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**SOCIAL AND COGNITIVE PREDICTORS OF
PROSOCIAL BEHAVIOR IN ADOLESCENTS**

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Ph.D

The Hong Kong Polytechnic University

2017

The Hong Kong Polytechnic University

Department of Rehabilitation Sciences

**Social and Cognitive Predictors of Prosocial Behavior
in Adolescents**

LAI Ho Yin

**A thesis submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy**

October 2015

Certificate of Originality

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it reproduces no material previously published or written, nor material that has been accepted for the award of any other degree or diploma, except where due acknowledgement has been made in the text.

LAI, HO YIN

Dedication

To the Almighty God of us,
my parents Stephen and Kwai-mui,
my wife Elaine, and
my beloved children Meg & Shane.

Abstract

Adopting the social ecological model, this thesis hypothesized that several variables in individual competence and social influence are good predictors of prosocial behavior among Chinese adolescents in Hong Kong. At the individual level, empathy and moral reasoning have long been identified as key individual areas of competence shaping the development of prosocial behavior in adolescents. At the social level, three aspects of social influence are expected to be associated with prosocial behavior. Peer relationships were hypothesized to be a strong predictor of prosocial behavior. Role modeling by parents and the influence of school were expected to be less important predictors of the prosocial behavior of adolescents when compared with peer influence.

This study covers three parts. In the first part, three instruments for measuring the key constructs of prosocial moral reasoning, parental influence, and peer influence were adapted and translated. A validation of the three instruments was conducted using the Prosocial Reasoning Objective Measures (PROM), the Parent Helping Measures (PHM), and the Adolescent Helping Measures (AHM). The validation study examined the content validity, cultural relevance, and quality of translation by means of an expert panel review. The study also obtained estimates of the test-retest reliability of the instruments. The convergent validity of the Chinese PROM was obtained by correlating it with the

Chinese Interpersonal Reactivity Index (C-IRI). The expert panel members agreed that all the test scenarios in the Chinese PROM were culturally relevant and appropriate for testing prosocial moral reasoning in young people. The internal consistency of the C-PROM subscales and the weighted total ranged from .74 to .93 (Cronbach's α), while the test-retest reliability ranged from .75 to .88 (ICCs), and are considered "acceptable" to "satisfactory". The Chinese Parent Helping Measure (PHM) also had good internal consistency (Cronbach's $\alpha = .88$), while the test-retest reliability ranged from .75 to .83 (ICCs). The Chinese Adolescent Helping Measure (AHM) demonstrated good internal consistency (Cronbach's $\alpha = .88$), while the test-retest reliability ranged from .75 to .88 (ICCs). The reliability estimates of both the PHM and the AHM are regarded as ranging from "acceptable" to "satisfactory". The availability of these instruments enables a researcher to assess the prosocial moral reasoning, parental influence and peer influence of young people in an objective and efficient manner.

The second part of this study is phase one of the main study. It aims to describe the nature of prosocial behavior and to examine its correlates. A group of high school students, who represented their school attending a joint-school mass event, were invited to participate in a questionnaire survey of their antisocial and prosocial behavior. It included how far they agree with prosocial norms or pragmatic values, and measures of their moral reasoning and empathy. This questionnaire had a total of 83 items. A total of

533 high school students participated in the study, and the response rate was around 35.5%. Gender differences were found in some of the measures, namely prosocial norms, pragmatic values, prosocial reasoning and empathy-related constructs, including personal distress, fantasy, and empathetic concern. Moreover, correlation analyses showed that parental education, prosocial norms, pragmatic values, moral reasoning and empathy were related to prosocial behavior. Regression analyses showed that prosocial norms, pragmatic values and empathy dimensions (personal distress and empathy) were key predictors of prosocial behavior. Other than the negative relationship between personal distress and prosocial behavior, the findings are largely consistent with theoretical predictions and previous research findings. This study also underscores the importance of values and norms in predicting prosocial behavior, which has been largely neglected in previous studies.

Part three of this study is the second phase of the main study. It aims to explore whether or not cognitive and social predictors could predict the prosocial behavior of Chinese adolescents in Hong Kong. The research questionnaire included a total of 142 items and incorporated a number of standardized instruments designed to measure the key variables, including prosocial behavior, prosocial reasoning, empathy, peer influence, school influence and parental influence. A purposive sample of 580 secondary students with prosocial characteristics was recruited through social services and volunteer

organizations. The participants were secondary school students who were aged between 12 and 16 years old, and had been participating in at least one volunteer activity regularly (at least biweekly) outside school hours. Results from multiple regression showed that social influence factors, including peer influence, school influence and parental influence, are strong predictors of prosocial behavior, while cognitive factors like empathy and prosocial moral reasoning are not. Unlike the results of Part 2, gender differences in these variables were not found, except that males showed a significant difference from females regarding parental influence. The findings indicate that social influence is strongly linked to prosocial behavior. The study implied that modeling, socialization and social support for prosocial norms and behavior could exert a powerful influence on the prosocial behavior of young people in a Chinese population.

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Chapter 1. Introduction

Prosocial behavior is commonly defined as actions that are carried out primarily with the intention of benefitting others (Radke-Yarrow, Zahn-Waxler, & Chapman, 1983). Sharing and donating resources, comforting others, volunteering for charitable activities and helping needy others are typical forms of prosocial behavior (Eisenberg, Fabes, & Spinrad, 2006). In a broader definition, prosocial behavior describes those spontaneous acts that demonstrate a sense of empathy, caring and ethics, including sharing, cooperating, helping others, generous deeds, praising, complying, telling the truth, defending others, supporting others with warmth and affection, nurturing and guiding, and even the altruistic act of risking one's life to aid others (Bar-Tal, 1982; Carlo, Okun, Knight, & de Guzman, 2005; Cialdini, Schaller, & Beaman, 1987; Eisenberg & Fabes, 1998).

Adolescence is a period in our lives in which an individual undergoes rapid changes physiologically and psychologically (Coghill, 2010). An adolescent is defined by the United Nations as an individual aged from 10 to 19. In our operational definition, adolescents are subjects aged from 12 to 18 years old. In this developmental process, if we can identify the potential for a real and meaningful positive change during adolescence, the identification of this potential may be able to facilitate their continual positive growth,

or remediate for the past difficulties in their childhood (Coghill, 2010). During adolescence, young people question and re-evaluate their understanding of social norms and moral standards, develop their own set of values and lifestyle, and decide how they may contribute to society. Adolescence is a stage of life in which people could have significant changes in their attitude towards an antisocial or prosocial orientation in life. While it is well known that parents and school could have a significant influence in the development of empathy, moral reasoning and prosocial behavior in children, this influence is often replaced by peer influence during adolescence. Indeed, many studies have shown that peer influence contributes to many types of antisocial behavior, such as deviant behavior, criminal behavior, truancy and substance abuse (Dekker & Halman, 2003; Dworkin, Larson, & Hansen, 2003; Ma, Cheung & Shek, 2007; Steinberg, 2005; Steinberg & Morris, 2001).

At the societal level, it is noted that there is a gradual decrease of participation in volunteer activities in Hong Kong. Many adults feel that young people are becoming less cooperative, less compassionate and less helpful to others. It is obvious that social harmony in our society depends on prosocial behavior like cooperating with each other (Bar-Tal, 1982; Lai, Siu, Chan, & Shek, 2013; Liu, Holosko, & Lo, 2009; Ross & Nisbett, 1991; Wentzel, 1998; Shek, Ma, & Merrick, 2007). Prosocial behavior could contribute to care giving (Markstrom, 1999; Petty, Wegener, & Fabrigar, 1997; Switzer, Simmons, Dew,

Regalski, & Wang, 1995), and prosocial behavior has become an important social and human capital for major events like the Olympic Games (Baum, Modra, Bush, Cox, Cooke, & Potter, 1999; Lo, Su, & Jiang, 2009; Penner, 2004; Plank, 2001) that can facilitate the continuous growth of our society.

There has been a relatively large volume of studies done on anti-social behavior in Hong Kong (Carlo, Roesch, & Melby, 1998; Ma, 2003; Ma, Shek, Cheung, & Lee, 1996; Van Lier et al., 2005; Wyatt & Carlo, 2002). Nevertheless, only a few studies focused on the prosocial development in adolescents, or the factors that could predict prosocial behavior (Ma, 2003, 2003a, 2003b; Ma & Leung, 1991; Shek, 2007). Some studies also focused only on volunteering, which is mainly prosocial behavior towards people we do not know (strangers). For many years, it has been noted that our society is more inclined towards the prevention of anti-social behavior rather than the promotion of prosocial and helping behaviors. More studies have also examined the predictors of antisocial, rather than prosocial, behavior.

Many research studies in other countries have shown that prosocial behavior is linked to various positive outcomes in adolescent development (Bar-Tal, Raviv, & Leiser, 1980; Lennon & Eisenberg, 1987; Wentzel & McNamara, 1999). It leads to academic success and satisfaction with achievement (Ross & Nisbett, 1991; Wentzel, 1998), and

social competence (Bar-Tal, 1982). Furthermore, prosocial behavior was found to be linked to positive personality characteristics (Lennon & Eisenberg, 1987), such as an enduring tendency to think about the welfare and rights of other people, concern and empathy for them, and acting in a way that benefits them (Penner & Finkelstein, 1998). The literature also showed there were a number of factors, like moral reasoning and empathy, influencing the development of prosocial behavior in young people (Carlo, 2006; Carlo, Eisenberg, & Knight, 1992; Carlo & Randall, 2001; Eisenberg & Mussen, 1989). The literature suggests that there are many possible sources of influence on prosocial behavior like moral reasoning, the ability to see from the perspectives of others, and experiencing and showing emotional concern (Davis, 1983a; Eisenberg, 1991; Dovidio, Allen & Schroeder, 1990; Davis, Hall, & Meyer, 2003; Hoffman, 2000). Parents, teachers and peers can also enhance prosocial behavior by modeling, labeling, discussing, and rewarding it when it appears in the adolescents' actions (Fung, Lieber, & Leung, 2003). Differences in temperament, personal experiences, cultural expectations and the nature of the situation also influence prosocial behavior (Chao, 2001).

In ancient traditional Chinese culture, Confucian teachings took a major part in influencing human development (Fung, 1999). Self control and behavioral inhibition in interpersonal interactions were viewed as an index of accomplishment, mastery and maturity (King & Bond, 1985). The traditional Chinese concepts of “don't offer to others

what you would not accept yourself” and “to offer help to other with your own gratefulness” illustrate the importance of self control, respecting others (Bear, Manning, & Izard, 2003; Bergin, Talley, & Hamer, 2003) and offering help to others (Andolina, Jenkins, Keeter, & Zukin, 2002). Researchers studying traditional Chinese culture think the endorsement of a prosocial orientation might facilitate the process of prosocial behavior development (Chen, Rubin, & Li, 1995; Chen, Rubin, & Sun, 1992). Prosocial-cooperative behavior leads to positive outcomes and thus enhances social and school adjustment. This kind of Chinese culture meets or equals the western belief in prosocial behavior development (Fung, 1999).

There were just a few local papers studying prosocial behavior and its development during adolescence in Hong Kong. Some local studies also indicated that if our society and our adolescents can be more aware of the importance of prosocial behavior, it would also bring positive changes to the adolescents and benefit the society as a whole (Lai et al., 2013; Shek & Ma, 2009; Shek et al., 2007; Siu, Shek & Lai, 2013). In the study by Siu et al (2013), they have organized multi-level and diverse prosocial involvement programs and encouraged adolescents to participate. Through participation, adolescents could help to redefine their relationship with our society and maximize their potential for growth. This finding was supported by the study by Cheng, Siu & Leung (2007).

In Hong Kong, it is undeniable that what we really know about the topic of the development and prediction of prosocial behavior is still minimal. Although active researchers have conducted a number of studies here, this concept particularly remains insufficiently clear in the Hong Kong Chinese population. Most of the viewed societal volunteering and prosocial behavior amounts to the same thing. Moreover, in Hong Kong nowadays, there are signs that the degree of participation in volunteer activities has been decreasing over the years (Agency for Volunteer Service, 1994; Association for Volunteer Service, 1981; Central Committee on Youth, 1988; Hong Kong Federation of Youth Groups, 2010, 2013). The nature of help provided is very often through monetary donations rather than actual participation in volunteering or helping (Law, 2008). There is some doubt as to whether or not people really provide good modeling in support of prosocial development. Moreover, participation in voluntary services has also gradually become a graduation requirement in both secondary schools and universities. This kind of foot-in-the-door strategy is a widely recognized method used to promote prosocial behavior in young people, in the hope that they would experience the benefits and joys of helping others. Nevertheless, whether an adolescent participates in these services out of “pre-set” requirements or out of their own drive needs to be examined further carefully.

In view of the vigorous academic competitions in Hong Kong society nowadays, young people, their parents, their schools and even our societal values have become more

concerned about their academic achievements rather than the development of their prosocial behavior. Researchers strongly believe that prosocial behavior can make our society a better one, as prosocial behavior has long been regarded as a resilience factor in anti-social behavior development (Ma & Leung, 1991), and therefore, the idea for this study was generated. This study explored whether or not cognitive and social factors could predict prosocial behavior in Chinese adolescents in Hong Kong. Based on the social ecological model, this study hypothesized that cognitive factors like empathy, prosocial moral reasoning, and social influence factors from parents, peers, and school are the key determinants of prosocial behavior among Chinese adolescents in Hong Kong.

This thesis has eight chapters: the first part is the introduction, while the second section scrutinizes various theories on the development of prosocial behavior in adolescents. It collates views from four perspectives, namely the evolutionary perspective, the social psychology perspective, the cognitive emotional developmental perspective and the ecological perspective in relation to the development of prosocial behavior in adolescents. Critiques of each perspective are presented. The third section covers conceptual limitations in the previous literature and the strength of the theoretical framework of this present study. The fourth section covers the research design and methodology in which justification of research design, data collection methods, measurement tools, sampling strategies, and proposed data analysis techniques are

suggested. The fifth section contains the results of the validation study of the Chinese PROM, AHM and PHM. The sixth section shows the results of the main study. The seventh section is the discussion of the study. The eighth section is the conclusions and recommendations for further study.

Chapter 2. Theories on the Development of Prosocial Behavior among Adolescents

Prosocial behavior describes acts that aim to fulfill another person's need for support or to promote and sustain a positive benefit for them (Bar-Tal, 1982; Eisenberg & Fabes, 1998). Prosocial behavior is that behavior directed towards another person that promotes and sustains positive benefits for a person that we know or do not know. It includes activities that involve a person donating, sharing, helping, assisting, volunteering and providing support to someone else, in serious and non-serious situations, often at the cost to that person (Radke-Yarrow, Zahn-Waxler, & Chapman, 1983). It could include mainly planned or spontaneous acts, with physical or verbal expressions of sympathy or reassurance (Penner, Dovidio, Piliavin, & Schroeder, 2005) and helping like offering physically assistance (Adolina et al., 2002).

Altruism and prosocial behavior are closely related concepts in psychology.

Prosocial behavior can be understood as forms of helping behavior that come to a person voluntarily, directed towards someone in need. There are different kinds of prosocial behavior. Altruism is one such type of behavior (Boehnke et al., 1989; Carlo et al., 1996; Eisenberg et al., 1995). It occurs when a person engages in helping behavior without expecting anything in return. In psychology, it is believed that altruism is a motivational

factor for prosocial behavior. In prosocial behavior, there is a tendency to expect psychological or social rewards for helping behavior. However, in altruism this is not the case. A person engaging in altruistic behavior would not expect anything at all for his help. This is why some consider altruism to be the purest form of prosocial behavior (Eisenberg et al., 1995). Even though there is debate as to whether human beings are capable of true altruism in the field of psychology or not, history bears evidence of instances of altruism (Chau et al., 1990). In times of war, or sudden accidents, some people even risk their lives just to save others (Krebs, 1982). This is the essence of extreme altruistic behavior. However, it does not have to be taken to such extremes, even in day to day life people engage in altruistic behavior in a realistic way nowadays (Eisenberg, 1991).

The model of Dovidio, Piliavin, Schroeder, & Penner (2006) is adopted as the operational definition of prosocial behavior in adolescents used in this study. It includes comforting, sharing, cooperating, volunteering, donating, immediate helping, planned helping or long-term helping behavior. Their prosocial behavior does not only target people that they know and are familiar with, but also someone that they might not know. Moreover, in the present study, their prosocial behavior would take place at home, in schools, among peers or in the community.

Based on a comprehensive review of current explanatory models of prosocial behavior, four theories, including evolutionary psychology, social psychology, the cognitive emotional development model and human ecological perspectives, were selected for understanding the bio-psychosocial reasons underlying the prosocial behavior in young people. These models were chosen for several reasons. Firstly, the model should be relevant to the understanding of prosocial behavior during adolescence. Secondly, the model should have played leading roles in the field of prosocial behavior research and in the interpretation of findings (Akyel, 1986; Batson, 1998; Benson & Saito, 2001; Bergin, Talley, & Hamer, 2003). Thirdly, these models should provide a clear and concrete basis for formulating the research hypotheses.

In this section, the criteria for the evaluation of the theories were framed by White & Klein (2002). There are thirteen criteria for evaluating these theories:

- 1) Internal consistency: a theory does not contain logically contradictory assertions.
- 2) Clarity or explicitness: the ideas in a theory are expressed in such a way that they are unambiguous. They are defined and explicated where necessary.
- 3) Explanatory power: a theory explains well what it is intended to explain.
- 4) Coherence: the key ideas in a theory are integrated or interconnected, and loose ends are avoided.

- 5) Understanding: a theory provides a comprehensive sense of the whole phenomenon being examined.
- 6) Empirical fit: a large portion of the tests of a theory have been confirmatory or at least have not been interpreted as disconfirming.
- 7) Testability: it is possible for a theory to be empirically supported or refuted.
- 8) Heuristic value: a theory has generated or can generate considerable research and intellectual curiosity (including a large number of empirical studies, as well as much debate or controversy).
- 9) Groundedness: a theory has been built up from detailed information about events and processes observable in the world.
- 10) Contextualization: a theory gives serious consideration to the social and historical context affecting or affected by its key ideas.
- 11) Interpretive sensitivity: a theory reflects the experiences practiced and felt by the social units to which it is applied.
- 12) Predictive power: a theory can successfully predict phenomena that have occurred since it was formulated.
- 13) Practical utility: a theory can be readily applied to social problems, policies, and programs of actions (i.e., it is useful for teaching, therapy, political action or some combination of these).

The evaluation criteria can be grouped into four categories. Basically, criteria number 1, 2, 4 and 5 are about structure of theories, including how the theories are constructed and how organized and clear the theories are. Moreover, criteria number 6, 7, and 9 focus on how valid the theories are in both qualitative and quantitative studies. Furthermore, criteria number 8, 10 and 11 are about the heuristic value and sensitivity of the theories. Finally, criteria number 3, 12 and 13 evaluate the theoretical and practical implications of the theories. The criteria listed above are based on a survey of a diverse group of over 100 social scientists (White & Klein, 2002). In present study, criteria that are commonly endorsed in the literature, composed of explanatory power, empirical fit, testability, and predictive power, are adopted. In the following sections, all these four perspectives are summarized to explain prosocial behavior during adolescence. At the end of the explanation of each perspective, a brief critique is presented. The chapter ends with a comparison of these four perspectives.

2.1 Evolutionary Perspective

Theories of evolutionary psychology largely assume that prosocial behavior was mostly hereditary in nature (so called “genetic determinism”) and is transmitted from one generation to the next. Under the principle of “the survival of the fittest” in evolutionary theory (Penner & Finkelstein, 1998), it seems that humans should be selfish rather than selfless, and that they should not waste energy and effort on the survival of others if they

want to survive. To explain the phenomena of prosocial acts, the “kin selection” theory proposes that prosocial development is crucial in ensuring that the genetic kin can reproduce and continue, and the altruistic behavior evolves because it enhances the survival of the kin. Evolutionary theory thus predicted that altruistic and prosocial behavior would be highly selective and would mainly be displayed toward those who share our genes, and particularly towards those who were young enough to reproduce (Eisenberg & Mussen, 1989). The theory of “reciprocal altruism” (Rushton, Chrisjohn, & Fekken, 1981) further suggested that natural selection would favor those who behave altruistically because when one behaves altruistically towards one’s kin, such behavior is usually reciprocated, i.e. the universal social norm of “reciprocity” (Gouldner, 1960). Prosocial behavior could have long-term benefits for the survival of the kinship, community and society. This explains why human beings are much more likely to provide help and sacrifice themselves for their families and friends, or groups which they identified, than to other individuals or groups that they are not related to.

2.1.1 Critique of the Evolutionary Perspective

The evolutionary perspective was considered as a distinct perspective to explain the origins of motivation for prosocial acts, i.e. why human beings are willing to make sacrifices to promote the survival of kinship and community. This is supported by

increasing evidence that the survival of early humans relied strongly on a group process of giving and helping (Caprara & Pastorelli, 1993; Gibbons, 1990). For instance, studies have shown that groups that displayed prosocial dispositions are closely linked to evolutionary success (Penner, 2002; Penner, Dovidio, Piliavin, & Schroeder, 2005). Group selection evinced that if two groups were in direct competition with one another, the group with the larger number of altruists would have an advantage over a group of mainly selfish individuals (Penner & Finkelstein, 1998; Serow, 1989). Altruistic acts and prosocial behavior towards one's kin promote their survival and thus the successful transmission of one's genes to the next generation (Rushton, Chrisjohn, & Fekken, 1981). The implication of this evolutionary theory was that people should be helpful or become prosocial towards their kin, family, relatives, or at least people who they see as related to them (Penner & Finkelstein, 1998). It is thus more likely that we would help people if we identify them as important to our survival.

