in order to help develop and apply new ideas.	5	4	3	2	1
8. We can trust our supervisor.	5	4	3	2	1

### PART 4: GENERAL WELL BEING

We would like to know how your health has been in general, over the past few weeks. Please answer the following questions by circling the number that best applies to you. Have you recently....

	Better than Usual	Same as usual	Less than usual	Much less than usual
1. Been able to concentrate on whatever you are doing	0	1	2	3
2. Lost much sleep over worry?	0	1	2	3
3. Felt that you were playing a useful part in things?	0	1	2	3
4. Felt capable of making decisions about things?	0	1	2	3
5. Felt constantly under strain?	0	1	2	3
6. Felt that you couldn't overcome your difficulties?	0	1	2	3
7. Been able to enjoy your normal day-to-day activities?	0	1	2	3
8. Been able to face up to your problems?	0	1	2	3
9. Been feeling unhappy and depressed?	0	1	2	3
10. Been losing self-confidence in yourself?	0	1	2	3
11. Been thinking of yourself as a worthless person?	0	1	2	3
12. Been feeling reasonably happy, all things considered?	0	1	2	3

1. How satisfied are you with your job?  
Very Satisfied  Satisfied  Neutral  Unsatisfied  Very Unsatisfied
2. How would you rate your personal health?  
Major Problem  Slight Problem  Not a problem  Good  Very Good
3. Have you been injured at work in the last 6 months?  
All the time  Often  Sometimes  Rarely  Never   
If you have been injured, what kind of injuries?  
Please specify: \_\_\_\_\_
4. Do you have any work related health problems in the last 6 months?  
All the time  Often  Sometimes  Rarely  Never   
If you have work related health problems, what kind of problems? Please specify:  
\_\_\_\_\_
5. Approximately, how many working days sickness absence have you had over the past 12 months?  
\_\_\_\_\_ Days \_\_\_\_\_ spells
6. In total, how many hours a week do you spend working for pay? Please include regular hour overtime. \_\_\_\_\_ hours
7. Are you planning to leave your current job in the coming 6 month?  
Yes  No
8. Do you have other comments or suggestions?  
\_\_\_\_\_

***Thank you!***

## Appendix VIII



The University of  
Nottingham



### Institute of Work, Health & Organisations

#### 參與研究同意書

##### 研究詳情

研究人員：英國諾丁漢大學 Institute of Work, Health and Organisations (I-WHO) Dr. Nigel

Hunt, Dr. Sara Cox, Dr. Stavroula Leka 及研究人員鄧蕙因小姐

研究名稱：香港學校的職業安全及健康政策之評估

研究目的：探討學校的職業安全及健康政策

研究性質：以問卷形式進行，整份問卷約需時 5 分鐘

參與此研究可能發生的風險：並無嚴重的風險或不適

本人願意參與由英國諾丁漢大學 I-WHO 進行之「香港學校的職業安全及健康政策之評估」訪問，並明白以下事項：

- 一、 訪問員已清楚告知本人此研究之目的及程序。
- 二、 參加本項研究完全是自願性質，本人可隨時終止填寫此份問卷。
- 三、 所有訪問資料均絕對保密，問卷所得之資料只作研究用途。
- 四、 研究結果只會作整體的報告，參加者之研究結果將不會被個別公開。
- 五、 如對本項研究有任何查詢，可致電 852-92786390 或 44-7920113533 與英國諾丁漢大學 I-WHO 研究人員鄧蕙因小姐聯絡。

#### 參與研究同意書

如閣下明白上述的說明及同意參與此訪問，請在下列位置簽署。藉此感謝閣下之參與。

參與者簽署 \_\_\_\_\_ 姓名 \_\_\_\_\_ 電話／電郵  
\_\_\_\_\_ 日期 \_\_\_\_\_

研究人員：Dr. Nigel Hunt, Dr. Sara Cox, Dr.  
Stavroula Leka, Miss Jessica Janice Tang

聯絡電郵： [lwjt1@nottingham.ac.uk](mailto:lwjt1@nottingham.ac.uk)

## 第一部分:關於你自己

本問卷適用於所有現任的香港老師,請您以勾選的方式,選出最合適的答案

1. 你的年齡: \_\_\_\_ 歲
2. 性別: 男  女
3. 你從事教育工作共有多少年? \_\_\_\_ 年
4. 你在目前這一所學校從事教育工作多少年? \_\_\_\_ 年
5. 貴學校目前有多少名學生? \_\_\_\_ 名
6. 貴校每一班有多少名學生? \_\_\_\_ 名
7. 請列出你目前所任教的科目:  
  
\_\_\_\_\_

8. 貴校是屬於那一類的學校?