A key criticism in negating the evolutionary theory in prosocial behavior was that time-specific environmental influences could contribute a lot more to individuals helping and supporting their own families, relatives, and at most people in their network or small communities, but this does not provide a good explanation of why people become prosocial towards unfamiliar others in modern society (Adamsons, O'Brien, & Pasley, 2007). It showed limited clarity in giving a coherent explanation of prosocial behavior

changes explained by practical utility (Bukatko & Daehler, 2004). Moreover, there would be lots of variance in evolutionary changes, and thus the theory revealed poor internal consistency and explanatory power over time. With the great influence from other factors, like geographical and topographical variations, there was just a limited testability and predictive power in the evolutionary perspective of prosocial behavior (Bukatko & Daehler, 2004). The evolutionary perspective showed limited heuristic value in explaining the theory (Pardeck, 1988). In summary, when it is used as a study framework, the evolutionary perspective has more weaknesses than strengths.

2.2 Social Psychology Perspective

In social psychology literature, a number of models have been proposed to explain the willingness to provide help to other people (strangers). The first type of the model theorized that the willingness to help varied according to a number of social conditions, such as whether the need for help is urgent or not, or whether the potential benefit/reward may exceed the potential cost of helping (Darley & Batson, 1973; Piliavin, Dovidio, Gaertner, & Clark, 1981). This includes situation-based models like the “tension reduction”, or the “cost-reward analysis” models. Prosocial behavior could also be specific to “social conditions”, in particular the availability of role models (Bandura, 1978).

2.2.1 Cost reward Analysis

Cost-reward analysis postulated that the willingness for people to offer help to others could depend on a number of situational factors (Piliavin, Dovidio, Gaertner, & Clark, 1981). When people saw somebody in need of help, they would often consider the seriousness of the situation, the perceived cost to themselves of helping, the potential for rewards and commendations and the risks to themselves when they provide help (especially when it involves an emergency) (Smithson, Amato, & Pearce, 1983). The fundamental assumption is that the motivation to help was largely based on the activation of internalized social norms, and if prosocial behavior could meet the expectations of the society. In a given social situation, when a person needs to decide if he/she would be prosocial or offer help to others, a cost-reward analysis would be intrinsically conducted. The persons involved would estimate the costs and rewards by using a “decision-tree model of helping” (Smithson, Amato, & Pearce, 1983). The decision-tree is basically composed of three incremental steps leading to enacting helping behavior, namely by observing the situation and interpreting if it was an emergency situation, by determining one’s personal responsibility for giving help, and by weighing the rewards and costs of helping versus not helping. If the rewards were high relative to the costs, then the persons would offer help. On the contrary, if the rewards were low relative to the costs, the persons would be less likely to help.

The tension reduction model suggested that people help others when they see others in pain or distress, in order to relieve their own tension. In the tension reduction model, people would feel sympathy or personal distress when they perceived other people needed help. Moreover, it could be explained that people would be motivated by guilt and shame arising from not providing help. The motivation to help is thus based on a fear of potential punishment (shame). Moreover, it appears that shame and guilt can be a much more powerful motivator for adhering to prosocial norms (e.g., a citizen's responsibility to vote) than sympathy, empathy, or pride in doing a moral good (De Hooge, Breugelmans, & Zeelenberg, 2008)

In support of cost-reward models, some intriguing experiments have demonstrated the phenomena of 'bystander effects', which could inhibit prosocial behavior. People are less likely to provide help when there are many 'bystanders' who were close to the person who needs help, and a diffusion of responsibility occurred (Darley & Batson, 1973; Darley & Latane, 1970). People were also less likely to provide help to strangers if the helping episode was not considered an emergency situation, if there were many people at the scene, if helping was perceived as costly to the helper, and if people felt that they would make themselves vulnerable through helping the other person (Dovidio, Piliavin, Schroeder, & Penner, 2006).

2.2.2 Modeling and Social Learning

The social learning model assumes that people could learn to expect certain consequences to arise from helping or not helping through information from other people. Social learning could occur in many forms and channels during adolescence, and social learning often occurs through observing others' behavior and the consequences that behavior produces for them (Bandura, 1991 & 1997). Self-reward could be achieved through helping to create positive emotions and self esteem; and social modeling could occur through the mass media, influential role models and significant others. During childhood and adolescence, family, teachers and peers offer important sources for the role modeling of prosocial behavior (Schonert-Reichl, 1999).

It is quite clear that parental support for prosocial behavior is positively related to positive prosocial development in adolescents (Feshbach, 1987). Many studies have suggested that parental reinforcement, like appraisal and approval, could positively influence adolescents' developing prosocial behavior (Fletcher, Elder, & Mekos, 2000). Altruistic behavior in adolescents would be enhanced by supportive parenting or by a cohesive and harmonious family environment, which implicitly provided positive modeling (Eisenberg & Mussen, 1989; Ma, Cheung, & Shek, 2007; Ma, Shek, Cheung, & Lee, 1996). However, in several local studies, it was found that many parents consider that participation in voluntary activities might adversely affect academic performance and

voluntary activities were generally placed on a low priority in student activities

(Association for Volunteer Service, 1981; Central Committee on Youth, 1988; St. James Settlement, 1980).

In Hong Kong, schools were the main source through which students enrolled in voluntary services (Agency for Volunteer Service, 1994; Commission on Youth, 1998), and influence from school could have an impact on prosocial behavior in adolescents. Moreover, encouragement from school to join social activities is associated with more altruistic, helping and prosocial behavior in students (Eisenberg, Cialdini, McCreath, & Shell, 1987; Flanagan, 2004). In addition, teachers' support was found to act as a positive indicator of adolescents' sense of social responsibility (Wentzel, 1998). Nowadays, it is worth noting that not all schools hold structured prosocial activities and parents could be a deterrent to the prosocial involvement of young people. Some parents are concerned that voluntary or prosocial activities may upset learning and study schedules and adversely affect the academic performance of their children (Association for Volunteer Service, 1981; Central Committee on Youth, 1988; Commission on Youth, 1998; St. James Settlement, 1980; Hong Kong Federation of Youth Groups, 2001).

From early to mid-adolescence, parental and school influence on prosocial behavior appeared to be gradually replaced by peer influence (Birch & Ladd, 1998; Ma, 2003).

Both overseas and local studies have shown that peer relationships could shape the values of adolescents and influence the development of prosocial and antisocial behavior. (Central Committee on Youth, 1988; Commission of Youth, 1998; Cox, 1974). In mid adolescence, young people tended to listen to their peers rather than parents (Atkins, Hart & Donnelly, 2005; Dekker & Halman, 2003; Dworkin, Larson & Hansen, 2003; Steinberg, 2005). Adolescents who have friends who are active in voluntary services are more likely to exhibit more prosocial behavior (Bales, 1996; Dubas & Snider, 1993; Eccles, Barber, Stone, & Hunt, 2003; Hamilton & Fenzel, 1988; Youniss, McLellan, Su, & Yates, 1999; Youniss, Yates, & Su, 1997).

Similar to study results in other countries, peers were found to be an important source of support for Hong Kong adolescents (Law, Shek, & Ma, 2011; Ma, 2008; Siu, Cheng, & Leung, 2006; Siu et al., 2013). The influence from friends who are prosocial is strongly linked to participation in prosocial activities and development of a prosocial orientation (Ma et al., 2007; Mongkok District Board, 1984; St. James Settlement, 1980). Furthermore, participation in prosocial activities could influence youth development and vice versa (Benson & Saito, 2001; Ma et al., 2007).

2.2.3 Critique of the Social Psychology Perspective

There is much research evidence for the validity of the social psychology models, like the cost-reward analysis model, the tension reduction model and the social learning models. Among those models, social learning is the most well-known model, which has lots of applications in adolescent development (Bandura, 1991). Social psychology models are widely used in research as they have demonstrated their heuristic value, contextualization and theoretical groundedness. The social psychology theories are well constructed and organized. They have good internal consistency, clarity, explanatory and predictive power. They are easy to understand and interpret, and they have good testability and practical utility.

The cost-reward model proposed that decisions to provide help or not depend on whether or not the situation activates our internalized prosocial norms, and whether or not the prosocial behavior meets the expectations of society. The cost-reward analysis is intrinsically and automatically conducted, and the person estimates the costs and rewards using a “decision-tree model” (Smithson, Amato, & Pearce, 1983). Therefore, it assumes that people would make a cognitive decision about their behavior, and this decision process could be quite emotional as well. It has shown this with good theoretical and practical implication of the theories.

The social learning model is widely used in explaining adolescent development.

Peers become important role models during adolescence, while the influence of parents and teachers decreases. The social learning model showed good predictive power and practical utility as there is much research showing that antisocial/deviant behavior spreads quickly among peers (Carlo, Roesch, & Melby, 1998; Chang et al., 2004; Ma, 2003; Ma et al., 1996; Van Lier et al., 2005), but there is less evidence that peers play an important role in influencing prosocial behavior (Youniss et al., 1997; Youniss et al., 1999). However, the social learning model was criticized for the assumption that a person mainly acts according to social expectation rather than his or her own interests.

Adolescents experience rapid cognitive emotional development, acquire strong problem solving skills and develop their own unique value system. As adolescents strive for their own direction and self-development, the importance of social learning may decrease.

Social learning may thus be only one of the many channels of learning for young people.

2.3 Cognitive-emotional Development Perspective

Adolescence is a period of rapid development, and there is substantial development in all aspects (Davis, 1983a, 1994). Intensive knowledge acquisition and accumulation of life experience could promote significant development of cognition and empathy in adolescents. In particular, many studies supported the idea that moral reasoning and empathy are the key individual competencies that contribute to prosocial behavior. In general, longitudinal studies have shown that prosocial behavior increases gradually over

adolescence, and that the development of prosocial behavior is closely linked to the development of moral reasoning, empathy and perspective taking. A meta-analysis conducted by Underwood and Moore (1982a) indicated that moral reasoning and perspective taking (often regarded as the cognitive dimension of empathy) were linked to the development of prosocial behavior.

2.3.1 Normative Explanations and Moral Reasoning

The normative explanation of prosocial development emphasized the importance of “morality norms”. Social norms, which are one crucial form of the morality norms that are rules for accepted behavior in various situations, were considered an important determinant of people’s intentions to help (Warburton & Terry, 2000). Personal norms were individual expressions of a feeling of obligation to behave in a particular manner in a particular type of situation (Schwartz, 1977); personal norms were more specific than social norms which were assumed to apply to most people most of the time. In their studies, Schwartz and Howard (1981, 1984) found that personal norms were “feelings of moral obligation to perform or refrain from a specific action”. A personal norm was the feeling of moral obligation to help those who help us. It was generated in a specific situation by a person considering what the possible choices are and what would be the potential implications of such actions for personal norms and values. The impact of personal norms also depends on how people reason and how they think about the

normative standards. Prosocial norms could be generated from the integration of these normative standards.

2.3.2 Moral and Prosocial Reasoning

Prosocial reasoning, as part of moral reasoning, is a research area that can help us to understand more about the development of prosocial norms. Based on Piaget's theory of moral development, Kohlberg (1984) proposed six stages of moral development and defined moral reasoning as judgments about right and wrong. His studies on moral reasoning are based on the use of moral dilemmas or hypothetical situations in which people must make a difficult decision. Kohlberg defined a subject's level of moral reasoning from the reasoning used to defend his or her position when confronted with a moral dilemma. He thought the reasoning is more important than the actual choice made, since the choices people make in such a dilemma aren't always clearly and indisputably right. From the characteristics of the moral reasoning, which seemed to be related to one's age, we could delineate 6 stages of moral development: 1) Pre-conventional in which moral judgment is based solely on a person's own needs and perceptions; 2) Punishment-obedience orientation and a personal reward orientation in which moral judgment is based on punishment and reward; 3) good boy-nice girl orientation in which moral judgment is based on being perceived as "good" by others; 4) law and order orientation ; 5) social contract orientation; and 6) universal ethical principle orientation.

Many studies have been based on Kohlberg's developmental stages of moral reasoning.

Kohlberg's theory and work on moral reasoning was widely used in the study of moral development (Kohlberg & Candee, 1984). Based on Kohlberg's theories of moral development, Eisenberg and Mussen (1989) became one of the most influential figures in studying the links between cognitive and emotional abilities and the moral development of children and adolescents. Eisenberg and her associates studied moral reasoning in children and adolescents by presenting ethical dilemmas to them, and then asking them to take on the role of someone in the dilemma and decide whether to act out of self-interest or in the interests of others (Carlo et al., 1995; Eisenberg, 1986; Eisenberg et al., 1998; Carlo, 2006).

On the basis of their responses to dilemmas dealing with such prosocial behavior, Eisenberg proposed a series of six levels of moral reasoning as follows: 1) the hedonistic orientation in which the child cares only for him/herself. Any apparently altruistic behavior is motivated by focusing on one's own needs or benefits. For instance, I will help them because they will help me in the future (reciprocity), or simply because the child likes the person they are helping; 2) the needs of others orientation. The needs of others are being recognized and addressed, but only to a limited extent. The needs of the specific situation are being addressed rather than a genuine sense of empathy; 3) the

stereotyped approval-focused orientation in which adolescents act in a way that will make them liked: for example, lending a helping hand in order to impress others. When asked to explain their behavior, they tend to use stereotyped portrayals of good and bad behavior; 4) the empathic orientation. In this orientation, adolescents start to show genuine empathy by putting themselves in the shoes of others and begin to report feelings of genuine guilt when considering their own actions; 5) the transitional level in which adolescents' actions are now explained in terms of wider social values and the need to protect the dignity and self-esteem of others; and 6) the internalized orientation in which the adolescents have a full set of values and understand their responsibilities towards others. In Eisenberg's theory, children progress to adolescents, and they are at a level at which reasoning is developmentally changing from being "self-focused" or "self-centered" ("what feels good to me is right") to a stance in which social approval guides both reasoning about justice and about doing good. From late adolescence to early adulthood, young people tend to develop internalized, individualized ideas, which then guide both types of reasoning.

In Eisenberg's theory, moral reasoning becomes more sophisticated from childhood to adolescence, reaching an empathic orientation stage in which adolescents often express sympathetic concern for the other. The stages of moral reasoning indicated an increasing level of moral development, and that a higher level of reasoning is associated

with more prosocial behavior. In some adolescents, empathic orientation develops further into the internalized value orientation stage defined as an “orientation to an internalized responsibility, duty, or need to uphold the laws and accepted norms or values (Carlo, Eisenberg, Troyer, Switzer, & Speer, 1991; Krebs, 1970). The longitudinal studies by Eisenberg et al. (1991, 1995) showed that the overall level of prosocial moral reasoning generally increases between 11 and 20 years of age. Hedonistic reasoning (orientation to benefit self) decreases with age, while needs-oriented reasoning (attending to others’ needs) increases till late childhood and then remains at a stable level. Direct reciprocal and approval reasoning (conformity with social reinforcement) increases to a peak in mid-adolescence and then remains at a stable level. Forms of higher level reasoning (empathic and internalized) emerge in mid-to-late adolescence and early adulthood, and there is evidence that the development of moral reasoning is linked to prosocial behavior, sympathy, empathy and perspective taking.

In line with Eisenberg’s theory, Carlo, Eisenberg, & Knight (1992) further examined how prosocial moral reasoning has been theoretically and empirically linked to prosocial behavior. Empirical studies in developmental psychology show that adolescents who adopt more mature and internalized moral reasoning and have more empathy are more likely to follow and adopt norms of social responsibility and engage in prosocial behavior (Eisenberg, 1991). In his dimension, prosocial behavior can be classified into

two categories which assess either global prosocial behavior or assess prosocial behavior in a specific situation. Carlo et al. (1992) developed a paper-and-pencil measure named prosocial moral reasoning (PROM), which measures prosocial behavior in a specific situation. PROM is also based on cognitive emotional development, or moral development to be more specific, and is more practicable. In his definition, moral reasoning is defined as reasoning about moral dilemmas where one person's needs/desires conflict with those of needy others, with formal obligations being minimal or absent (Carlo, et al., 1991; Carlo et al., 1996). Culture, with its respective values and emphasis on socialization, may thus influence levels of prosocial moral reasoning (Colby & Kohlberg, 1987; Colby, Kohlberg, Gibbs, & Lieberman, 1983).

2.3.3 Critique on Moral Reasoning.

Comments have been made that prosocial reasoning may have little influence on prosocial behavior (Lai et al., 2015). In Chinese culture, adolescent prosocial behavior could be shaped by a wide range of family and social factors, as well as by their own development in interpersonal competence (Siu et al., 2006). Therefore, it is worthy to note any fundamental differences, when appreciating theories from the western cultures (Schonert-Reichl, 1999), that may point to differences in the conceptualization of what is prosocial among various cultures (Chao, 2001). Further research on predicting prosocial behavior may need to include social influence factors other than prosocial reasoning

(Akyel, 1986).

2.3.4 Empathy-related Attributes

Empathy is the ability to understand the affective or cognitive status of another person, or a person's vicarious matching of another's affective state (Carlo et al., 2012; Hoffman, 2000). Eisenberg and Fabes (1998) provided the best description of empathy as "an affective response that stems from the apprehension of another's emotional state or condition and is similar to what the other person is feeling or would be expected to feel," (p. 756) and argued that a distinction between pure empathy and sympathy was necessary.

It is common to find evidence in the literature which states that both sympathy and empathy are related to prosocial behavior. Sympathy is the perception and reaction to the distress or need of another human being (Decety & Michalska, 2010). While both empathy and sympathy are based on an understanding of another's situation (Eisenberg et al., 1991; Hoffman, 2000), sympathy mainly involves feelings of concern for the other, but it is not the same feeling as the one that the other person may actually experience (Eisenberg & Fabes, 1998). When we have sympathy for someone, we feel sorry for them but do not necessarily understand what they are actually feeling. Empathy, on the other hand, takes a step further to imagine and put oneself in the

experience of another person to understand how they think and feel or why they act in a certain way. According to Hoffman (1976, 2000), empathy might develop before moral reasoning, but the two became linked through classical and operant conditioning and social learning processes. On the other hand, sympathetic reactions can lead to prosocial behavior on their own, without moral principles and reasoning, if the sympathetic response is sufficient to overcome competing egoistic motives (Hoffman, 2000). Researchers have different definitions of empathy. There is a large body of research showing that empathy can be defined as an emotional reaction of concern (Eisenberg et al., 1991), sympathy (Batson, 1998) or compassion in response to the needs of others, which leads people to help others in need (Davis, 1994; Davis, Hall, & Meyer, 2003)

Davis (1994) further proposed a multi-dimensional model of empathy, and regarded empathy as a key component of how people react in interpersonal communication and understanding (or interpersonal reactivity). Empathy is a measure of dispositional empathy, and he postulated that a set of four related constructs, including perspective taking, empathic concern, personal distress and fantasy, represents the intrapersonal process of empathy.

Many theories proposed that people with more empathy would tend to be more

prosocial. Empathic response has been the foundation of several theories of prosocial behavior (Eisenberg & Fabes, 1998; Fletcher, Elder, & Mekos, 2000). Miller, Fung, & Mintz (1996) reported that empathy and moral reasoning had been linked theoretically and empirically to prosocial behavior, but not much empirical attention had been given specifically to how the two interrelated variables may interact in predicting prosocial behavior (Miller, Wiley, Fung, & Liang, 1997). Empirical studies showed that the relationship between empathy or sympathy and prosocial behavior is moderate, and some literature suggested that some variables (like moral reasoning) may moderate the relation between empathy and prosocial behavior (Midlarsky, Hannah, & Corley, 1995). Moreover, individual differences in empathy were closely related to individual differences in prosocial behavior during their development to adolescence (Bierhoff, 2002a; Eisenberg & Murphy, 1995) and then, into early adulthood (Eagly & Crowley, 1986; Eisenberg, Fabes, & Spinrad, 2006; Eisenberg et al., 1987; Eisenberg et al., 2005). A more recent study with Chinese adolescents has shown that teenagers had significantly higher levels of empathy between 12 and 15 years old (Siu & Shek, 2005) than younger subjects, and this might be related to the increase of prosocial behavior in early adolescence.

There are three empathy-related constructs, namely 1) perspective taking or role taking, which refers to an individual's cognitive attempt to understand another person's

point of view; 2) empathetic concern, which is an affective reaction that is congruent with the observed emotion of another person; and 3) personal distress, which refers to affective reactions in response to the experience of others. All these are crucial to the development of prosocial behavior.

Perspective taking was regarded as the cognitive part of empathy. As cognitive perspective-taking skills develop with age, the self-oriented distress reaction (personal distress) is gradually transformed into a more other-oriented form of distress – feelings of compassion for the other (emotional concern). Eisenberg and her colleagues (1995) showed that self-reflective perspective-taking and other-oriented judgments tended to emerge in late childhood and increase through adolescence. These abilities often take so long to emerge because of the complexity of interactions between the affective and cognitive aspects of perspective-taking and the regard for others in relation to prosocial behavior (Okun & Schultz, 2003). Moreover, as an individual developed from children to adolescents, both perspective-taking and empathic concern developed and reached adult levels while personal distress decreased (Davis et al., 2003).

2.3.5 Critique of the Empathy-related Attributes

The cognitive emotional developmental approach assumes that the maturity of cognitive

abilities would result in an increase in the ability to take on the perspective of others, to apply internalized moral reasoning and empathy. This approach has accumulated a wealth of evidence that the maturity of these interpersonal competencies is connected to prosocial orientation or behavior. It showed good internal consistency and clarity. It is also believed that the cognitive emotional development perspective was another important parameter of prosocial behavior development. It might be particularly important for later adolescents, whom may already have a concrete system of values regarding prosocial behavior. Empathy related models are widely used in research as they have demonstrated their heuristic value, explanatory power and theoretical groundedness. The cognitive emotional developmental approach has shown good internal consistency, explanatory and predictive power. It is empirically fit, easy to understand and has remarkable testability and practical utility. However, the clarity and explicitness of cognitive emotional theories need to be further enhanced to ensure the coherence of the theory's development.

However, this empathy-related attributes model did not take into account the role of social influence, modeling, or the socialization of the normal development of adolescents (Barnett, 1987), which were considered to be crucial in the development of young people. This limits the contextualization of empathy-related attributes (Bryant, 1982). Moreover, it limits the explicitness and coherence in model explanations (Feshbach, 1987).

Therefore, this theory could only provide another partial solution to the huge concept of prosocial behavior development, which has hindered its practical utility (Duan & Hill, 1996).

2.4 Ecological Perspective

The ecological perspective provided a coherent, lucid and comprehensive theoretical framework for understanding complex human behavior (Pardeck, 1988). With well-defined concepts, this perspective provided a systematic framework for an overall understanding of the different variables contributing to prosocial behavior development in adolescents. From the ecological perspective, the focus could be extended beyond individualistic and developmental theories in explaining prosocial behavior development in adolescents (Adamsons et al., 2007). Adopting an ecological model, cognitive factors and social influence factors were hypothesized to shape prosocial behavior at the individual and social levels of the human ecosystem. This allows flexibility in selecting variables for understanding prosocial behavior in adolescents (Balgopal & Vassil, 1983).

The ecological perspective has its strength in framework development. It can involve different variables that are observable in real life, and are easily understood by the public. It could strengthen sensitivity in examining the prosocial behavior development of adolescents. Multiple influences and a multi-level analysis of prosocial

behavior development in adolescents provided this perspective with good explanatory power (Bronfenbrenner, 1994). It illustrates clearly the influence between cognitive factors, social factors and variables that interact with one individual and others. The ecological perspective has been well received by professionals who work with adolescents. It has been successfully applied to various types of intervention and therapy, such as school social work, family intervention and therapy (Bronfenbrenner & Ceci, 1994), as well as in different social work practices, such as casework, group work and community work. With an appropriate integration of theories, the ecological perspective showed good internal consistency, good explicitness and explanatory power (Bronfenbrenner, 2005). The dynamic nature of the ecological perspective showed coherence in theory explanation and is easier to understand. The ecological perspective showed its heuristic value by which theories could generate research and intellectual curiosity (Adamsons et al., 2007).

2.4.1 Critique of the Ecological Perspective

The ecological perspective is criticized for being over inclusive; some theorists commented that there is no guidance about what is important when it is explaining the development of prosocial behavior in adolescents. Moreover, the scope of the human ecological model is considered to be too broad and it cannot generate specific research questions and associated hypothesis for empirical testing. In addition, the model might

need theories from other models to explain the selection of specific variables to be included and the relationship among the included variables in order to test and explain a specific hypothesis.

2.5 Evaluation of the Theoretical Models of Prosocial Behavior

In this section, these four perspectives were compared according to four aspects: a) the structure of the theory (Criteria number 1, 2, 4 and 5), b) the potential and actual validity of the theory (Criteria number 6, 7, and 9), c) the heuristic value and sensitivity (Criteria number 8, 10 and 11), and d) the theoretical and practical implications of the theory (Criteria number 3, 12 and 13). The details of the comparisons are shown in Table 2.1, Table 2.2, Table 2.3 and Table 2.4.

2.5.1 Structure of the theory

In evaluating the structure of the theories, the social psychology, cognitive emotional development and ecological perspectives could provide a clear, coherent, systematic and comprehensive framework for understanding prosocial behavior development in adolescents. The social psychology perspective assumed social learning experiences (Bandura & Walters, 1963), such as reinforcement patterns and/or modeling, to be key factors for prosocial behavior in adolescents. The cognitive psychology development

perspective attributed the cognitive emotional development of adolescents to the development of prosocial behavior. The ecological perspective can also provide a systematic framework for an overall understanding of various factors contributing to prosocial behavior development in adolescents. The merit of these three perspectives in terms of structure of theory was that the key concepts used are so explicit and easily comprehended.

In comparison, the social psychology and cognitive emotional development psychology theories were more well-defined or coherent (as shown in Table 2.1, Table 2.2, Table 2.3 and Table 2.4). The perspectives attributed the development of prosocial behavior in adolescents to social and cognitive emotional development factors. Moreover, these social and cognitive variables could be observed in reality, and they could be measured objectively.

2.5.2 Validation of Theory by Empirical Study

Among all the perspectives investigated, the social psychology and cognitive emotional development perspectives have received relatively more empirical support as shown in Table 2.1, Table 2.2, Table 2.3 and Table 2.4. There was a significant amount of research suggesting that social factors, such as peers, parents, school and social culture were predictors of prosocial behavior in adolescents (Birch & Ladd, 1998; Dekker & Halman,

2003; Dovidio et al., 2006; Dworkin et al., 2003; Steinberg, 2005; Steinberg & Morris, 2001). For the cognitive emotional development perspective, there was a wealth of longitudinal research studies which showed that cognitive emotional development was related to prosocial behavior in adolescents (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2002; Eisenberg et al., 1995; Kohlberg, 1984; Underwood & Moore, 1982a).

Some studies have been conducted using the ecological perspective (Brower, 1988; Law, 2008). There was only a limited amount of empirical research done for the evolutionary perspective because the evolutionary model argued that prosocial motivation was mainly genetically transmitted. Although limited empirical data supported its prediction for prosocial behavior development in adolescents, the research finding could be subject to alternative explanations from other perspectives (McGuire, 1994; McIntosh, Metz, & Youniss, 2005). Evolutionary theory was shown to be less testable, as shown in Table 2.1, Table 2.2, Table 2.3 and Table 2.4. In terms of groundedness and social influence, the cognitive emotional development perspective had the advantage. Various clinical and counseling episodes experienced by family therapists, counselors, social workers or other health professionals in reality confirmed the ecological perspective to a large extent (Pardeck, 1988). In comparison, we could observe that prosocial motivation towards our kinship is stronger than towards others. However, it was hard to observe that such motivation was transmitted through hereditary.

The groundedness of the evolutionary perspective was much less substantial when compared with the groundedness of the cognitive or social psychological theories.

2.5.3 Heuristic Value, Sensitivity, Theoretical and Practical Implications

Based on the better support of an empirical nature and in the literature as stated above, among all the perspectives, the social psychology and the cognitive emotional development psychology perspectives have relatively more heuristic value. More parameters from these perspectives could be pooled together for a systematic analysis.

As shown in Table 2.1, Table 2.2, Table 2.3 and Table 2.4, when all perspectives are compared with each other, the social perspectives, the cognitive emotional development perspectives and the ecological perspectives were regarded as having important theoretical implications, as these perspectives had been able to, or could, generate research and intellectual curiosity (Colby & Kohlberg, 1987; Eisenberg, 1986; Eisenberg et al., 1987; Eisenberg & Mussen, 1989; Bierhoff, 2002a). For practical implications, the ecological model has been well accepted by family therapists, social workers or other youth working professionals (Pardeck, 1988). It has been applied to various areas such as casework, community social work practice (MacNair, 1996), group work (Balgopal & Vassil, 1983), and community work (Jaffee & Hyde, 2000).

Table 2.1

*Summary of the Evaluation of Theoretical Models of Prosocial Behavior
– Structure of Theories*

	Internal Consistency	Clarity or Explicitness	Coherence	Understanding
Evolutionary	-	+ / -	-	+ / -
Social Psychology	+	-	+	+
Cognitive Emotion	+	-	-	+
Ecological	+	+	+	+

Note: + = The theory addressed this criteria, - = The theory did not address this criteria, + / - = The theory partially addressed this criteria

Table 2.2

*Summary of the Evaluation of Theoretical Models of Prosocial Behavior
- How Valid the Theories are with Qualitative and Quantitative Studies*

	Empirical Fit	Testability	Groundedness
Evolutionary	-	-	-
Social Psychology	+	+	+
Cognitive Emotion	+	+	+
Ecological	+	+	+

Note: + = The theory addressed this criteria, - = The theory did not address this criteria, + / - = The theory partially addressed this criteria

Table 2.3

*Summary of the Evaluation of Theoretical Models of Prosocial Behavior
- Heuristic Value and Sensitivity of the Theories*

	Heuristic Value	Contextualization	Interpretive	Sensitivity
Evolutionary	-	-		-
Social Psychology	+	-		+
Cognitive Emotion	+	+		+
Ecological	+	+		+

Note: + = The theory addressed this criteria, - = The theory did not address this criteria, +/- = The theory partially addressed this criteria

Table 2.4

*Summary of the Evaluation of Theoretical Models of Prosocial Behavior
- Practical Implications of the Theories*

	Explanatory Power	Predictive Power	Practical Utility
Evolutionary	-	-	-
Social Psychology	+	+	+
Cognitive Emotion	+	+	-
Ecological	+	+	+

Note: + = The theory addressed this criteria, - = The theory did not address this criteria, +/- = The theory partially addressed this criteria

2.5.4 Adopting the Social-ecological Perspective for the Present Study

The present study is designed to study the predictors of prosocial behavior in adolescents.

Adopting the use of the social-ecological perspective can allow an examination of the influences on individual behavior from different levels: individual, family and school. It is a practical and better model. To supplement the limitations of the human ecological perspective, the present study incorporated research concepts from the social psychology perspective and the cognitive emotional development perspective in order to guide the selection of variables and decide which specific model is to be tested as it is — one good way for researchers was to build a more comprehensive picture (White & Klein, 2002). The reasons for incorporating research concepts from the social influence and cognitive emotional development perspectives were that social and cognitive emotional development are important parameters which have a direct or indirect impact on prosocial behavior development in adolescents, and the research concepts from the social influence and cognitive emotional development perspectives are widely supported by empirical study.

The concepts from the social influence and cognitive emotional development perspectives were also incorporated to justify why the present study focuses on the Hong Kong Chinese context. The justification for using the social-ecological perspective was

as follows:

1. The social-ecological perspective has provided a comprehensive framework for understanding the phenomenon of prosocial behavior in adolescents.
2. The social-ecological perspective has attributed the prosocial behavior of adolescents to factors included in the social psychology perspective and the cognitive emotional development perspective, which was most proximate to the environment of adolescents.
3. The strength of the social psychology and cognitive emotional development perspectives lies in their empirical fit, groundedness, explanatory power and attention paid to the proximate prosocial behavior development of adolescents.
4. The social psychology and cognitive emotional development perspectives could be applied to practical work and services involving adolescents.
5. The social psychology and cognitive emotional development perspectives have been used widely in different disciplines for helping young people develop.

2.5.5 Limitations of the Previous Literature

In the previous section, literature explaining prosocial behavior in adolescents was reviewed. However, this literature faces conceptual and methodological limitations. In the following sections, the conceptual and methodological limitations of this literature are discussed separately.

The previous literature faced three conceptual limitations. Firstly, there was a need to examine if western theories of prosocial development could be used to explain prosocial behavior in adolescents in a Chinese population. Secondly, there were few studies that were able to address how individual differences and social influences may influence prosocial behavior at the same time, or how they might interact in shaping prosocial development. Thirdly, in the local literature, many studies focused on antisocial behavior, and there were just a few conceptual and comprehensive models that focused on the development of prosocial behavior in adolescents.

2.5.6 Conceptual Limitations

The first conceptual limitation was that the majority of cognitive emotional development theories, including theories on prosocial moral reasoning, empathy, and how these variables link to the development of prosocial behavior in adolescents, had been developed in Western culture (Barnett, 1987; Carlo et al., 1992, 1995; Miller, 2002; Law,

2008). It was likely that the cognitive-emotional development process might vary across cultures (Carlo et al., 1992). Unfortunately, only a very limited number of studies have investigated the relationship between social influence concepts and cognitive emotional development concepts in non-Western cultures.

Moreover, most previous studies either focused on social modeling/influences or cognitive-emotional development like the works by Eisenberg and Carlo. Few were comprehensive enough to cover other parts (Lai et al., 2013). The social-ecological perspective enabled the model to conceptually combine these variables under one framework. Using the social-ecological perspective, various variables shared having a direct effect on prosocial behavior development in adolescents. There were two major reasons for linking the effect of social influence and the cognitive emotional development psychology to the development of prosocial behavior in adolescents. Theoretically, cognitive psychology concerned the intrinsic cognitive emotional development of adolescents while social influence might shape the growing process. Therefore, linking the effects noted in the social psychology perspective to the cognitive emotional development perspective was a necessary step in providing a comprehensive understanding of the development of prosocial behavior in adolescents.

Another conceptual limitation was that there were few comprehensive models of the

development of prosocial behavior (Larson, 2000). There was a lack of a common definition of prosocial behavior. There were many studies of volunteering, such as when young people engaged in helping others (strangers) like the study done by Law in 2008. There were few studies on how young people participate in helping their family, friends, or how they participate in school matters (Lin & Wang, 1995). Few have theorized how individual, familial, social, and community variables might act together in shaping prosocial behavior (Liu, Holosko & Lo, 2009). The social-ecological model would help to integrate these theories and to examine the impacts of the social psychology and the cognitive emotional development perspectives on prosocial behavior development in adolescents. It was important to incorporate the comprehensive conceptualization of prosocial behavior in adolescents which is included in the social psychology and cognitive emotional development perspectives.

2.5.7 Methodological Limitations of the Previous Literature

Besides the conceptual problems that were encountered in previous studies, there were several key methodological issues in the previous studies on prosocial behavior in adolescents. These issues included problems with measurement tools and the lack of a comprehensive model which covers social influence variables and cognitive variables. There were inadequate Chinese studies. Each of these issues is discussed in detail below.

2.5.8 Problems with Measurement Tools

The first methodological issue was the use of instruments for measuring prosocial behavior and its attributes. Similar to many other areas of study, previous studies of prosocial behavior in adolescents were conducted using translated instruments developed in Western cultures. When an instrument has been applied in different cultural groups, it cannot be assumed that the meanings of the scores obtained were identical (Dovidio, Allen, & Schroeder, 1990; Dovidio & Penner, 2001; Frankfort-Nachmias & Nachmias, 1992; Kitzrow, 1998). The lack of specific standardized instruments for measuring prosocial behavior could be the major barrier to prosocial behavior research in Hong Kong. Therefore, measures developed in Western cultures might not be directly applicable to non-Western cultures because their functional and construct equivalence cannot be assumed. In other words, measurements of variables taken by means of measures translated into Chinese without local validation might not be what they were intended to be, and the validity of any findings might be questionable when using translated measures without local validation. One should be especially critical when applying western-designed measures in Chinese culture because Western and Chinese cultures are different (Bond, 2010). To ensure the validity of the findings, it was important to adopt measures that were developed locally or translated measures that had

been validated using local samples. The present study is pioneering in tackling the issue of the limited research available on prosocial behavior in order to support research on this subject in Chinese communities.

2.5.9 Lack of a Comprehensive Model which Covers Social Influence Variables and Cognitive Factors

Another methodological limitation was the lack of a comprehensive model which covered social influence variables and cognitive-emotional variables at the same time. The social-ecological model could address this limitation and put everything in a reasonable framework for study. There were multiple variables to represent cognitive psychology, such as using empathy, perspective taking and prosocial moral reasoning and applying these to cognitive emotional development psychology. Moreover, using peers, family and school to represent the social perspective could give the researcher a more comprehensive picture so that any significant linkage between social influence and cognitive emotional psychology could be seen.

2.5.10 Lack of Studies involving Chinese Populations

It was obvious that there has been a lack of prosocial behavior related studies using

Chinese samples. Most of the studies were conducted in Western contexts. In view of the cross-cultural differences in social influence and cognitive emotional development psychology, studies in non-Western contexts were important (Shek, 2005). In May 2011, excluding the word Chinese and searching through the literature database in English with the keywords “cognitive emotional development” and “prosocial behavior in adolescents” using PsycINFO, Scopus, Sociological Abstracts, and Social Service Abstracts, I found that there were 107 relevant citations, whereas there were only 9 relevant citations when “Chinese” was added as a keyword. Similarly, in PsycINFO, Scopus, Sociological Abstracts, and Social Service Abstracts, a search of those abstracts in May 2013 using the keywords “social influence” and “prosocial behavior in adolescents” revealed that there were 80 relevant citations whereas there were only 42 relevant citations when “Chinese” was added as a keyword. Given that Chinese people account for around one-sixth of the world’s population, a greater number of specific standardized instruments and studies on prosocial behavior in Chinese are needed.

2.5.11 Gender Difference

Previous local studies show that females generally engage in more voluntary and prosocial activities than do males (Ma, 2003; Law, 2008). Some authors have suggested that adolescent females are more prosocial than males because they have stronger

prosocial values (Bartel & Barnett, 2000). There may also be gender differences in the predictors of prosocial behavior. Girls are more likely to report that they are empathetic to others because being affectionate and caring is a socially desirable trait in the female gender (Davis, 1994). Some local findings also revealed gender differences in some of the measures of prosocial behavior (Siu et al., 2013). They demonstrated significant gender differences in ABQ scores, prosocial norms, pragmatic values, prosocial reasoning, and empathy (personal distress, fantasy, and empathetic concern). These findings are generally consistent with those reported in the literature as the work of Eagly & Crowley (1986), and Carlo and his colleagues in 1996. Therefore, further study is suggested to explore the reasons for the differences in gender regarding Chinese heritage in Hong Kong.

Chapter 3. Theoretical Framework of the Present Study

This study aims to understand the factors shaping the prosocial behavior of adolescents, and it is necessary to apply a theoretical model that explains how both individual and social factors could influence prosocial development. Social-ecological models included an evolving body of theory and research concerned with the processes (Yeh, 2003) and conditions (Darling & Steinberg, 1993) that govern lifelong human development in the actual environments in which human beings live. The social-ecological model is a standpoint from which one can conceptualize the changing maturing person in relation to a changing environment (Yang, 1995), which echoes the condition of adolescents as in the present study. The social-ecological model is well known (Riggins-Caspers et al., 2003; Tudge et al., 2003) and has been widely applied to study environmental influences on adolescent behavior like bullying, volunteering and prosocial behavior (Adamsons, O'Brien, & Pasley, 2007; Campbell, Pungello, & Miller-Johnson, 2002). This chapter describes the application of the social-ecological model to studying prosocial behavior and the helping intention in adolescents.

3.1 Review of Ecological Models in the Study of Human Development

In the current literature, there are two key social ecological models that are extensively applied in studying human development. The first ecological model is represented by the

theory of affordance (Gibson, 1986), which concerned primarily with the development of perception and asserted that human development was driven by a complex interaction between environmental affordances and the motivated human who perceive them. The more chances humans are given to perceive and interact with their environment, the more affordances they discover and the more accurate their perceptions become. There are several limitations to applying Gibson's model to the study of prosocial behavior. First, Gibson's approach to the human-environment relationship focused on the perception of the physical environment. Second, literature reviews showed Gibson's work is rarely described as a theory of development (Miller, 2002). While the theory of affordance could provide a conceptual model for understanding perception, Gibson's research was almost exclusively confined to the study of development in infants and very young children, and it is difficult to make generalizations of its tenets with regard to prosocial development throughout a lifespan.

The second model included in this review is the work by Bronfenbrenner (1979). As a pioneer in applying ecological theories to the study of human development, he discussed how bio-ecological processes embedded in layers of social influences contribute to human development (Bronfenbrenner, 1995). The bio-ecological model provides a better basis for understanding the development of prosocial behavior than does the theory of affordance. However, the bio-ecological model was designed for use

as a tool for exploratory research rather than for hypothesis testing or confirmatory processes (Bronfenbrenner & Morris, 1998). As researchers started to apply the bio-ecological model to studying development, they faced the overwhelming complexity of the multiple and interacting relationships involved in understanding human development. Many researchers applied and categorized subsystems of factors important to the target population (Kulik, 2007; Swearer & Hymel, 2015).