中學:

官立中學  按額津貼中學  直接資助計劃中學  資助中學  私立中學   
「私立獨立學校計劃」學校

小學:

直資小學  私立小學  津貼小學  官立小學

9. 貴校位於那一區?

香港島  九龍東  九龍西  新界東  新界西

10. 你共接受了多少年的教育?

(由小學開始計算及包括大學) \_\_\_\_ 年

11. 您目前的婚姻狀況: 單身  已婚  離婚

12. 你共有多少名子女? \_\_\_\_ 名

## 第二部分: 職業健康安全

	非常同意	同意	中立	不同意	非常不同意
1. 我的管理層著重職業健康安全	5	4	3	2	1
2. 我的管理層將安全及健康放在優先考慮的項目	5	4	3	2	1
3. 我的管理層認為安全及健康是重要的	5	4	3	2	1
4. 在這機構裡我們有時會談及有關改善健康及預防疾病的事宜	5	4	3	2	1
5. 這裡大部分的員工都有很強的健康意識	5	4	3	2	1
6. 我如何照顧自己的健康是會影響我的晉升機會	5	4	3	2	1
7. 我的上司會鼓勵我改善自己的健康	5	4	3	2	1
8. 上司們時常推行有關健康的條例（例如：定期身體檢查）	5	4	3	2	1
9. 我懂得用適當的用具/正確的步驟去保護我在工作上的安全與健康	5	4	3	2	1
10. 我懂得保持及改善我的職業健康安全	5	4	3	2	1
11. 我懂得怎樣減低工作上發生意外風險及與健康有關的問題	5	4	3	2	1
12. 我在工作的時候我會運用所有需要的用具(e.g.擴音器)來保護我的健康與安全	5	4	3	2	1
13. 我會跟隨正確的健康與安全步驟去完成我的工作	5	4	3	2	1
14. 我在工作時會確保最高水平的職業健康安全	5	4	3	2	1
15. 我會在我工作的機構內宣傳職業健康安全的項目	5	4	3	2	1
16. 我會放更多努力去改善工作上的健康與安全	5	4	3	2	1
17. 我會自願地改善工作上的健康與安全工作及活動	5	4	3	2	1

### 第三部分: 社交資產

	非常同意	同意	中立	不同意	非常不同意
1. 我們的上司用仁慈和關心的態度對待我們	5	4	3	2	1
2. 我們的上司對我們作為員工的權利表現出關心	5	4	3	2	1
3. 我們擁有「我們在一起」的態度	5	4	3	2	1
4. 我們會對彼此交代所有在工作崗位內關於工作的事宜	5	4	3	2	1
5. 我們感到彼此之間被接納並且互相明白	5	4	3	2	1
6. 為求達到最完美的成果, 工作崗位內的每一位成員的意見都會被考慮	5	4	3	2	1
7. 工作崗位內的每一位成員會互相合作去發掘及採用新的概念	5	4	3	2	1
8. 我們可以信任我們的上司	5	4	3	2	1

### 第四部分: 健康狀況

你最近...

	經常如此	有時如此	偶爾如此	從來沒有
13. 能專心做事?	0	1	2	3
14. 因為過於憂心而睡得較少?	0	1	2	3
15. 覺得自己在所做的事情上是扮演著有用的角色?	0	1	2	3
16. 覺得自己有能力對事情做決策?	0	1	2	3
17. 一直處於緊張的狀態?	0	1	2	3
18. 覺得自己難以克服所遭遇的困難?	0	1	2	3
19. 能夠喜愛每天的日常活動?	0	1	2	3
20. 能夠勇敢面對遇到的難題?	0	1	2	3
21. 覺得沮喪、不快樂?	0	1	2	3
22. 對自己失去了信心?	0	1	2	3
23. 會認為自己是個沒有價值的人?	0	1	2	3
24. 覺得所有的事情都讓自己蠻高興的?	0	1	2	3

25. 你有多滿意你的工作？

非常滿意  滿意  中立  不滿意  非常不滿意

26. 在過去六個月內, 你有否因工作而受傷？

總是  時常  有時  偶爾  從不

27. 如有因工受傷, 請列出病症及原因: \_\_\_\_\_

28. 在過去六個月內, 你有否因工作而患上健康的問題？

總是  時常  有時  偶爾  從不

29. 如有因工生病, 請列出病症及原因: \_\_\_\_\_

30. 在過去十二個月內, 你大約請了多少天病假? \_\_\_\_天

31. 你平衡一星期花在工作上的有薪時間, 總共有多少小時?

(請包括你的定期超時工作)\_\_\_\_\_小時

32. 在未來的六個月, 你是否計劃離開此工作？

是  否

33. 其他意見: \_\_\_\_\_

**多謝參與!**