Based on the bio-ecological model, social-ecological models offer a framework for examining interrelationships among the individual, family (Barnett, Manly, & Cicchetti, 1993), peer group (Dodge, Petit, & Bates, 1994), school (Swearer & Hymel, 2015), community (Cicchetti & Toth, 1997), and cultural factors as well as their influences (Felner et al., 1990) on human behavior (Senge, 1990, p.68). Social-ecological models have been used extensively in adolescent research (Cicchetti & Toth, 1997), in such areas as health literacy, bullying behavior, and volunteering. For instance, Higgins et al. (2009) studied adolescents' health literacy through health education in schools. Using the social ecological model, they studied multiple levels of influence on health literacy, including intrapersonal factors (such as characteristics, knowledge and skills), interpersonal factors (such as social support and influence; the quality and nature of human interactions, peers and family), and community factors (such as environmental and structural factors). Their study model has three concentric layers that indicate micro influences (individuals'

knowledge, skills and attitudes regarding health), meso influences (individuals' health literacy gained through health education curricula, teachers, families, parents, and friends) and macro influences (broader societal factors that have an impact on the inner two layers) on health literacy. The contents of each layer are not to be interpreted as static, but represent ideas of different levels of analysis. Also based on the work of Bronfenbrenner (1979), a study on bullying behavior was conducted with an expanded social-ecological framework (Swear Napolitano & Espelage, 2011). They hypothesized that individual characteristics, peer characteristics, classroom characteristics, and school and family characteristics could shape bullying behavior. A third notable study using the social-ecological model is the study of volunteering among adolescents by Kulik (2007). Also based upon Bronfenbrenner's ecological model, the study examined the relationship among the ontogenic system (gender, age, education and economic situation) and personality characteristics (self esteem and empowerment), the microsystem (family context and volunteer context), and the macro system (cultural norms), and how these influences shape volunteering behavior in adolescents. Her findings suggested the influence of the ontogenic system, i.e. socio-demographic variables and personality traits, had a key impact on volunteering behavior. Kulik's work has been cited in not less than 17 research papers and reviews across different countries (McAllum, 2014; Weiss-Gal & Caduri, 2015; Caduri & Weiss-Gal, 2015).

The above three studies demonstrated that the social-ecological models that were developed based on the work of Bronfenbrenner held much promise for studying the adolescent behavior that develops through a continuing process of mutual interactions between individuals and their environment over a prolonged period of time. These mutual interactions shared the same focus as they do in the present study.

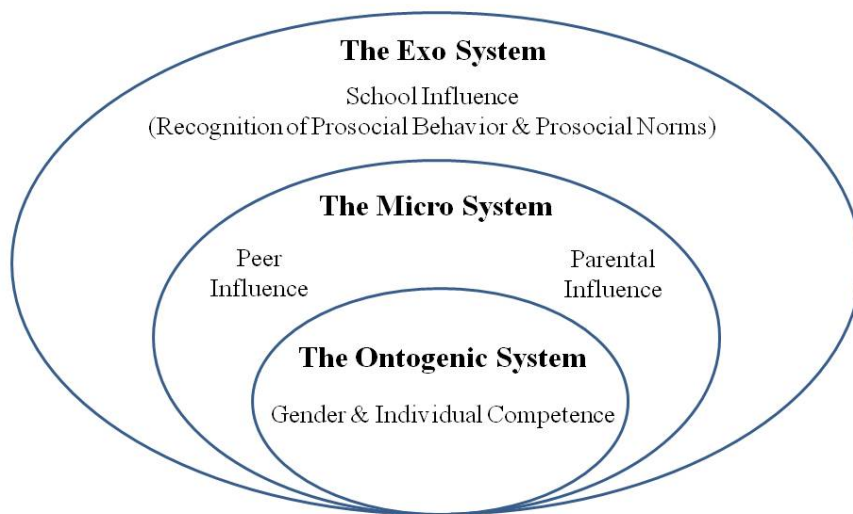
3.2 Social-ecological Model of the Present Study

Based on the work of Bronfenbrenner (1979), the present study adopted a social-ecological model outlined by Kulik (2007) to analyse the social and individual influences on prosocial behavior. Kulik's model is adopted because of its great emphasis on social influences on human behavior (Pantea, 2012; Wilson, 2012; McAllum, 2014; Weiss-Gal & Caduri, 2015; Caduri & Weiss-Gal, 2015). The current study focused on three levels of the social-ecological system: a) The ontogenic system, e.g. gender, individual cognitive and emotional competence, b) The microsystem, e.g. peer influence and parental influence, and c) The exosystem, e.g. recognition of prosocial behavior and prosocial norms in their school. The mesosystem and the macrosystem are not included in the present study, as the study could not obtain the information from the participants that would be needed for these two systems. The main goal of the present study is to examine the relationship between each of the research variables in the different

ecological systems and use these variables to predict prosocial behavior and the helping intention in a group of adolescents. Figure 3.1 illustrates the proposed model of the present study.

Figure 3.1

The Research Model – The Social-ecological Model of Prosocial Behavior



3.2.1 Ontogenic System Factors

The first layer is the ontogenic system. It includes variables related to the individual, such as socio-demographic variables and individual competence. In this context, the present study examined the effect of gender on responses to prosocial behavior and helping intentions. Research findings showed there is a clear difference in prosocial behavior between male and female adolescents. Boys have been found to use more

hedonistic moral reasoning and to display more aggressive acting-out behavior (Bear & Rys, 1994), whereas girls have been found to exhibit more prosocial behavior in peer exchanges (Eberly & Montemayor, 1998; Rys & Bear, 1997). Through gender socialization, girls receive more positive reinforcement for their prosocial behavior towards others than do boys. While boys may not necessarily be discouraged from engaging in prosocial behavior, they may not be actively encouraged either (Beall, 1993). Genetic and other biological factors can have strong determining effects on healthy human development (e.g., Lytton, 2000). Temperament and attractiveness have also been associated with prosocial behavior development (Caspi & Silva, 1995; Martin, Noyes, Wisenbaker, & Huttunen, 1999). However, due to limited resources, these were not targets of the present study.

As discussed in Chapter 2, individual cognitive and emotional competencies are important determinants of prosocial behavior. The range of individual competencies could include: 1) cognitive skills, 2) behavioral skills, 3) emotional competencies, and 4) motivational and expectancy sets (Felner et al., 1990). Among these competencies, this study proposed that empathy-related responses (perspective taking and empathetic concern), and prosocial moral reasoning are important determinants of prosocial behavior.

3.2.2 Microsystem Factors

The microsystem refers to the immediate social and environmental factors, including role relationships and activities that an adolescent encounters. The microsystem reflects the interactions and relationships between individuals and their immediate environment.

While family members could be the key persons in an adolescent's microsystem, the social network of adolescents expands tremendously as they interact with classmates, friends and neighbourhood playmates. The microsystem is a dynamic context for development because of the bi-directional influences individuals impart on each other. In the present study, two types of micro-system variables are examined, which include peer influence and parental influence.

Peer Influence. The quality of peer relations is an important indicator of overall social functioning. Peer acceptance has been found to be directly related to prosocial and emotional distress between perceived support from peers and prosocial behavior (Wentzel & McNamara, 1999). Aggression and peer rejection in turn have been powerfully linked to later chronic antisocial behavior (Coie, Lochman, Terry, & Hyman, 1992). The quality of peer relations is a clear marker for later social problems (Boivin et al., 1995). In the study by Caprara et al. on 2000, peers bond to prosocial children around social and scholastic activities and foster cognitive development by helping the child to enlist academic support and guidance from knowledgeable adults and classmates.

Adolescents' active engagement in socially beneficial behavior such as sharing, offering help, cooperating, and showing concern for others contributes to their own development and promotion of positive social relationships. There is a considerable consensus that prosocial behavior can be either negatively or positively influenced by exposure to appropriate or inappropriate models (e.g., parents, sibling and peers; Mussen & Eisenberg-Berg, 1977; Rushton, 1975; Sroufe, Cooper, & DeHart, 1996). Social learning theorists stress the importance of person-environment interactions. Thus, this study addressed the crucial component of individual variables in prosocial behavior.

Parental Influence. The family plays an important role in encouraging voluntary activity by creating an atmosphere that emphasizes values of altruism and contributing to society (Grusec, 1991). Proximal family processes refer to the transactions between the adolescent and the immediate family environment that promotes their competencies. Proximal family factors such as support (Franz, McClelland, & Weinberger, 1991), attachment (Main, Kaplan, & Cassidy, 1985), and parenting style (Dekovic & Janssens, 1992; Pettit, Harrist, Bates, & Dodge, 1991) have all been shown to correlate with the child's later outcomes. Prosocial parenting behavior is linked to both prosocial sibling relations (e.g., Volling & Belsky, 1992), positive marital quality (e.g., Belsky, Youngblade, Rovine, & Volling, 1991; Cummings, 1994), and positive peer relations (e.g., Gottman & Katz, 1989; Katz, Kramer, & Gottman, 1992).

3.2.3 Exosystem Factors

The exosystem, the third layer of the social-ecological model, consists of contexts of which adolescents are not a part, but which nevertheless influence their development. In the study, we focused on the potential impact of school policies that may promote and demote prosocial behavior in adolescents. Most adolescents are students, and school policies, educational philosophy and principles, and socialisation do have an impact on their prosocial behavior, but adolescents may not be involved in determining such policies or guidelines.

School. School experience includes both structured learning and after-school activities as well as unstructured relationships that adolescents form with their peers. More specifically, research indicates that positive experiences in school can promote self-esteem, provide opportunities for success, and enable adolescents to develop both social and problem solving skills (Rutter, 1987). Decisions made by school boards and parents' workplaces do not include the child but nonetheless may influence and impact the child's development. A school board that sets educational policies that are relevant to the child is reflective of exosystem influences. In a similar way, the policies set forth by parents' employers may also impact a child's development. In cases where parental leave

is not supported or flexible work hours are not an option, parents' availability to their child may be restricted and in turn influence a child's development (Fagan & Wise, 2001; Thomas & Grimes, 1995). The literature showed the recognition of prosocial behavior in school is important for adolescents. (Akyel, 1986; Regnerus, 2000; Bear, Manning & Izard, 2003). Moreover, school policies are related to building prosocial norms (Attili, Vermigli & Schneider, 1997; Chen & Li, 2000; Law, 2008).

3.3 Ontology, Epistemology and Methodology of the Present Study

This section discusses the ontological, epistemological, and methodological assumptions underlying the formulation and implementation of this study (Baikie, 1993; Crotty, 2003).

Ontology was defined by Baikie (1993) as "the science or study of being" and it deals with the nature of reality. It is concerned with the nature of existence and with the structure of reality (Crotty, 2003). Ontology in the present study is defined as a system of belief that reflects the interpretation of an individual about what constitutes prosocial behavior and the helping intention. The central ontological question for this thesis is whether prosocial behavior and the helping intention need to be perceived as objective phenomenon or as a subjective experience as in subjectivism. In this study, objectivism was adopted. Objectivism portrays the position that social entities exist in reality external to the social factors concerned with their existence (Saunders, Lewis, & Thornhill, 2012). The ontological position of objectivism asserts that social phenomena and their meanings

have an existence that is independent of social factors (Bryman, 2004).

Epistemology is the theory of knowledge or assumptions about the ways in which it is possible to gain knowledge of reality, how what exists may be known, what can be known, and what criteria must be satisfied in order for something to be described as knowledge (Baikie, 1993). The choice of objectivist ontology is associated with a positivistic epistemology, leading to the use of a deductive approach in research. To ensure the presence of positivism in this study, an anonymous self-completed questionnaire survey was used as the key data collection tool for measuring prosocial behavior and the helping intention in the present study.

Methodology is a research strategy that translates ontological and epistemological principles into guidelines that show how research is to be conducted. Methodology is the strategy, plan of action, process, or design lying behind the choice and use of particular methods and linking the choice and use of the methods to the desired outcomes (Crotty, 2003). It aims to describe, evaluate and justify the use of particular methods. Methods are the techniques or procedures used to gather and collect data related to some research question or hypothesis (Crotty, 2003). By using deductive logic, five research questions and eleven hypotheses were developed and tested in the present study. These hypotheses were set to measure from the general to the specific. Quantitative research methods like the multivariate analyses of social and individual cognitive competence, and techniques

for statistical prediction, were employed in this study for testing the theory, such as when the causal relationships between different social and individual cognitive and emotional competencies variables were examined. Moreover, quantitative research methods were employed to test the research questions, hypotheses, and to examine the specific outcome of the enquiry.

The framework of the present study is based on a positivism that has adopted logical reasoning to build a formal explanatory theory, employed empirical methods, and made extensive use of quantitative analysis to build a formal explanatory theory about prosocial behavior in adolescents. The framework attempted to approach the objective reality and the truth that is out there to be discovered, and a critical realist position has been adopted (Chandler, Hallett, & Sokol, 2002). Realism shares positions of both interpretivism and positivism. However, positivists disagree with the notion of unobservable structures, whereas relativists cannot come to terms with the foundational claims of realism. However, as in most social science research, realism has turned more in the interpretist's direction and they acknowledge that interpretation of social phenomena is crucial, and that differences between external and constructed reality have to be identified and understood to explain social relationships. This explanation asserts that prosocial behavior and the helping intention is a time-free or context-free generalization, while a causal linkage can only be probabilistically true. Observations are

theory-laden (Chandler, Hallett, & Sokol, 2002).

The social-ecological model is widely used as a practice framework in social research, but few tenets about how social influence and individual competence are linked to prosocial behavior have been put to empirical testing. Adopting positivism, this study hypothesized that certain variables in the social-ecological context and interactions among individual and social factors could determine prosocial behavior. Through this study, we have come closer understanding of the reality of how prosocial behavior is shaped.

3.4 Research Questions and Hypotheses

The purpose of the present study was to explore and examine how the three levels (ontogenic system, microsystem and exosystem) of the proposed social-ecological model could show significant correlations between each other. Moreover, it was to assess if the empathy (it was assessed by the validated Chinese Interpersonal Reactivity Index – CIRI (Siu & Shek, 2005) and prosocial moral reasoning (it was assessed by the Chinese Prosocial Reasoning Objective Measures (PROM) and its validation process is covered in Chapter 3 and 4 of this thesis) of the individual competence in the ontogenic system; peer influence (it would be assessed by Peer Influence Questionnaire by Ma, 2008) and parental influence (it would be assessed by the Chinese Parental Helping Measure and its

validation process would be discussed in Chapter 3 and 4 of this thesis) in the microsystem; and school influence (it would be assessed by Chinese Positive Youth Development Scale – CPYDS (Shek et al., 2007)) in the exosystem could predict prosocial behavior and the helping intention respectively.

Furthermore, it was to assess if gender would show a difference among these systems of the social-ecological model. The dependent variable is prosocial behavior, which was measured by the Prosocial Behavior (PB) score of the ABQ developed by Ma (1988). Moreover, the helping intention in adolescents was assessed by the Adolescent Spontaneous Helping Measures (Bartel, 2006), a Chinese translation of which was validated specifically for the present study. Furthermore, to explore these relationships, five research questions and eleven hypotheses were generated.

First Research Question: Are individual competence factors in the ontogenic system, including empathy and prosocial reasoning, correlated with the helping intention and prosocial behavior in adolescents?

Hypothesis 1a: Empathy showed significant correlation with prosocial behavior and the helping intention.

Hypothesis 1b: Prosocial reasoning showed significant correlation with prosocial behavior and the helping intention.

This hypothesis that empathy showed significant correlation with the helping intention and prosocial behavior was supported by a previous study by Barnett (1987), Cialdini, Schaller, & Beaman (1987) and Davis et al. (1999). Moreover, the studies by Felner et al. (1990), Kumru et al. (2012), Schoner-Reichl (1999), Wyatt & Carlo (2002), and Carlo et al. (2012) showed that moral reasoning showed significant correlation with the helping intention and prosocial behavior. Moreover, this hypothesis is supported as empirical studies in developmental psychology have already shown that adolescents who adopt more mature and internalized moral reasoning and have higher empathy are more likely to follow and adopt norms of social responsibility and engage in prosocial behavior (Eisenberg, 1991).

Second Research Question: Are social influence factors in the microsystem, including peer influence and parental influence correlated with the helping intention and prosocial behavior in adolescents?

Hypothesis 2a: Peer influence has positive and significant correlations with the helping intention and prosocial behavior in adolescents.

Hypothesis 2b: Parental influence has positive and significant correlations with the helping intention and prosocial behavior in adolescents.

It was hypothesized that peer influence would show significant correlation with prosocial behavior (Brody & Shaffer, 1982; Coie et al., 1992; Wentzel & McNamara, 1999), and the helping intention, as per the findings of Scroufe et al. (1996) and Chang et al. (2007). Moreover, it was hypothesized that parental influence would have significant correlation with prosocial behavior and the helping intention. This hypothesis was supported by the results of previous studies done by Gottman & Katz (1989), Volling & Belsky (1992), Bartel (2006), Chao (1994, 2001), Fung, Lieber, & Leung (2003).

Third Research Question: Is school influence in the exosystem of the social-ecological model correlated with the helping intention and prosocial behavior in adolescents?

Hypothesis 3: School influence showed significant correlation with prosocial behavior and the helping intention.

It was hypothesized that school influence would show significant correlation with prosocial behavior and the helping intention. This hypothesis was supported by previous

studies by Reynolds et al. (1996), Wentzel & Caldwell (1997), Wentzel (1998), Chen & Li (2000). Moreover, the literature showed that school socialization taught adolescents about prosocial norms, the importance of prosocial involvement, recognition of their positive behavior, and rewarding their prosocial motivation and behavior (Bar-Tal et al., 1980).

Fourth Research Question: Do individual competence factors (empathy and prosocial reasoning) in the ontogenic system, social influence factors (peer influence and parental influence) in the microsystem, and school influence as in the exosystem predict the helping intention and prosocial behavior in adolescents?

Hypothesis 4a: It was hypothesized that the individual competence factor in the ontogenic system could predict prosocial behavior and the helping intention as in the findings of Carlo & Randall (2001, 2002), Carlo et al. (2012), and Dovidio et al. (1990).

Hypothesis 4b: It was hypothesized that social influence in the microsystem could predict prosocial behavior and the helping intention as it did in the findings of Carlo et al. (1991), Carlo et al. (1992), Chang et al. (2007) and Wentzel (1998).

Hypothesis 4c: It was hypothesized that school influence in the exosystem could predict

prosocial behavior and the helping intention as it did in the findings of Rutter (1987) and Reynolds et al. (1996).

The ecological model could help to address the interaction between cognitive and social influence. The effects of the interaction of cognitive and social factors on prosocial behavior and the helping intention are included in the data analysis.

Fifth Research Question: Is there a difference between genders in the ontogenic system, the microsystem and the exosystem when predicting the helping intention and prosocial behavior?

Hypothesis 5a: It was hypothesized that there is no difference between genders among individual competencies in the ontogenic system when predicting the helping intention and prosocial behavior. This idea was supported by Jaffee & Hyde (2000).

Hypothesis 5b: It was hypothesized that there is no difference between genders among the social influences of the microsystem when predicting the helping intention and prosocial behavior. This hypothesis was supported by Carlo et al. (1996), Carlo et al. (2008), Eagly & Crowley (1986), Lenno & Eisenberg (1987), and Van Lier et al. (2005).

Hypothesis 5c: It was hypothesized that there is no difference between genders in school influence in the exosystem when predicting the helping intention and prosocial behavior. This was supported by Reynolds et al. (1996).

3.5 Effect Size Used in Present Study

The effect size is a measure representing the magnitude of an association between two variables in addition to their statistical significance (Rubin & Babbie, 2007). Several effect sizes were used in this study. The effect size for a correlation is Cohen's r (Cohen, 1988). The small range is anything up to .1; the moderate range is from above .1 to .3; and the large range is from above .3 to .5. The effect size for the test of difference is Cohen's d (Cohen, 1988). The small range is up to .2; the moderate range is from above .2 to .5 and the large range is from above .5 to .8. The effect size for the differences in the F value is the partial eta-squared. According to Adan, Prat and Sanchez-Turet (2004), the small range is considered anything up to .01; the moderate range is from over .01 to .04 and the large range is from over .04 to .1. The effect size for the magnitude of the regression coefficients is Cohen's f . According to Cohen (1988), the small range is up to .02; the moderate range is from over .02 to .15 and the large range is over .15 up to .35.

3.6 Instruments Proposed

This study focused on the social and cognitive dimensions of adolescents' prosocial behavior development. The focus of the instruments was on studying what predictors could precisely and concisely predict prosocial behavior in adolescents. Through extensive literature reviews, a number of suitable instruments that could be used were found and these are elaborated as follows.

Adolescent Behavior Questionnaire (ABQ). The Adolescent Behavior Questionnaire (ABQ) (Ma, 1988) was used in both phase 1 and phase 2 of the main study as the dependent variable reflecting the prosocial behavior of adolescents. The ABQ was regarded as one measure of prosocial behavior (Ma, Cheung & Shek, 2007), as it included a prosocial behavior score (PB) that measures the frequency of altruistic and socially acceptable or normative acts. A high PB score indicated a high frequency of prosocial acts performed over the past year. The reliability and validity of ABQ scores have been demonstrated in several studies by Ma & Leung (1991) and Ma et al. (1996). The ABQ had good reliability as measured by Cronbach's α which ranged from .80 to .90, and was found to be correlated positively with the altruistic orientation score (Ma & Leung, 1995; Ma, Shek, Cheung & Lee, 1996).

Peer Interaction Questionnaire (PIQ)

The Peer Interaction Questionnaire

(PIQ) was used as one of predictors in phase 2 of the main study. It was used to measure the amount of social influence on adolescents' perception of the influences of his/her best friend on his/her prosocial behavior, as well as the subject's perception of the number of prosocial acts performed by his/her best friend over the past year (Ma, 1988). The PIQ was used to measure the influence of peer relations and their interaction in relation to the prosocial development of adolescents. A study by Ma, Shek, Cheung and Lee (1996) has shown that it has acceptable internal consistency reliability (Cronbach's $\alpha = .70$). When considering the influence from peers, the PIQ can be used as a direct method for predicting the influence of their peers.

Chinese Interpersonal Reactivity Index (C-IRI) It has been validated by Siu & Shek

(2005). The 18-item IRI is a self-reported questionnaire consisting of two subscales, including Fantasy (FS) and Empathy (EC). The subscales of the CIRI have demonstrated acceptable to good internal consistency (Cronbach's $\alpha = .73$) and the test-retest reliability (Pearson r was between .68 and .83) was confirmed using Chinese adolescent samples (Siu & Shek, 2005). This was used for concurrent validity testing with the Chinese PROM and was used as a predictor in phase 1 of the main study.

School Influence This was obtained from the Chinese Positive Youth Development

Scale (CPYDS) (Shek, Siu & Lee, 2007). Three subscales including recognition of positive behavior (4 items), prosocial involvement (5 items), and prosocial norms (5 items) were used to measure the influence of school on prosocial behavior (Shek, Siu & Lee, 2007). It was used as a predictor in phase 2 of the main study.

Chinese Adolescent Helping Measures (Chinese AHM) This Chinese AHM originated in the Modified Adolescent Spontaneous Helping Measures (Bartel, 2006). It assesses both past helping as well as adolescents' anticipated future likelihood of engaging in various helping acts with friends, non-friends, and strangers. Validation work on the Chinese AHM was conducted prior to its use as a dependent variable for the helping intention that was used in phase 2 of the main study.

Chinese Parent Helping Measures (Chinese PHM) This Chinese PHM originated in the Modified Parent Helping Measures (Bartel, 2006). It assesses both past helping behavior of the subjects' parents as well as their anticipated future likelihood of engaging in various helping acts with a group of friends and family, and another group of strangers. Validation work on this Chinese PHM was conducted prior to its use as a predictor in phase 2 of the main study.

Chinese Prosocial Reasoning Objective Measure (Chinese PROM) The Prosocial

Reasoning Objective Measure (PROM) was designed to examine prosocial moral reasoning in young people and adults. The measure was based on Eisenberg's prosocial moral reasoning interview measure (Eisenberg, 1986). The original PROM (Carlo, Eisenberg, & Knight, 1992) contains 5 stories, each of which contains a conflict between a protagonist's needs and desires. This 5-story version has been noted as having good psychometric properties (Carlo et al., 1992). Validation work on the Chinese PROM was conducted prior to its use as a predictor in both phase 1 and phase 2 of the main study.

Chapter 4. Research Design and Methodology

This research consists of two parts. The first part of this research was conducted from February to July 2011. The objective for this part of the validation is to examine the content validity, reliability, convergent validity and criterion-related validity of the Chinese version of the Prosocial Reasoning Objective Measure (PROM) (Carlo, Eisenberg, & Knight, 1992), and, to examine the content validity and reliability of the Adolescents Spontaneous Helping Measures (ASHM) (Bartel, 2006) and Parent Helping Measures (PHM) (Bartel, 2006). These validated Chinese instruments were used in the second part of this research.

The second part of this research included two phases and formed the main focus of this study. The phase one of the main study, which aims to describe the nature of prosocial behavior and to examine its correlates, ran from July to September 2011. The second phase of the main study ran from January 2012 to December 2012, and aims to explore if cognitive and social predictors could predict the prosocial behavior of Chinese adolescents in Hong Kong.

4.1 Validation of the Prosocial Reasoning Objective Measure (PROM)

4.1.1 Objectives

To study the content validity (content relevance and representativeness), reliability, convergent validity and criterion-related validity of the Chinese PROM

4.1.2 Participants for the Validation of Instruments

The quality of translation and content validity of the Chinese PROM, Chinese AHM and Chinese PHM was examined through a group of experts in education, social work, clinical psychology and education in the development of young people. They had at least ten years of experience in working with young people. They were invited to form a panel to examine the quality of translation and the content validity of these instruments.

For testing the reliability and convergent validity of the Chinese PROM, Chinese AHM and Chinese PHM, 50 participants (25 males and 25 females) were recruited from the moral education classes in their schools through focus group sharing. Their mean age is 13.5 (SD= 1.43), and they were year 1 to 5 secondary school students. Twenty four of them were in junior secondary school, while 26 were in senior secondary school. They

came from 10 different schools. They were requested to complete the Chinese PROM and the C-IRI (Siu & Shek, 2005) questionnaires in a self-administered format. After one week, the same group of participants was invited to fill in the questionnaire again. The results of the two equivalent tests were collected and analysed.

In order to assess the criterion-related validity, another group of 533 adolescents were recruited from 36 secondary schools. The age of the participants ranged from 12 to 18 years (*Mean* = 16.2, *SD* = 1.1), but 79% were between 15 and 17 years old. There were more females (*n* = 360, 67.7%) than males (*n* = 173, 32.3%) in the samples. Most of the participants were studying Secondary 4 (*n* = 302, 52.2%) or Secondary 5 (*n* = 225, 42.3%), and a few were studying Secondary 6 (*n* = 6, 5.4%). They completed a set of questionnaires that consisted of the Chinese PROM, the ABQ (Ma, 1998), and some questions involving demographic information. The results were collected to evaluate the criterion-related validity of the Chinese PROM.

4.1.3 Instruments

The Prosocial Reasoning Objective Measure (PROM). Prosocial reasoning in adolescents was measured by the PROM. This measure was designed based on Eisenberg's prosocial reasoning interview measure (Eisenberg, 1986). Apart from the

traditional questionnaire assessment, the PROM is regarded as one of the best instruments for objectively measuring moral reasoning in adolescents (Carlo et al., 2008). It was noted that it has good psychometric properties (Carlo et al., 1992; Carlo et al., 2010; Carlo & Randall, 2002)

The original PROM (Carlo et al., 1992) contains 5 stories, each of which contains a values conflict between a protagonist's needs and desires. The respondents are requested to handle the dilemmas occurring in five scenarios: 1) Donating blood to the needy versus losing time and money at work and school; 2) Choosing to get an injured child's parents versus going to a friend's party; 3) Continuing to stay and play in one's own backyard versus going to try and stop a bully that is picking on a peer; 4) Helping disabled children strengthen their legs by teaching them to swim versus practicing for a swimming contest to win a monetary prize; 5) Keeping food after a flood versus giving some food to others who have none.

After reading each story, respondents are asked to decide on what the character in the story should do and rate it on a scale of one (greatly important) to five (not important) thus reporting how important each of the following six reasons are in making their decision as to what the character should do. The six reasons actually represent five types of prosocial reasoning, plus a lie/nonsense category score designed to screen out socially

desirable answers of subjects. The five types of moral reasoning embedded in the answers are listed from basic to advanced, in a developmental manner: 1) Hedonistic: a kind of orientation towards acquiring gains for oneself; e.g., “She might get a reward”. It also includes an orientation towards personal gains because of direct reciprocity or lack of reciprocity from the recipient of an act; e.g., “They might return the favor someday”; 2) Needs-oriented: a kind of orientation towards the physical, material, or psychological needs of the other persons; e.g., “He needs blood,” or “He’s sad”; 3) Stereotyped: a kind of orientation towards stereotyped images of a good or bad person; e.g., “It is the kind thing to do”; 4) Approval-orientated: a kind of orientation towards getting others’ approval and acceptance in deciding what is the correct behavior; e.g., “Others would think she did the right thing”; 5) Internalized: a kind of sympathetic orientation, an internal expression of sympathetic concern and caring for others; e.g., “He’d feel sorry for them”.

The PROM stories were slightly modified and adapted when used in different countries on different participants. The coefficients of the test-retest reliability ranged from .70 to .79. The Cronbach's α for the 5-item scales ranged from .56 to .78, .72 for hedonistic items, .56 for needs-oriented items, .67 for stereotypic items, .78 for approval-oriented items, and .70 for internalized items. The English version of the 5 stories PROM has also been translated into traditional Chinese by a researcher in Taiwan.

However, no particular work has been conducted on reviewing its psychometric properties in this Chinese version.

Chinese Interpersonal Reactivity Index (C-IRI). Empathy was measured by the Interpersonal Reactivity Index (IRI) (Davis, 1983). Based on his works, empathy is defined as the experience of feeling sympathy and perspective/role taking; and the experience of distress and discomfort in response to extreme distress in others. The original Interpersonal Reactivity Index (Davis, 1983) consists of 47 items. It is a measure of empathy that consists of a set of four separate but related constructs, including perspective taking, empathic concern, personal distress and fantasy. Participants are requested to indicate the degree to which each item describes them using a 5-point Likert-type scale, which varies from 0 (*does not describe me well*) to 4 (*describes me very well*).

The Chinese Interpersonal Reactivity Index (C-IRI) was validated by Siu & Shek (2005). The 22-item C-IRI is a self-reported questionnaire consisting of three subscales, including 4 items of Fantasy (FS), 11 items of Empathy (E), and 7 items of Personal Distress (PD). Participants are requested to indicate the degree to which each item describes them using a 5-point Likert-type scale, which varies from 0 (*does not describe me well*) to 4 (*describes me very well*), by using a self-completed questionnaire.

Confirmatory factor analyses revealed a stable hierarchical three-factor structure that was consistent with the structure of the original IRI, but the cognitive and emotional aspects of empathy, i.e. empathy and personal distress, were combined to form a new factor. The 18-item empathy subscale of the C-IRI demonstrated good internal consistency (Cronbach's $\alpha = .68$), test-retest reliability (Pearson's $r = .68$) and the fit statistics (GFI = .87, AGFI = .86, RMSEA = .06, CFI = .69) when used with Chinese adolescent samples (Siu & Shek, 2005). This is the best measure available in Chinese to measure interpersonal reactivity, and it is considered to be an instrument for prosocial moral reasoning determination having convergent validity.

Adolescent Behavior Questionnaire (ABQ). Prosocial behavior was measured by the Prosocial Behavior (PB) score of the ABQ of Ma (1988). It is administered in the form of a self-completed questionnaire, and adolescents were asked to report the frequency of 19 behaviors performed in the past year on a 7-point Likert scale (1 = none, 2 = 1-2 times, 3 = 3-4 times, 4 = 5-6 times, 5 = 7-8 times, 6 = 9-10 times, and 7 = more than 10 times). The items were presented in random order and categorized under eight subscales which include: 1) cognitive and academic performance; 2) psychosexual activities; 3) antisocial acts in school; 4) antisocial acts in one's family; 5) antisocial acts in other settings; 6) aggression; 7) normative acts; and 8) altruistic acts. The first six subscale scores were aggregated as a delinquent behavior score, while the last two

subscale scores consist of 19 items that formed a prosocial behavior score. The “delinquent behavior” score measured the frequency of deviant or socially undesirable acts, and a high score indicated a high frequency of delinquent acts performed during the past year. On the contrary, the prosocial behavior score measured the frequency of altruistic and normative acts. A high prosocial behavior score indicated a high frequency of prosocial acts performed over the past year.

The ABQ had good internal consistency, with Cronbach’s α ranging from .80 (normative acts) to .90 (altruistic acts) and was found to be correlated positively with the altruistic orientation score (Ma & Leung, 1995; Ma, et al., 1996). In assessing the criterion-related validity, the 19-question prosocial behavior score of the ABQ measured prosocial actions of adolescents at home, at school, with peers, volunteering and providing help to strangers. This instrument was used as a criterion-related instrument in prosocial behavior determination.

4.1.4 Procedures for Validating the Chinese PROM

Translation. The original English version of the PROM was translated into Chinese version by a professional translator. A group of experts in education, social work, clinical psychology and education in the development of young people were invited to form a

panel to review the Chinese PROM to enhance the understanding and comprehension of the language used in the instrument, and specifically to note if the language used was appropriate for young people. Experts used a self-completed questionnaire to note the reading level of the Chinese PROM to assess if it is appropriate for young people (aged 12 to 16). Regarding the clarity of the presentation of the scenarios, a 5-point Likert rating scale (1 = very unclear, 2 = unclear, 3 = fairly clear, 4 = clear, 5 = very clear) was used to see whether or not the wording and phrasing were concise and clearly presented. Regarding young people being able to understand the scenarios, a 5-point Likert scale (1 = very difficult to understand, 2 = difficult to understand, 3 = able to easy to understand, 4 = easy to understand, 5 = very easy to understand) was used to see whether or not the wording and phrasing were easily understandable to adolescents. A mean score of 4.0 was selected as the cut-off score for a clear presentation of selected scenarios and good content that would be understood by young people. Justification was requested for items that were considered not so clear, and recommendations for modifications of items that needed revision were also requested.

Content Validity and Cultural Relevance. A group of experts in education, social work, clinical psychology and education in young people's development were invited to form a panel to examine the relevance of the test items for the construct measured in the Chinese PROM, the representativeness of the scenarios and scorings of a particular

content domain, and the relevance of response items to specific prosocial reasoning. A self-administered questionnaire was used to collect the opinions of the experts. Experts were informed of the definitions of the specific prosocial domains (namely hedonistic, needs-oriented, stereotypic, approval-oriented, and internalized), and related literature. They were requested to fill in the questionnaire with their views of the content validity of the instruments. Regarding relevance to prosocial reasoning and prosocial behavior development during adolescence, a 5-point rating scale (1 = irrelevant, 2 = unable to assess the relevance without item revision, or the item is in need of revision otherwise it would no longer be relevant, 3 = relevant but needs amendment, 4 = relevant, 5 = very relevant). A mean score of 4.0 was selected as the cut-off score for good content relevance. Justification was requested for items that were considered irrelevant, and recommendations for modifications of items that needed revision were also requested.

Regarding the representativeness of the items to different scoring domains, a dichotomous measure “Agree” versus “Disagree” was used to evaluate how far these five scenarios cover the facets of the five different types of prosocial reasoning in adolescents. If the experts felt the aspects were under-presented or they chose “Disagree”, they then were asked for recommendations. An open-ended question was used to examine how representative the scenarios were overall in covering the facets of the targeted constructs of prosocial reasoning.

Reliability. A convenience sample of 50 adolescents aged between 12 and 16 was recruited to participate in testing the test-retest reliability of the scale. All participants were given information and a briefing about the purpose of the study (based on a research information sheet) by class teachers. All participants who were willing to participate in the study were requested to sign a consent form for voluntarily participating in the study. They were then requested to complete the self-administered questionnaires. After one week, the same group of participants was invited to fill in the questionnaire again. The results of the two equivalent tests were collected and analysed. The test-retest reliability (ICC) as well as the Cronbach's alpha (α) were calculated to estimate the test-retest reliability and internal consistency of the scale respectively. These data were then compared with the original English versions of these instruments.

Convergent validity. A convenience sample of about 50 adolescents aged between 12 and 16 was recruited to participate in assessing the convergent validity of the instrument. They were requested to complete self-administered questionnaires that consisted of the proposed Chinese PROM and the C-IRI (Siu & Shek, 2005) and some questions regarding demographic information. All participants were given information about the study and a briefing about its purpose (based on a research information sheet) by their class teachers. All participants who were willing to participate in the study were

requested to sign a consent form for voluntarily participating in the study. They were requested to complete the questionnaires in a self-administered format.

Criterion-related validity. A convenience sample of 533 participants aged between 12 and 18 was recruited. They were requested to complete self-administered questionnaires which consisted of the proposed Chinese PROM, the Adolescent Behavior Questionnaire (ABQ), and some questions asking for demographic information. All who were willing to participate in the study were requested to sign a consent form for voluntarily participating in the study. They were requested to complete the questionnaires in a self-administered format.

4.2 Validation of the Chinese AHM and the Chinese PHM

4.2.1 Objectives

To examine content validity (content relevance and representativeness) and the reliability of the Chinese AHM and Chinese PHM

4.2.2 Participants

A convenience sample of 50 young people in mid-to late adolescence was recruited from 5 secondary schools. The ages of the participants ranged from 12 to 18 years old (*Mean* = 13.2, *SD* = 1.1), but 68% were between 13 and 16 years old. There were more females (*n* = 34, 69.3%) than males (*n* = 16, 30.7%) in the sample. They were requested to complete self-administered questionnaires that consisted of the proposed Chinese AHM, the Chinese PHM and some questions asking for demographic information. The results were collected and analysed to evaluate the content validity of the Chinese AHM and Chinese PHM.

4.2.3 Instruments

Helping intention. The Chinese Adolescent Helping Measures (Chinese AHM) originated from the Adolescent Spontaneous Helping Measures (Bartel, 2006). It assesses the intention to help in past incidents of helping as well as the adolescents' anticipated future likelihood of engaging in various helping acts involving three groups of people: friends, non-friends, and strangers. Friends were described as "peers who are close to you and with whom you spend most of your time. They are people you know, like, and trust" (Bartel, 2006. p.14-18). Non-friends were described as "peers you do not consider friends but who are also not strangers. Adolescents may have positive, neutral, or even negative feelings about them. This category includes peers you know who are not considered as

friends.” Finally, strangers were described as “everyone whom you have never seen before.” The spontaneous helping measure presented a list of helping behaviors (e.g., picking up something that a friend/non-friend/stranger has dropped) and first asked participants to circle “yes” or “no” to indicate whether or not they have ever helped someone in that target class in the way described. Then the adolescents were asked to indicate on a 7-point Likert scale, the likelihood that they would indeed help in that situation. Helping scenarios were written such that interchanging the potential target of the help (i.e., friends, non-friends and strangers) in each scenario was possible.

Parental influence. The Chinese Parental Helping Measures (Chinese PHM) originated from the Modified Parent Helping Measures (Bartel, 2006). It assesses parental influence on their past helping as well as their anticipated future likelihood of engaging in various helping acts with two groups of people, namely a group of friends and family, and a group of strangers. In the instructions to the adolescent participants, friends and family were described as “relatives and friends who are close to you and with whom you spend most of your time. They are people you know, like, and trust” (Bartel, 2006. p.14-18). Strangers were described as “everyone whom you have never seen before.” The helping measure presented a list of helping behaviors (e.g., pick up something that a relative and friend /stranger has dropped) and asked participants first to circle “yes” or “no” to indicate whether or not they have ever helped someone in that

target group of people in the way described. Then, the adolescents were asked to rate, on a 7-point Likert scale, the likelihood that they would indeed help in that situation.

Helping scenarios were written such that interchanging the potential target of the help (i.e., relatives and friends, strangers) in each scenario was possible. This measure revealed how young adolescents perceived their parents influence regarding offering help to others.

4.2.4 Procedures for the Validation of the Chinese AHM and the Chinese PHM

Translation. The original English version of the AHM and PHM were translated in to Chinese by a professional translator. A group of experts in education and the social development of adolescents were invited to form a panel to review the Chinese AHM and PHM, to enhance the comprehension and understanding of the language used in the instrument; specifically to note if the language used was appropriate for young people. Experts used a self-completed questionnaire to note the reading level of the Chinese AHM and the Chinese PHM to assess if it is appropriate for young people (aged 12 to 16) to fill. Regarding the clarity of the presentation in both the Chinese AHM and Chinese PHM, a 5-point Likert rating scale (1 = very unclear, 2 = unclear, 3 = fairly clear, 4 = clear, 5 = very clear) was used to see whether or not the wording and phrasing were concise and clearly presented. Regarding the understanding of the scenarios by young

people, a 5-point Likert scale (1 = very difficult to understand, 2 = difficult to understand, 3 = able to understand, 4 = easy to understand, 5 = very easy to understand) was used to see whether the wording and phrasing could be easily understood by adolescents. A mean score of 4.0 was selected as the cut-off score for a clear presentation and good content understandability. Justification was requested for items that were considered to be not so clear, and recommendations for modifying items that needed revision were also requested.

Content validity and cultural relevance. The experts on this panel were requested to examine the relevance of the test items to the construct measured in the Chinese AHM and the Chinese PHM, the representativeness of the items, and the relevance of the responses to the items measuring the helping intention in the Chinese AHM and parental influence in the PHM. The experts were requested to use a five-point scale (from “strongly disagree” to “strongly agree”) on a self-completed questionnaire to rate how far the items were relevant to testing the helping intention in the Chinese AHM and parental influence in the Chinese PHM. The experts were informed of the definitions of “friends”, “non-friends” and “strangers” in the AHM, and “family and relatives” and “strangers” in the PHM. They were requested to fill in the questionnaire with their views concerning the content validity of the instruments. Regarding the relevance of the test items to the construct, a 5-point rating scale (from 1 to 5) (1 = irrelevant, 2 = the item is

in need of revision otherwise it would no longer be relevant, 3 = relevant but needs amendment, 4 = relevant, 5 = very relevant) was used in measuring how far each scenario is relevant to the helping intention as presented in the Chinese AHM, and parental influence as in the Chinese PHM.

Regarding the representativeness of items to different scoring domains, a dichotomous measure consisting of “Agree” versus “Disagree” was used to evaluate it. The experts were asked for recommendations if the experts thought some aspects were under-presented or if they chose “Disagree”. An open-ended question was used to examine the overall representativeness of the items covering the facets of the targeted constructs of the helping intention as presented in the AHM, and parental influence as in the PHM.

Reliability. A convenience sample of adolescents aged between 12 and 16 was recruited to participate in a test of the test-retest reliability of both the Chinese AHM and Chinese PHM. Total 25 participants were recruited. They were requested to complete the self-administered questionnaires. All participants were given information about the study and a briefing about its purpose (based on a research information sheet) by their class teachers. All who were willing to participate in the study were requested to sign a volunteer consent form for participating in the study. They were then requested to

complete the self-administered questionnaires. After one week, the same group of participants was invited to fill in the questionnaire once more. The results of the two equivalent tests were collected and analysed. The test-retest reliability (ICC) as well as Cronbach's alpha (α) were calculated to estimate the test-retest reliability and internal consistency of the scale respectively.

4.3 Main study

The main study has two phases. Phase 1 aims to describe the nature of prosocial behavior and to examine its correlates. Phase 2 study aims to explore if cognitive and social predictors could predict the prosocial behavior of Chinese adolescents in Hong Kong.

4.3.1 First Phase of the Main Study

The objectives of this first phase of the study are to describe the prosocial behavior of the participants, and to examine gender differences in prosocial behavior and its correlates, including prosocial norms, pragmatic values, empathy, and prosocial reasoning.

Moreover, the study is intended to identify key predictors of prosocial behavior among adolescents.

4.3.1.1 Participants

A group of high school students (Secondary 4 to 6) represented their school by attending a joint-school mass event called “The Teen Talk”, which was organized by the Hong Kong Law Society. This event, titled “Love Yourself, Love Others”, aimed to engage young people to discuss their own core values as well as those of society in a one day seminar. Moreover, the event attempted to increase the participants’ understanding of legal and social issues.

4.3.1.2 Instruments

In the first phase of the main study, five instruments were used. These five instruments were combined together to form a questionnaire with five sections, and with an additional section about demographic information was also added into the questionnaire.

Prosocial behavior. The Adolescent Behavior Questionnaire (ABQ) is a generic Chinese instrument designed for measuring the prosocial and antisocial behavior of adolescents (Ma, 1998). This is the independent variable of this phase of the study.

Prosocial reasoning. The Chinese Prosocial Reasoning Objective Measure (Chinese

PROM) was used to assess prosocial moral reasoning in young people (Lai et al., 2012).

Prosocial norms. The three items, which were taken from the Chinese Youth Positive Development Scale (CYPDS), measure how far young people are willing to provide help to the needy, to participate in volunteer work, and to follow school rules. The reliability and validity of the CYPDS has been demonstrated in previous validation studies. The findings showed that the prosocial norm subscales possess acceptable internal consistency (Cronbach's $\alpha = .75$) (Shek, Siu, & Lee, 2007).

Pragmatic values. These items were used in a youth opinion poll titled "Young People's Outlook on Life". The items asked respondents to rate how far they agree with 8 pragmatic values in local culture, e.g. "money can purchase happiness", and "a person must work very hard in order to be successful". Using the data collected in this study, we conducted a factor analysis of the items, and identified two stable factors which explained 47.51% of the total variance. The first factor has two items (factor loadings ranging from .62 to .78) and focuses on the intention of abiding to the law. The second factor comprises 7 items (factors loadings ranging from .53 to .69) which focus on values reflecting a materialistic and "smart" mentality – pragmatic values. The second factor (7 items) was used in this study to indicate how far a young person agrees with pragmatic values.

Empathy. The 28-item Chinese Interpersonal Reactivity Index (C-IRI) is a self-reported questionnaire consisting of four 7-item subscales, including 4 items of Fantasy (FS), 11 items of Empathy (E), and 7 items of Personal Distress (PD).

4.3.1.3 Procedures for the First Phase of the Main Study

Ethical approval for this study was obtained beforehand from the Departmental Research Committee of The Hong Kong Polytechnic University. After agreement had been obtained, the schools which had participated in the Teen Talk event helped to distribute the questionnaires, invitation letters, and consent forms to their students. This group of secondary students participated in a cross-sectional survey which requested them to report their antisocial and prosocial behavior, how far they agree with prosocial norms or pragmatic values, and measures of their moral reasoning and empathy. They responded to a questionnaire containing measures of antisocial and prosocial behavior, prosocial norms, pragmatic values, moral reasoning and empathy. All potential participants were given information and a briefing about the purpose of the study by class teachers. All who are willing to participate in this study were requested to sign a form consenting to voluntarily participation in the study. The schools sent the completed questionnaires and consent forms back to the researchers.

4.3.2 Second Phase of the Main Study

With the findings and support from the first phase, in this second phase of the study, we adopted the human ecological perspective (Bronfenbrenner, 1995) as the study framework. The study postulated that cognitive factors, (empathy, moral reasoning) as part of individual interpersonal competence and social influence from peers, parents, and school, could contribute to the development of prosocial behavior (Law & Shek 2009; Lerner, 2002;).

This second phase of the study aimed to explore if cognitive and social predictors could predict the prosocial behavior of Chinese adolescents in Hong Kong. First, the study used the human ecological model to explore both cognitive and social predictors of prosocial behavior, as previous studies often only examined either individual or social influence factors regarding prosocial development literature. Few studies compared the relative importance of cognitive factors and social influence on prosocial behavior literature. In a collectivist culture society like Chinese, social influence could have a more significant impact on prosocial behavior than individual choice. It is perhaps more important to adhere to social norms and moral expectations for helping and harmonious relationships, than to express one's compassion and empathy through prosocial acts.

Moreover, an interpersonal reactivity measurement was used to examine the relationship between empathy-related responses and prosocial behavior.

Second, this study recruited a “prosocial sample” for study, i.e. a group of adolescents who participate in volunteer activities or social service regularly. This addresses the common methodology issue of low frequency and a highly skewed distribution of prosocial behavior in adolescent samples, which is pervasive in studies of prosocial behavior (Ma, 2003). By using a prosocial sample in this study, we could expect a certain level of prosocial behavior in the respondents and it would be more feasible to identify the predictors by regression analyses. As targeted samples were prosocial subjects who had been participating in social service regularly, the parameter of pragmatic values was not too crucial for this group of subjects. Moreover, this phase of the study aimed at examining the underlying reasons for their regular and long term service, which were more confined to either individual cognitive emotional or social influences, thus, the pragmatic value was not the highest priority of our study during this phase.

Third, previous local studies showed that females generally engaged in more prosocial activities than did males. Some authors suggested that adolescent females are more prosocial than males because of their stronger prosocial values (Bartel & Barnett,

2000). Gender differences involving in the prediction of prosocial behavior still await further exploration.

Last, this study could address the scarcity of research on prosocial development in Chinese population. Traditional Chinese culture emphasizes teaching of prosocial norms and modeling of prosocial behavior from parents (Fung, 1999; Fung et al., 2003; Wu, 1996). Early childhood disciplines are also expected to teach children to pay attention to integrity, helping attitude, and moral reasoning (Chao, 2001). Chinese children are expected to learn to love family, respect seniors and teachers, build harmonious relationships, and care for the needy. It would be of interest if the determinants of prosocial behavior in Chinese population are different from other cultures.

4.3.2.1 Objectives

The objective of this phase of the study was to identify the predictors of helping intentions and prosocial behavior from a number of variables indicating cognitive and social influence. The individual cognitive variables of empathy and prosocial reasoning, the social variables of peer, school, and parental influence were hypothesized to predict helping intentions and prosocial behavior. The second objective of this study was to examine if there is a gender difference in the predictors of helping intentions and

prosocial behavior.

4.3.2.3 Participants

A convenience sampling strategy was used to recruit adolescents for the present study. A sample of secondary students with prosocial characteristics was recruited through social services and volunteer organizations. Parental consent was sought by means of the researcher sending letters to parents upon the request of school principals and the center in-charge. Some schools issued additional consent letters to parents. The participants fulfilled several selection criteria: 1) Aged between 12 and 16 years old, 2) Are full-time secondary school students, 3) Are ethnic Chinese who can read and understand Chinese, 4) Have been participating in at least one volunteer activity regularly (at least biweekly) outside school hours. Adolescents with non-Chinese parents were excluded because the cultural influence on prosocial behavior of adolescents is not the main focus of the present study. Including adolescents with non-Chinese parents might complicate the findings of the present study. The participants will not form a representative sample of adolescents in Hong Kong, but we believe the results will still highlight some key developmental needs of adolescents.

For every session of data collection, the researcher conducted a short briefing on the general aims and the rationale of the study. Students participated on a voluntary basis. Participation or nonparticipation would not lead to any benefits or sanctions. They were informed that the study was anonymous and the researcher would handle the questionnaires and data in the strictest confidence. The investigator had considered and resolved the ethical issues in all components of the research process i.e. in the

development of the research problem statement and the research questions, in data collection, analysis and reporting as suggested by Creswell (2003). In particular, as suggested by Neuman (2003), the researcher made every possible effort to avoid harming any of the participants physically, psychologically, legally, financially or professionally.

A total of 580 valid questionnaires were returned. Among the participants, there were 172 (29.5%) males and 408 females (70.5%). The mean age of the respondents was 14.11 years ($SD = 1.22$). The majority ($n = 356$, 61.4%) were junior secondary students and the rest ($n = 224$, 38.6%) were senior secondary students. A large proportion of the participants regarded their conduct as excellent ($n = 121$, 21%), good ($n = 295$, 51%), or fine ($n = 164$, 25.3%).

Most of the participants were either a single child (23.6%) or had one sibling (53.4%), and their parents were married and living together (83.8%). The median household size was four. The median education level of both father and mother was senior high school (Secondary 4 to 5). Most participants perceived their family life as satisfactory (41.2%) or very satisfactory (28%), 28% reported it was neutral and the remaining 3% reported it was unsatisfactory. They rated their school life as satisfactory (48.6%) or very satisfactory (24.2%), 20% reported neutral and the remaining 7.2% reported it as unsatisfactory.

4.3.2.4 Instruments

The research questionnaire contained a total of 142 items and incorporated a number of standardized instruments to measure the key variables. The instruments used for the second phase of the main study are shown in Table 4.1. In Phase 2 of the main study, the Prosocial Behavior (PB) score was considered the primary outcome. It was revealed from the number of normative and altruistic acts that an adolescent had participated in during the past year as measured by the Chinese ABQ. The helping intention of the adolescents was measured by the Chinese AHM and considered to be the second outcome. There are five predictors of prosocial behavior, which include three predictors of social influence: 1) peer influence as measured by the PIQ; 2) school influence by recognition of positive behavior, prosocial involvement, and prosocial norms as measured by the scores on the CPYDS; and 3) parental influence as measured by the PHM. Moreover, there were two cognitive predictors that included, 1) prosocial reasoning measured by the Chinese PROM, and 2) empathy measured by the C-IRI. There were a total of five predictors and two major outcomes.

Sample size estimation A power analysis for a multiple regression test was conducted by using G.Power (Version 3.1.5). A sample size of 185 is sufficient to achieve

95% of the power needed to detect an R-Squared of 0.05 attributed to 5 independent variable(s) using an F-Test with a significance level (alpha) of .05. To ensure an acceptable drop-out rate tolerance and subjects' error in filling in the questionnaire, the main study needed to recruit about 220 subjects.

Prosocial behavior. The Adolescent Behavior Questionnaire (ABQ) asked respondents to use a 7-point Likert scale to report on the frequency of their altruistic, normative (prosocial) and antisocial acts, at home and in school, as well as towards peers and strangers over the past year (Ma, 1988). A section of the ABQ (19 items), which measures prosocial action at home, at school, and in volunteering and providing help to strangers, was adopted.

Helping intention. The Chinese Adolescent Helping measure was used to measure the "intentions" of adolescents, and this was considered to be the second indicator of prosocial behavior in this study.

Prosocial reasoning. The Chinese Prosocial Reasoning Objective Measures (C-PROM) (Lai et al., 2012) was used to assess the moral reasoning underlying the prosocial behavior.

Empathy. The 28-item Chinese Interpersonal Reactivity Index (C-IRI) is a self-reported questionnaire consisting of four subscales, including four items of Fantasy, 11 items of Empathy, and seven items of Personal Distress. This was used to examine the relationship between empathy-related responses and prosocial behavior.

Peer influence. The Peer Interaction Questionnaire (PIQ) was used to measure a subject adolescent's perception of the influence of his/her best friend on his/her prosocial and delinquent behavior, as well as the subject's perception of the number of prosocial and delinquent acts performed by his/her best friend over the past year (Ma, 1988).

School influence. Three subscales of the Chinese Positive Youth Development Scale (CPYDS) were used to measure school influence on prosocial behavior (Shek et al., 2007). The subscales included four items on the recognition of positive behavior, five items on prosocial involvement, and five items on prosocial norms. The findings showed that these subscales possess acceptable internal consistency: "Prosocial Norms" (Cronbach's $\alpha = .78$), "Prosocial Involvement" (Cronbach's $\alpha = .75$) and "Recognition of Positive Behavior" (Cronbach's $\alpha = .91$) (Shek et al., 2007).

Parental influence. The Chinese Parent Helping Measure (PHM) was used to study parental influence on prosocial behavior (Bartel, 2006).

Socio-demographic information. In the last section of the questionnaire, the participants were requested to provide information on their socio-demographic background, like family structure, the educational level of their parents, the type(s) of prosocial behavior in which they had participated or were participating, and a reflection of their experience during their participation in prosocial activities over the past two years.

Table 4.1

Instruments Used for the Second Phase of the Main Study

<u>Study Variable</u>	<u>Instrument</u>	<u>Structure and Response Format</u>
Prosocial Behavior	Adolescent Behavior Questionnaire (ABQ) (Ma, 1988)	The Prosocial Behavior (PB) scale was used to measure the frequency of prosocial acts that adolescents' engaged in at home, at school, with peers, and with strangers. The ABQ had good reliability as the Cronbach's α ranged from .80 to .90 (Ma, 1988).
Helping Intention	Chinese Adolescent Helping Measure (Chinese AHM)	A validated Chinese version of the modified Adolescent Spontaneous Helping Measure (Bartel, 2006) was used. Helping scenarios involved assessing a potential target for the help (i.e., friend, non-friend, and peers-stranger) by adolescents. Validation study as mentioned in 4.2.3
Pragmatic Values	Items used in a youth opinion poll titled "Young People's Outlook on Life"	Seven items (factor loadings ranging from .53 to .69) which focused on pragmatic values.

<u>Study Variable</u>	<u>Instrument</u>	<u>Structure and Response Format</u>
School Influence	The Chinese Positive Youth Development Scale (CPYDS) (Shek, Siu & Lee, 2007)	<p>These items indicate how far the respondent identifies with pragmatic values (The Hong Kong Federation of Youth Groups, 2000).</p> <p>Positive Behavior (PB), Recognition of Positive Behavior (RPB), Prosocial Involvement (PI), and Prosocial Norms (PN) of the CYPD scale were used to measure the prosocial behavior of adolescents. These subscales possessed acceptable internal consistency: prosocial norms (Cronbach's $\alpha = .78$), recognition of positive behavior (Cronbach's $\alpha = .75$) and prosocial involvement (Cronbach's $\alpha = .91$) (Shek, Siu & Lee, 2007). Three items were taken from the CPYDS to measure willingness to participate in volunteer work and follow school rules.</p>
Peer Influence	Peer Interaction Questionnaire (PIQ) (Ma, 2008)	<p>The PI (Positive Influence) indices measure the positive influence of the subject's best friend on his/her behavior. The PPB (Peer's Prosocial Behavior) index was used in the main study as it assessed the prosocial behavior of the subject's best friend. It had acceptable internal consistency reliability (Cronbach's $\alpha = .70$) (Ma, 2008).</p>

<u>Study Variable</u>	<u>Instrument</u>	<u>Structure and Response Format</u>
Prosocial reasoning	Chinese Prosocial Reasoning Objective Measures (Chinese PROM) (Lai, Siu, Shek, & Chan, 2012).	The validated Chinese measure was used for the main study. Validation of the study is mentioned in 4.1.3.
Empathy	The Chinese Interpersonal Reactivity Index (C-IRI) (Siu & Shek, 2005).	This empathy-related construct was conceptualized as a construct convergent with prosocial reasoning and was used in the main study. There were good internal consistency (Cronbach's $\alpha = .73$) and test-retest reliability (Pearson r was between .68 and .83). (Siu & Shek, 2005)
Parental Influence	Chinese Parent Helping Measure (Chinese PHM)	This measures how adolescents perceived their parents regarding their parents performing helping acts. It is to assess how they perceive their parents and potential targets in helping scenarios (i.e., friends, non-friends, and strangers). Validation study as mentioned in 4.2.3

4.3.2.5 Procedures for the Second Phase of the Main Study

All potential participants met up in eight different districts in Hong Kong such as in their schools or in their social service organizations. They were given a briefing about the study and its purpose by the researcher. All subjects participated on a voluntary basis and signed a form stating their consent to participate in the study. The participants completed

the questionnaire under supervision of the researcher. Participants had 20 minutes to complete the questionnaire. The completed questionnaires were placed in a collection box. They were told that the study was anonymous and the researcher would handle the questionnaires and data in the strictest confidence.

4.3.2.6 Plan of the Data Analysis

Descriptive statistics were performed with the use of variables of age, gender, academic and social backgrounds. The collected data were used to perform group comparison statistics like a student's *t*-test or an ANOVA. Moreover, correlation analysis and regression analysis were used to identify the key predictors of prosocial behavior. Multiple linear regressions were performed where the cognitive factors (C-IRI and Chinese PROM) and social influence (PIQ, PHM and CPYDS) were used as predictors, and the CABQ as the primary outcome and the AHM as the secondary outcome variable.

Chapter 5. Results of the Validation Study of Instruments

This chapter reports the results of the validation study of the Prosocial Reasoning Measure (PROM) (Carlo, Eisenberg, & Knight, 1992), the Adolescents Spontaneous Helping Measures (ASHM) (Bartel, 2006) and the Parent Helping Measures (PHM) (Bartel, 2006). The Chinese versions of these instruments were prepared for the main study and validation data were collected during this stage of the study.

The research data was checked to verify coding and data entry. Data screening was conducted based upon the screening checklist by Tabachnick & Fidell (2007) as shown in Appendix 7. Determination of the range of values, central tendency measures, and simple frequency counts identified cases that did not fit (or are not possible) with the other observations. The ratio of the skewness or the kurtosis statistic to its standard error (parameter divided by standard error) should not be less than negative two or greater than positive two (SPSS, 1999). It is important to note that if the sample size is fairly large (200 or more cases), then the question of normality is less relevant because the central limit theorem states that the sample statistics will be good estimates even if the error term is not normally distributed (Allison, 1999). To handle missing data when the retention of cases with missing data is essential, the method of marginal mean substitution was used (Tabachnick & Fidell, 2007).

5.1 Validation of the Chinese PROM

The validation study covered three parts. The first part on content validity was covered by a group of experts forming a panel and reviewing the psychometric properties of the Chinese PROM. The second part of validation study was the reliability testing of the Chinese PROM, and the third part was reported the convergent validity and criterion-related validity of the Chinese PROM.

5.1.1 Test of Content Validity

A total of 11 content experts were invited to comment on the content validity, cultural relevance, and reading level of the translated Chinese PROM. On the whole, the experts agreed that the contents of the five test scenarios were relevant to the assessment of prosocial reasoning (mean rating of 4.46 out of 5), and were representative for testing prosocial reasoning (mean rating of 4.49 out of 5). However, the experts found that the reading level and cultural relevance of Scenario 2 (choosing to get an injured child's parents versus going to a friend's party) were barely satisfactory (mean ratings were 3.73 and 3.76 respectively). The experts suggested that most adolescents in Hong Kong have mobile phones, and the young person in Scenario 2 could seek help by using his/her mobile. Thus, the story was changed from "going to her home and telling her parents to come for help" to "staying with her till her parent comes". The experts also gave a

number of suggestions to further improve the presentation of all the test scenarios, including: 1) Use of terms that can be more easily understood by young people, 2) Improvement of the quality of translation, 3) Simplification of sentences, 4) Clarification of meaning, and 5) Amend a few grammatical errors. Some revisions were made according to these suggestions; for details please refer to Appendix 1.

5.1.2 Reliability Testing

A sample of 50 participants (25 males and 25 females) was recruited for determining reliability and convergent validity. Their mean age was 13.5 ($SD = 1.43$), and they were Secondary 1 to 5 students. Around half ($n = 24$) were in junior secondary school, and the other half ($n = 26$) were in senior secondary school. Selected through convenient sampling, they came from 10 different schools.

For the study of criterion-related validity, a sample of 533 young people in mid-to-late adolescence was recruited from 36 secondary schools. They had represented their school at a joint-school mass event called “the Teen Talk”, which was organized by the Hong Kong Law Society. The age of the participants ranged from 14 to 18 years old ($Mean = 16.2$, $SD = 1.1$) and 79% of them ($n = 40$) were between 15 and 17 years old. There were more females ($n = 360$, 67.7%) than males ($n = 173$, 32.3 %) in the sample. Most of the participants were studying Secondary 4 ($n = 278$, 52.2%) or Secondary 5 (n

= 225, 42.3%), and a few were studying Secondary 6 ($n = 30$, 5.4%).

To examine the psychometric properties of the Chinese PROM, reliability testing was conducted. The internal consistency of the PROM subscales and the weighted total ranged from .74 to .93 (Cronbach's α), while the test-retest reliability ranged from .75 to .88 (ICCs) (Table 5.1). The reliability estimates are regarded as ranging from "acceptable" to "satisfactory". The reliability estimates were much higher than those reported in the study by Carlo and his colleagues in 1992.

Table 5.1

Reliability study of the Chinese PROM

Chinese PROM scale and subscales	Test-retest	Internal Consistency	
	(ICC)	(Cronbach's α)	
	This study ($n = 50$)	This study ($n = 50$)	Carlo (1992) study ($n = 27$)
Hedonistic	.83	.91	.72
Needs-oriented	.88	.93	.56
Approval-oriented	.75	.74	.78
Stereotypic	.81	.89	.67
Internalized	.88	.93	.70
PROM weighted total	.88	.89	#

Note. # not reported.

5.1.3 Convergent Validity

The convergent validity was studied by examining the relationship between the PROM

scores and the C-IRI, and it is expected that empathy-related responses (measured by the C-IRI) will have positive correlations with prosocial reasoning. The results showed that the PROM scales and subscales were correlated significantly with the C-IRI subscales (Table 5.2).

The hedonistic and approval-oriented subscales in the PROM had a different pattern of correlations from those of the other three subscales. Both the hedonistic and approval-oriented subscales had significantly positive correlations with fantasy ($r_{\text{hedonistic}} = .55$ with $p < .05$, $r_{\text{approval-oriented}} = .61$ with $p < .05$) and personal distress subscales ($r_{\text{hedonistic}} = .61$ with $p < .05$, $r_{\text{approval-oriented}} = .68$ with $p < .05$). The effect size was Cohen's $r = 0.5$, which was large. The patterns of correlation between these two subscales were opposite to those between the needs-oriented, stereotypic, and internalized subscales with the C-IRI subscales. These three subscales had significant negative correlations with fantasy and the personal subscales of the C-IRI, and significant positive correlations with the empathy subscale of the C-IRI. The overall weighted PROM score had a significant negative correlation with the fantasy ($r = -.77$ with $p < .05$) and personal distress ($r = -.80$ with $p < .05$) subscales of the C-IRI and a significant positive correlation with the empathy subscales ($r = .92$ with $p < .05$).

Table 5.2

Correlation between the Chinese PROM and the C-IRI (measure of empathy and related constructs) (n = 50)

Chinese PROM scales and Subscales	Chinese C-IRI subscales (Pearson <i>r</i>)		
	Fantasy Scale	Empathy Scale	Personal Distress Scale
Hedonistic	.55 **	-.78 **	.61 **
Needs-oriented	-.71 **	.72 **	-.72 **
Approval-oriented	.68 **	-.76 **	.69 **
Stereotypic	-.67 **	.77 **	-.65 **
Internalized	-.78 **	.92 **	-.82 **
PROM weighted overall	-.77 **	.92 **	-.80 **

Note. * $p < .05$, ** $p < .01$.

5.1.4 Criterion-related Validity

On the whole, the PROM scores were not strongly related to antisocial, prosocial or adolescent behavior (Table 5.3). Among the five subscales, only the hedonistic and internalized reasoning subscales showed low significant correlations with adolescent behavior.

Table 5.3

Correlation between Prosocial Moral Reasoning and Prosocial/Antisocial Behavior in Adolescents (N = 533)

Chinese PROM subscales and Weighted Overall	Antisocial Behavior	Pearson <i>r</i>	
		Prosocial Behavior	Adolescent Behavior
Hedonistic	.14**	-.10*	-.17**
Need-oriented	.05	.06	.04
Approval-oriented	-.09	-.04	.00
Stereotypic	-.06	.04	.07
Internalized	-.06	.07	.10*
Overall Weighted	-.05	.10*	.12*

*Note.** $p < .05$, ** $p < .01$.

The hedonistic reasoning subscale had a significant positive correlation with antisocial behavior ($r = .14, p < .01$), and negative correlations with prosocial behavior ($r = -.10, p < .05$) and adolescent behavior ($r = -.17, p < .01$). The internalized reasoning subscale had a low significant correlation with adolescent behavior ($r = .10, p < .05$). Overall, the weighted PROM score had significant correlations with prosocial behavior ($r = .10, p < .05$) and adolescent behavior ($r = .12, p < .05$). The effect size of the Cohen r is 0.1, which is low. Moreover, none of these six pairs of significant results have a Pearson r greater than .20 ($r > 3$), which should be the reference point of cut off (Nunnally & Bernstein, 1994). This means the results do not support criterion-related validity. Further validation and refinement of the criterion-related validity should be conducted in a

further study.

5.1.5 Gender Differences

A MANCOVA was conducted to examine gender differences in the PROM weighted total and subscales, with age as the covariate (Table 5.4). Data screening for missing data, normality and linearity was conducted. Multivariate test results showed that age was not a significant covariate, and there were no differences between males and females in the profile of the five PROM subscales. There were, however, significant differences in the hedonistic and needs-oriented reasoning subscales between males and females. Males had significantly higher hedonistic reasoning ($F = 13.06, p < .001$) than females. The effect size was partial $\eta^2 = .04$ and this effect size was moderate. Moreover, females had significantly higher needs-oriented reasoning ($F = 7.54, p < .01$) than males. The effect size was partial $\eta^2 = .02$. This effect size was small.

Table 5.4

Comparison of Prosocial Reasoning between Males and Females, with Age as the Covariate

Variables	Male ^a		Female ^a		<i>F</i>
	(n = 182)		(n = 379)		
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
Hedonistic	.176	.002	.168	.001	13.06***
Needs-oriented	.206	.002	.212	.001	7.54**
Approval-oriented	.183	.002	.184	.001	.49
Stereotypic	.219	.002	.220	.001	.00
Internalized	.216	.001	.216	.001	.08
PROM Overall Weighted	1.86	.004	1.86	.003	2.33

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

^a Estimated marginal means and standard errors were presented, adjusted for age effects.

5.1.6 Summary of Validity of Chinese PROM

A Chinese version of the PROM was developed in this study for measuring prosocial moral reasoning in young people. The expert panel reviewed the translated instrument and agreed that it had good content relevance and representativeness. The expert panel also identified some issues in the translation, presentation, and reading level of the test scenarios, and modifications were made according to the opinions of the experts. The Chinese PROM score was evenly weighted overall: All the subscales had “acceptable” to “very good” test-retest reliability, and the estimates of reliability were significantly better than those in studies of the original English version. The results supported the claim that

the Chinese PROM has good content validity and reliability.

The study of the convergent validity yielded mixed results. High levels of prosocial reasoning (with the higher overall weighted PROM score) were associated with high levels of empathy, but low levels of fantasy and personal distress. In particular, the correlation between empathy and the PROM overall weighted score was .92 ($p < .05$). The effect size shown by the Cohen r is .51, which is large. This implies that there is a strong association between empathy and prosocial reasoning. It is interesting to find that both hedonistic and approval-oriented reasoning were strongly and negatively associated with empathy while all other reasoning types had a positive correlation with empathy. This implies young persons with a high degree of hedonistic or approval-oriented reasoning are likely to have low empathy. Since the developmental theories postulated that empathy precedes the development of higher levels of prosocial reasoning (Eisenberg et al., 1991; Eisenberg et al., 1995; Hoffman, 1982), the results support the idea that hedonistic and approval-oriented reasoning are the less mature types of prosocial reasoning. Self-reflective types of moral reasoning are often elicited by the tendency to feel concern for others. The positive relationship between needs-oriented reasoning and empathy is not consistent with the theoretical expectations or empirical findings from western countries. Needs-oriented reasoning is also regarded as a less mature type of reasoning in the theories of prosocial development, but it could be

regarded as a socially desirable response to the needs of others in Chinese culture. On the other hand, undertaking prosocial behavior on account of the needs of a specific situation could be regarded as socially desirable in Chinese culture. In fact, a needs-oriented type of reasoning could exist with or without a genuine sense of empathy.

Personal distress is considered to be a primitive and self-focused empathic reaction (Hoffman, 1982). Our findings echoed previous findings that personal distress was negatively related to both stereotypic and internalized reasoning whilst it is positively related to approval-oriented reasoning (Eisenberg et al., 1991). Fantasy has a pattern of correlation with prosocial reasoning that is similar to that of personal distress. Fantasy could be a precursor to empathy, but it could be a barrier to apply empathy or moral reasoning if fantasy stays very strong in social interaction. It is therefore reasonable that fantasy has a negative correlation with the overall score for prosocial reasoning and positive correlations with hedonistic and approval-oriented reasoning. In general, the results indicate that higher levels of personal distress and fantasy are associated with lower levels of maturity in prosocial reasoning. It appears that personal distress and fantasy, as emotional and imaginative aspects of reacting to others, could be barriers to the application of prosocial reasoning.

The low correlations between PROM scores and measures of antisocial or prosocial

behavior did not provide strong support for the convergent validity of the PROM. The PROM overall weighted score had low but significant correlations with prosocial and overall adolescent behavior (a score of mean prosocial behavior minus antisocial behavior). Among the subscales, only hedonistic reasoning had a significant and low positive correlation with antisocial behavior, and low negative correlations with prosocial and overall adolescent behavior. Internalized reasoning had a low and significant correlation with overall adolescent behavior. The first implication of these results is that prosocial reasoning may have little influence on prosocial behavior. Adolescent prosocial behavior could be shaped by a wide range of family and social factors, as well as an adolescent's own development in interpersonal competence (Siu et al., 2006). Further research on predicting prosocial behavior may be needed to include social influence factors other than prosocial reasoning. The second implication is that the studies also showed that the proportions of the use of the five types of reasoning were quite similar (varying from .17 to .22) in this sample of secondary school students. There is a slightly higher proportion of scores (.21 to .22) for the needs-oriented, stereotypic, and internalized reasoning, but only slightly higher than hedonistic and approval-oriented reasoning (.17 to .18). Contrary to the expectations of theory of moral reasoning development, the more mature types of prosocial reasoning were not widely adopted by the participants in this late adolescence sample (Eisenberg et al., 1991; Hoffman, 1982). Further longitudinal studies of prosocial development will be needed to examine the

validity of the stage theory, i.e. if internalized reasoning generally increases among young people as they grow older.

The development of the Chinese PROM has enabled professionals and researchers to assess prosocial reasoning among young people in an objective manner. This study is also a useful addition to current literature on prosocial reasoning and development. First, it is one of the few studies that investigated the measurement of prosocial reasoning. The PROM was found to be a reliable measure of prosocial reasoning. Second, the study also explored how prosocial reasoning is related to convergent constructs of empathy-related constructs and prosocial behavior. However, the results only provide partial support for the validity of the PROM. The results are not consistent with studies conducted in Western cultures, and may point to differences in the conceptualization of what is prosocial among different cultures. Prosocial reasoning may also be not an important predictor of prosocial behavior in collectivist societies. The results indicate a need for further replication of the present study.

There are several limitations to this study. Firstly, it is worthy to address the effect of the use of non-random sampling and a small sample size on the validation study, specifically for the test-retest ($n = 50$), internal consistency ($n = 50$), and convergent validity ($n = 50$). Further sophisticated sampling strategies and a large sample size should

be employed, which is especially important in further construct validity testing.

Moreover, because of practical limitations, the test-retest interval in the reliability test was one week only. Any further study should try to use longer periods for the test-retest reliability, such as two to four weeks. Secondly, items for monitoring social desirability responses were not utilized in this study. The original full and brief versions include a sixth question in addition to the five items on prosocial reasoning for each test scenario.

The items were removed as many expert panel members regarded them to be unnecessary and confusing to potential respondents. However, we believe it is likely that social desirability can greatly influence participants' responses in a test of prosocial reasoning. Future studies should try to add these items of social desirability, to estimate how strongly respondents are trying to tell people they are prosocial and evaluate if it affects validity.

In summary, the results indicate that the Chinese PROM had good content validity and reliability. The quality of translation, cultural relevance, and reading level has been satisfactorily revised for use with adolescents. There is, however, partial support for the convergent validity of the Chinese PROM. The PROM scores had high positive correlations with empathy, and negative correlations with personal distress and fantasy. These results were consistent with theoretical deductions, although it is also a concern that empathy had a close-to-unity correlation with the PROM score in the small sample

study in Stage 1. The relationship between the PROM scores and prosocial behavior tends to be weak. It appears that there are many personal, family or social factors that are linked to prosocial behavior, and prosocial reasoning may only contribute to a small proportion of the variation in prosocial behavior among adolescents.

Despite the reported evidence of reliability and the validity of the PROM, there were some limitations to this validation study. Firstly, the Chinese PROM had been used with one set of sample subjects. A further assessment of the Chinese PROM's psychometric properties was needed. Moreover, the response bias on the 5-point rating scales suggested that further refinement of the PROM may be desirable. An examination of the construct validity of the Chinese PROM should be included in any further validation. Moreover, further validation by using discriminant validity and validation through the use of differences among known groups could further ensure the proper validity of this Chinese PROM. Nonetheless, the findings provided encouraging evidence regarding the use of the Chinese PROM with adolescents.

5.2 Validation of the Chinese AHM and the Chinese PHM

This section presents the results of the validation study of the Chinese Adolescent Helping Measures (Chinese AHM) and the Chinese Parental Helping Measures (Chinese

PHM), which are used in measuring the helping intention of adolescents and the parental influence on helping behavior in an adolescent respectively. In view of the practical restrictions on the time frame and resources, only the content validity and test-retest reliability could be tested within the period of this study. A test of the convergent validity did not be implemented.

5.2.1 Content Validity

An expert panel was formed to evaluate the content validity and cultural relevance of the measures. The six content experts, which included four males and two females, have professional backgrounds in either social work or education. All of them are working in the field of youth development. The experts were invited to judge whether they agreed that the translation of each item was accurate or not, by choosing “Agree” or “Disagree”. Qualitative comments for the modification of the translation were also requested if “Disagree” was chosen for that item.

On the whole, the experts agreed with the translated version of the two instruments. They agreed that the contents of the Chinese AHM and PHM were relevant to the assessment of the helping intention in adolescents by giving the AHM a mean rating of 4.51 out of 5, giving the representativeness of the content of the helping intention in the

AHM a mean rating of 4.25 out of 5. For the content pertaining to parental influence in the PHM, the content relevancy was rated 4.25 out of 5, and the content representing parental helping was rated 4.65 out of 5. The experts also gave a number of suggestions for further improving the presentation of the test scenarios, including: 1) Use of terms that can be more easily understood by young people, 2) Improvements in the quality of translation, 3) Simplification of sentences, 4) Clarification of meaning, and 5) Amendment on grammatical errors.

The results shown in Table 5.5 to Table 5.6 are the result of the mean scores of the “clarity of presentation of a scenario”, “understandability of the test scenarios by young people” or “relevance to helping of adolescents and their parents”. On the whole, the experts agreed that the scenarios in the AHM had proper clarity of presentation ($Mean = 4.62, SD = .65$), could be easily understood by adolescents ($Mean = 4.63, SD = .62$) and were relevant to measuring the helping intention ($Mean = 4.56, SD = .38$). Moreover, the experts agreed the scenarios in the PHM proper clarity of presentation ($Mean = 4.25, SD = .66$), could be easily understood by adolescents ($Mean = 4.83, SD = .65$) and were relevant to measures of parental influence ($Mean = 4.46, SD = .38$).

Table 5.5

Mean Scores of the Reading Level of the Chinese AHM (n =50)

Test Scenarios	Clarity of Presentation of the Scenario	Understandability of Scenario by Young People	Relevance to the Helping Intention in Adolescents
	Mean (SD)	Mean (SD)	Mean (SD)
1	4.73 (.25)	4.03 (.36)	4.49 (.34)
2	4.73 (.22)	4.76 (.16)	4.38 (.59)
3	4.47 (.35)	4.33 (.25)	4.45 (.35)
4	4.21 (.25)	4.44 (.54)	4.36 (.39)
5	4.09 (.39)	4.09 (.69)	4.42 (.51)
6	4.61 (.25)	4.43 (.36)	4.59 (.34)
7	4.83 (.12)	4.76 (.22)	4.38 (.39)
8	4.51 (.35)	4.53 (.25)	4.53 (.35)
9	4.48 (.25)	4.59 (.54)	4.59 (.39)
10	4.69 (.21)	4.39 (.49)	4.42 (.51)
11	4.73 (.25)	4.03 (.36)	4.49 (.34)
12	4.73 (.22)	4.76 (.16)	4.38 (.59)
13	4.47 (.35)	4.33 (.25)	4.45 (.35)
14	4.21 (.25)	4.44 (.54)	4.36 (.39)
15	4.09 (.39)	4.09 (.69)	4.42 (.51)
16	4.61 (.25)	4.43 (.36)	4.59 (.34)
17	4.83 (.12)	4.76 (.22)	4.38 (.39)
18	4.51 (.35)	4.53 (.25)	4.53 (.35)
19	4.48 (.25)	4.59 (.54)	4.59 (.39)
20	4.69 (.21)	4.39 (.49)	4.42 (.51)
21	4.61 (.12)	4.66 (.32)	4.52 (.39)
22	4.72 (.15)	4.38 (.55)	4.52 (.38)
23	4.38 (.55)	4.34 (.54)	4.49 (.32)
24	4.49 (.21)	4.38 (.49)	4.41 (.58)
Overall	4.62 (.19)	4.63 (.31)	4.56 (.35)

Table 5.6

Mean Scores of the Reading Level of the Chinese PHM (n=50)

Test Scenarios	Clarity of Presentation of Scenario	Understandability of Scenario by Young People	Relevance to the Helping Intention in Their Parents
	Mean (SD)	Mean (SD)	Mean (SD)
1	4.63 (.25)	4.23 (.26)	4.49 (.34)
2	4.53 (.22)	4.36 (.36)	4.38 (.59)
3	4.57 (.35)	4.53 (.25)	4.53 (.25)
4	4.82 (.15)	4.54 (.34)	4.59 (.54)
5	4.39 (.59)	4.59 (.29)	4.39 (.49)
6	4.56 (.25)	4.43 (.36)	4.66 (.32)
7	4.63 (.22)	4.78 (.21)	4.38 (.55)
8	4.62 (.25)	4.57 (.15)	4.34 (.54)
9	4.58 (.25)	4.51 (.09)	4.38 (.49)
10	4.69 (.21)	4.31 (.49)	4.42 (.51)
11	4.75 (.25)	4.33 (.36)	4.49 (.34)
12	4.78 (.20)	4.56 (.16)	4.38 (.59)
13	4.52 (.35)	4.44 (.25)	4.45 (.35)
14	4.21 (.25)	4.64 (.24)	4.36 (.39)
15	4.09 (.39)	4.19 (.69)	4.42 (.51)
16	4.61 (.25)	4.43 (.36)	4.59 (.34)
Overall	4.25 (.55)	4.83 (.11)	4.46 (.50)

5.2.2 Reliability of the Chinese AHM and Chinese PHM

Using a small sample of 25 participants, the test-retest reliability and the internal consistency of the Chinese AHM and PHM were estimated. A convenience sample of young people in mid-to-late adolescence was recruited from 5 secondary schools. The age of the participants ranged from 12 to 18 years old ($Mean = 13.2$, $SD = 1.1$), and a large proportion (68%) were between 13 and 16 years old. There were more females ($n =$

18) than males ($n = 7$) in the sample. All potential participants were given a briefing about the study and its purpose (based on a research information sheet) by class teachers. All participants (students) who were willing to participate in the study were requested to sign a consent form for volunteer participation in the study.

The internal consistency of the AHM subscales and the total score ranged from .74 to .93 (Cronbach's α), while the test-retest reliability ranged from .75 to .88 (ICCs) (Table 5.7). The reliability estimates are regarded as ranging from "acceptable" to "satisfactory". The internal consistency of the PHM subscales and the total score ranged from .74 to .91 (Cronbach's α), while the test-retest reliability ranged from .75 to .88 (ICCs) (Table 5.8). The reliability estimates are regarded as ranging from "acceptable" to "satisfactory".

Table 5.7

Reliability study of the Chinese AHM

Chinese AHM and subscales	Test-retest (ICC) ($n = 25$)	Internal Consistency (α) ($n = 50$)
Friends	.83	.91
Non-friends	.88	.93
Strangers	.75	.74
Chinese AHM total	.88	.89

Table 5.8

Reliability Study of the Chinese PHM

Chinese PHM and subscales	Test-retest (ICC) (<i>n</i> = 25)	Internal Consistency (α) (<i>n</i> = 50)
Friends & Family	.83	.91
Strangers	.75	.74
Chinese PHM total	.88	.89

5.2.3 Gender Comparison in the Chinese AHM and Chinese PHM

The Chinese AHM scores of males and females were compared, with age as a covariate (Table 5.9). Multivariate ANOVA results showed that age was not a significant covariate, and there were no differences in the subscales between males and females. There were, however, significant differences in their helping “friends” and “non-friends” between males and females. Males had a significantly higher helping intention towards “non-friends” ($F = 5.97, p < .01, \text{partial } \eta^2 = .04$) than females, and the effect size is moderate. Females had a significantly higher helping intention towards “friends” ($F = 3.54, p < .01, \text{partial } \eta^2 = .02$) than males, and the effect size is small (Table 5.9).

The Chinese PHM scores of males and females were compared, with age as a covariate (Table 5.10). Data screening was implemented and multivariate test results showed that age was not a significant covariate, and there were no differences in the

different subscales between males and females. There was no significant difference in their helping intention towards “friends and family” and “strangers” between males and females ($p > .05$) (Table 5.10).

Table 5.9

Comparison of the Helping Intention (Chinese AHM) between Males and Females, with Age as the Covariate

Variables	Male ^a		Female ^a		F
	(n = 25)		(n = 25)		
	M	SE	M	SE	
Friends	5.15	.87	5.67	.62	5.97**
Non-friends	4.20	.46	4.12	.36	3.54**
Strangers	3.96	.53	4.02	.53	.49

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

^a Estimated marginal means and standard errors were presented and adjusted for age effects.

Table 5.10

Comparison of Parental Influence (Chinese PHM) between Males and Females, with Age as the Covariate

Variables	Male ^a		Female ^a		F
	(n = 25)		(n = 25)		
	M	SE	M	SE	
Friends and Family	5.56	.87	5.62	.62	.52
Strangers	3.52	.53	3.76	.53	.49

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

^a Estimated marginal means and standard errors were presented, adjusted for age effects.

5.2.4. Discussion for the Validation Study of the Chinese AHM and Chinese PHM

The results indicate that the Chinese AHM and Chinese PHM had fair content validity and reliability. The quality of translation, cultural relevance, and reading level have been satisfactorily revised for use with adolescents. The Chinese AHM and Chinese PHM were translated to measure the tendency towards helping others in adolescents and their parents. The experts agreed that the two instruments had good content relevance and representativeness. The test-retest reliability estimates were good.

It is worthy to address the use of non-random sampling and the small sample size on the validation study. In further validation studies, purposive sampling strategies with a larger sample size should be employed. It was worth noting that the “stranger” subscale has a lower reliability in both the Chinese AHM and Chinese PHM. This could be explained by a larger variability in response to questions related to providing help to strangers, when compared with providing help for friends and family. Thus there may be a less consistent pattern of reporting their helping intention regarding the category “stranger”. Moreover, some participants did not provide their response to the part about

helping strangers, and these missing data during the retest could contribute to the lower reliability findings for this subscale.

Female subjects showed a higher tendency to help “friends” than did male subjects. Male subjects showed a significant difference to female subjects in helping “non-friends”. This finding was consistent with the literature. Girls were shown to be more inclined to share things with other people whom they know (Beutel & Johnson, 2004), while boys enjoyed a sense of superiority when cooperating with someone whom they were not so familiar (Bartel & Barnett, 2000). Flanagan et al. (1998) proposed that a female role places a higher value on helping others, in particular those with whom she is familiar. However, the male role was to attain personal competence and superiority through offering help. It could partially explain why male subjects showed a higher intention of helping “non-friends”.

There are several limitations to this study. Firstly, the one week test-retest interval is considered as too short, but a longer retest period was not accepted by the schools participating in this study. The one-week test-retest period may have contributed to a higher reliability estimate. Further studies should try to use longer periods between the test and retest, such as two to four weeks, to improve reliability. Secondly, the

non-random sampling and sample size of the validation study, specifically for the test-retest ($n = 25$), internal consistency ($n = 100$) and convergent validity ($n=50$) was small. It is necessary to use a larger sample size for the validity testing of the Chinese AHM and PHM. Moreover, further examinations of the construct validity should be included in future validation testing of the Chinese PROM. Thirdly, items for monitoring social desirability responses were not utilized in this study, which only studied helping responses. Future studies should try to include these items and estimate how strongly respondents are trying to tell people their helping intention.

Chapter 6. Results of the Main Study

The main study consists of two phases. Phase 1 aimed to describe prosocial behavior and to examine gender differences in prosocial behavior and its correlates, including prosocial norms, pragmatic values, empathy, and prosocial reasoning. Moreover, this phase of the study identified key predictors of prosocial behavior among adolescents. Phase 2 of the study aimed to explore if cognitive and social predictors could predict prosocial behavior in Chinese adolescents in Hong Kong. Based on the human ecological model, this phase of the study hypothesized that cognitive predictors of empathy, prosocial moral reasoning, and social influence from parents, peers, and school are the key predictors of prosocial behavior (outcome) among Chinese adolescents in Hong Kong.

Data screening checks were carried out to improve data quality before the commencement of multiple regression analyses. These checks included a check of the normality of continuous variables and the screening of multivariate outliers (Tabachnick & Fidell, 2007). Data analyses were carried out. Multivariate analyses by MANCOVA and standard multiple regressions were performed in phase 1 of the main study. In phase 2 of the main study, apart from a standard multiple regression for prosocial samples, a further validation of the regression model developed from hierarchical regression analysis

was performed. Through careful data preparation, no continuous variables were found to violate normality seriously. Therefore, the original score was used.

6.1 Results of the First Phase Study

A total of 1500 questionnaires were distributed, and 533 participants completed and returned the questionnaires through their schools. The response rate is 35.5%. Fifteen questionnaires were not included in the analysis because more than 10% of the items in these questionnaires were incomplete, or these participants were identified as extreme outliers in the sample. After removing these data, 518 participants remained in the dataset. The participants were full-time students who were 14 to 18 years old ($Mean = 16.2$, $SD = 1.1$). There are more females ($n = 360$, 69.6%) than males ($n = 158$, 30.4%) in the sample. They were recruited from 36 secondary schools and they were studying Secondary 4 ($n = 279$, 54%), Secondary 5 ($n = 209$, 40.2%), or Secondary 6 ($n = 30$, 5.8%). When they were asked to indicate their educational achievement compared to their classmates, more than one third ($n = 192$, 37.1%) thought they were better than average, and around half ($n = 248$, 48%) said they were average. A large proportion of the participants regarded their conduct to be better than average ($n = 248$, 48%) or much better than average ($n = 74$, 14.3%).

Most of the participants are the only child in the family ($n = 375, 72.4\%$) or ($n = 125, 23.7\%$) had one sibling. Only 7.8 % ($n=46$) of these households were supported by the social security assistance. The median education level of both mothers and father is Secondary 3, which is the end of the minimum of 9 years free education in Hong Kong. Most of the fathers were employed full-time ($n = 445, 85.6\%$) or part-time ($n = 22, 4.1\%$), and 295 (50.8%) of their mothers were working full-time or part-time.

6.1.1 Gender Differences in Prosocial Behavior

A multivariate analysis of variance (MANOVA) was conducted to examine gender and age differences in prosocial behavior and its related attributes. The results showed that there was a significant gender difference (Wilks' Lambda = 9.59, $p < .001$) but no significant differences between age groups from 14-16 and above 16 years old (Wilks' Lambda = 1.58, $p > .05$). Further analyses using univariate ANOVAs showed that males reported more antisocial behavior than females, but there were no significant gender differences in prosocial behavior. However, using the overall ABQ scores as the outcome indicator, females were significantly more prosocial than males ($F = 23.77, p < .001$). The effect size was partial $\eta^2 = .04$, which indicated a moderate difference. Consistent with our predictions, females had higher levels of prosocial norms ($F = 12.79, p < .001$) with an effect size of Cohen's $d = .03$, which indicated a small difference; pragmatic

values ($F = 6.67, p < .05$) with an effect size of partial $\eta^2 = .01$, which indicated a small difference; and prosocial reasoning ($F = 20.47, p < .001$) with an effect size of partial $\eta^2 = .01$, which indicated a moderate difference. Furthermore, they had higher levels of empathy than males in several empathy-related constructs, including personal distress ($F = 20.03, p < .001$) with an effect size of partial $\eta^2 = .016$, which indicated a moderate difference; fantasy ($F = 11.01, p < .01$) with an effect size of partial $\eta^2 = .06$, which indicated a moderate difference; and empathetic concern ($F = 10.92, p < .01$) with an effect size of partial $\eta^2 = .02$, which indicated a small difference (Table 6.1).

Table 6.1

Gender Difference in Prosocial Behavior and Its Correlates

	<u>Gender</u>		F	η^2
	M (<i>n</i> =360) Mean (SE)	F (<i>n</i> =158) Mean (SE)		
Antisocial Behavior	3.46 (.22)	2.25 (.15)	20.64 ***	.04
Prosocial Behavior	3.31 (.14)	3.43(.14)	.49	.00
ABQ score	-.15 (.22)	1.18(.16)	23.77 ***	.03
Prosocial Norms	4.65(.05)	4.88 (.04)	12.79 ***	.03
Pragmatic values	2.72 (.04)	2.86 (.03)	6.67 *	.01
PROM Overall Weighted	6.46 (.08)	6.88 (.05)	20.47 ***	.04
Personal Distress	1.98 (.05)	2.28 (.03)	20.03 ***	.06
Fantasy Scale	2.07 (.06)	2.32 (.04)	11.01 **	.02
Empathy	2.45 (.04)	2.60 (.03)	10.92 **	.02

Note. ^a Estimated marginal means were shown.

* $p < .05$, ** $p < .01$, *** $p < .001$

6.1.2 Correlates of Prosocial Behavior.

The Pearson correlations between the potential predictors and prosocial behavior or anti-social behavior are shown in Table 6.2. Both the prosocial behavior and overall ABQ scores showed a similar pattern of correlations, with the ABQ scores had a generally higher correlation with the predictors than prosocial behavior. Prosocial norms, pragmatic values, prosocial reasoning and different constructs related to empathy were all associated with prosocial behavior and/or overall ABQ scores. As a result of this analysis, prosocial norms, pragmatic values, the overall weighted PROM total, and the empathy scale and personal distress subscale scores from the C-IRI were selected as potential predictors in the regression analysis.

Table 6.2

Correlations Between Potential Predictors and Adolescent Antisocial and Prosocial Behavior

Potential predictors	Antisocial Behavior	Prosocial Behavior	Adolescent Behavior (ABQ total)
Age	.06	.05	-.02
Parent education	-.08	.18***	.19***
Prosocial Norms	-.28***	.30***	.46***
Pragmatic Values	.32***	-.09*	-.36***
PROM Overall Weighted	-.16***	.09*	.21***
Personal Distress	.11*	.02	-.09*
Fantasy Scale	.10*	.14***	-.00
Empathy	-.18***	.32***	.39***

Note. Adolescent behavior is a composite score calculated from antisocial and prosocial behavior. * $p < .05$, ** $p < .01$, *** $p < .001$

6.1.3 Predictors of Prosocial Behavior in Adolescents.

To predict prosocial behavior in adolescents, a regression analysis was used. Prosocial behavior (ABQ) was the dependent variable, while prosocial reasoning (PROM), prosocial norms, pragmatic values, empathetic concern and personal distress were the independent variables. The selection of the predictors for the regression analysis was based upon the literature searched as stated in previous chapters. The chosen predictors were able to predict a significant proportion of the variance in the ABQ score ($R^2 = .31$, adjusted $R^2 = .30$) with an effect size of Cohen's $f = .15$, which indicated a moderate difference. All the variables, except the PROM score ($p > .05$), were found to be

significant predictors of the ABQ score. Comparing the sizes of the β 's, the relative importance of the predictors is as follows: prosocial norms ($\beta = .32, p < .05$), pragmatic values ($\beta = -.19, p < .05$), empathetic concern ($\beta = .18, p < .05$), and personal distress ($\beta = -.14, p < .05$) as shown in Table 6.3. In this table, it is shown that increased scores in prosocial norms and empathy, and a decrease in pragmatic values and personal distress, are associated with increases in prosocial behavior. A preliminary collinearity analysis using tolerance and VIF revealed no major concerns. However, an analysis using the condition index showed that the PROM score shared a significant proportion of the variances with both empathy and prosocial norms in two dimensions. Multi-collinearity among these three variables may therefore force the PROM score to become an insignificant predictor. Nevertheless, removing the PROM score did not result in a significant reduction in the accuracy of the prediction ($R^2 = .30$, adjusted $R^2 = .29$) with the effect size of Cohen's $f = .16$, which indicated a moderate difference. A regression analysis was conducted to analyse the difference between genders. There were some differences in the results of the regression analyses conducted for the male ($n = 155$) and the female ($n = 355$) subsamples as shown in Table 6.4. The prediction was stronger for girls, ($R^2 = .34$, adjusted $R^2 = .33$) with an effect size of Cohen's $f = .16$, which indicated a moderate difference, than for boys ($R^2 = .29$, adjusted $R^2 = .27$) with an effect size of Cohen's $f = .11$, which indicated a moderate difference. The significant predictors for females were in general the same as those for the whole sample, but only personal

distress, empathetic concern, and prosocial norms were significant for the male subsample.

Table 6.3

Regression Analysis for the Prediction of the ABQ Among Adolescents (N = 516)

Predictors	b	SE	β	T	p	Collinearity Statistics	
						Tolerance	VIF
Pragmatic Values	-.90	.20	-.19	-4.52	<.001	.81	1.23
Prosocial Norms	1.28	.17	.32	7.53	<.001	.75	1.33
Prosocial Reasoning	.13	.11	.05	1.17	.24	.84	1.19
(Overall Weighted PROM)							
Empathy	.98	.25	.18	3.97	<.001	.68	1.46
Personal Distress	-.63	.17	-.14	-3.59	<.001	.92	1.08

Note. $R^2 = .31$, adjusted $R^2 = .30$.

To further predict the prosocial behavior among genders, gender specific regression analyses were conducted. The ABQ is the dependent variable, while prosocial reasoning (PROM), prosocial norms, pragmatic values, empathetic concern and personal distress were independent variables.

Table 6.4

Regression Analysis for the Prediction of Prosocial Behavior (ABQ score) among Males (n = 155) and Females (n = 355)

Variables		b	SE	β	t	p
Males ^a	Personal Distress	-1.45	.35	-.29	-4.12	< .001
	Empathy	1.05	.46	.17	2.27	.02
	Prosocial Norms	1.15	.27	.31	4.30	< .001
	Overall Weighted PROM	.19	.19	.07	1.00	.32
	Pragmatic values	-.60	.34	-.13	-1.77	.08
Females ^b	Personal Distress	-.48	.20	-.11	-2.37	.02
	Empathy	.82	.29	.16	2.81	.01
	Prosocial Norms	1.48	.22	.35	6.77	<.001
	Overall Weighted PROM	.04	.14	.01	.26	.80
	Pragmatic values	-1.02	.24	-.21	-4.25	<.001

Note. For the male subsample, $R^2 = .29$, adjusted $R^2 = .27$; For the female subsample, $R^2 = .34$, adjusted $R^2 = .33$

To develop a more comprehensive picture of prosocial behavior, it was worth suggesting that predictors involving social influences such as peer and teacher influence, parent and school socialization, school discipline and encouragement in prosocial involvement, or interpersonal competence (Ma et al., 1996; Ma & Leung, 1995) could be added. The findings of Ma and his colleagues (Ma et al., 1996; Ma, 2003) show that several factors could influence prosocial behavior in adolescents, including peer and teacher influences; family, school, and social environment; and that individual achievement was a potential factor influencing adolescents. These factors were recommended for selection and measure in the second phase of the study. Moreover, it is worth pointing out that these findings in first phase of the study should be interpreted

with reference to several factors. Firstly, while the sample was large, it was a convenience sample recruited from high schools with the age range largely limited to late adolescence (age 15–18). Secondly, the students involved had been nominated by their schools to take part in this mass event. Since it is likely that schools will prefer to have students with better academic or conduct records to take part in these types of community events, the sampled group may have displayed better than average previous conduct. Thirdly, we found that the range of prosocial behavior in the ABQ could be expanded further after discussions among the research team members on completion of the study. While it covers prosocial acts at home, at school and in social situations, additional items could be added to sample a wider range of prosocial behaviors like providing support or assistance to people one knows or does not know: sharing, listening, and comforting; appreciating others; working in a team; and involvement in prosocial groups (such as service teams or religious groups) (Carlo & Randall, 2002).

6.2 Results of the Second Phase Study

To address the discussions raised from phase 1 of the study, the second phase of the study used the human ecological model as the guiding model for the study, and used a prosocial sample and examined gender differences. An ontogenic system includes socio-demographic variables and their individual competence such as empathy and

prosocial moral reasoning. These were collectively labeled as cognitive factors.

Moreover, their microsystem includes factors like social influence, such as peer influence and parental influence, and their exosystem includes factors like their school influence.

The microsystem and exosystem are collectively labeled as social factors in this results reporting section.

A convenience sample of secondary students with strong prosocial characteristics was recruited through social services and volunteer organizations. A total of 650 questionnaires were distributed and 580 (89%) valid questionnaires were returned. Among the participants, there were 172 (29.5%) males and 408 females (70.5%). The mean age of the respondents was 14.11 years ($SD = 1.22$). The majority ($n = 356$, 61.4%) was junior secondary students and the rest ($n = 224$, 38.6%) were senior secondary students. A large proportion (21%, $n = 121$) of the participants regarded their conduct as excellent, 51% ($n = 296$) reported their conduct was good, and 25.3% ($n = 143$) reported fine. Most of the participants were either single children $n = 137$ (23.6%) or had one sibling ($n = 310$, 53.4%), and their parents were married and living together ($n = 486$, 83.8%). The median household size was 4. The median education level of both father and mother was senior high school (Secondary 4 to 5). Most participants perceived their family life as satisfactory ($n = 239$, 41.2%), or very satisfactory ($n = 163$, 28%); and their perceived school life as satisfactory ($n = 282$, 48.6%), or very satisfactory ($n = 140$,

24.2%).

The research data were checked and screened to verify variable coding or data entry.

Data screening was conducted based upon the screening checklist by Tabachnick & Fidell (2007) as shown in Appendix 7.

6.2.1 Prosocial Behavior and the Helping Intention

Over the past two years, the participants have regularly joined one (36.2%) or two (35.2%) volunteer activities, and 28.6% have participated in three or more activities. A large proportion (64.9%) of participants perceived their volunteer experience with volunteering as positive. Descriptive statistics for the helping intention, prosocial behavior, the cognitive factor, and social influence factors are shown in Table 6.5. The Pearson correlation coefficient (r) between the helping intention and prosocial behavior is .33 ($p < .001$).

6.2.2 Gender differences

Female participants had significantly higher helping intentions than did males ($t = 3.42$, $p < .001$), and the Cohen's d was .75, which indicated a large difference. Nevertheless,

there were no gender differences in prosocial behavior over the past year ($p > .05$).

Female participants had higher empathy scores ($t = 2.61, p < .05$) with Cohen's $d = .52$,

which indicated a moderate difference. Females perceived their parents as having a

higher level of helping intention than males ($t = 2.34, p < .05$), and they perceived there

was more recognition of prosocial behavior in their school than males ($t = 2.57, p < .05$)

with Cohen's $d = .52$, and $.56$ respectively, which indicated a moderate difference.

However, there was no significant difference noted between prosocial reasoning and peer

influence in female and male subjects ($p > .05$) (Table 6.5).

Table 6.5

Summary of the Statistics of Prosocial Behavior and the Hypothesized Cognitive and Social Predictors across Gender

Variables	Subscales	Total ($N = 578$)		Male ($n = 171$)		Female ($n = 407$)		T
		Mean	SD	Mean	SD	Mean	SD	
Variable	Prosocial Behavior	2.22	.92	2.12	.97	2.26	.90	-1.67
	Helping Intention	8.75	3.55	7.97	3.98	9.08	3.32	-3.42***
Cognitive factors	Empathy	4.70	.93	4.26	1.04	4.63	.88	2.61*
	Prosocial Reasoning	1.86	.06	1.86	.06	1.86	.05	.41
Social factors	Peer Influence	1.53	.55	1.47	.56	1.55	.55	-1.68
	Parental Influence	5.84	2.60	5.43	2.92	6.00	2.45	-2.34*
	School Influence	11.15	1.77	10.86	2.11	11.28	1.59	-2.57*

* $p < .05$, ** $p < .01$, *** $p < .001$

6.2.3 Correlates of Prosocial Behavior and the Helping Intention

The correlation coefficient (r) between the helping intention and prosocial behavior was .33 ($p < .001$). Age had low and significant correlations with the participant's own helping intention ($r = .14, p < .01$), and peer's prosocial behavior (peer influence) ($r = .13, p < .01$), but not with prosocial behavior or any of the other predictors. Among the two cognitive variables, empathy had a low and significant correlation with prosocial behavior ($r = .23, p < .01$) and with the helping intention ($r = .18, p < .01$), while prosocial reasoning did not significantly correlate with either prosocial behavior or the helping intention (Table 6.6). The low but significant correlation between empathy and prosocial reasoning maintained when the correlations were calculated separately for female ($r = .18, p < .01$) and male ($r = .16, p < .01$) samples, and there was no significant difference in the magnitude of the correlations for males and females.

Table 6.6

Correlations between Potential Predictor Variables and Prosocial Behavior & the Helping Intention

Correlates	Prosocial Behavior	Helping Intention
Age	.04	.15**
Household	.04	.08*
Number of Siblings	.05	.01
Father Education	.04	-.01
Mother Education	.08	.05
Satisfaction with School Life	.16**	.10*
Satisfaction with Family Life	.08	.05
Satisfaction with Volunteering Experiences	.25**	.24**
Empathy	.23**	.18**
Prosocial Reasoning	-.00	.05
Peer Influence	.43**	.19**
Parental Influence	.30**	.69**
School Influence	.38**	.19**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

All the three social influence factors had significant correlations with prosocial behavior. Prosocial behavior had significant correlations with peer influence ($r = .42, p < .01$), school influence ($r = .37, p < .01$) and parental influence ($r = .29, p < .01$). The relationship remained significant when the correlations were calculated separately for males and females. In comparing the correlation between cognitive factors, social factors and prosocial behavior, it is important to note that a significant difference was observed in the magnitude of the correlation between parent influence and prosocial behavior across gender ($z = 2.5, p < .05$), but not for the peer or school influence variables.

6.2.4 Predictors of the Helping Intention

A regression analysis was conducted to predict the helping intention of adolescents using the adolescent helping measure as the dependent variable and parameters which covered cognitive factors like empathy and prosocial moral reasoning, together with social factors like parental helping, peer helping and school influence. A total sample regression analysis was conducted. In order to further validate the regression model developed, the data file was separately analysed for male and female differences. Only predictors that were important for both models were regarded as key predictors of the helping intention.

In the total sample analysis, the regression model was able to predict a significant proportion of variance in the intention of helping ($R^2 = .48, p < .05$), with Cohen's $f = .15$, which indicated the moderate range (Table 6.7). Peer influence ($\beta = .29, p < .001$) and parental influence ($\beta = .18, p < .001$) in social influence factors contributed significantly to the regression model, while the coefficients of empathy in the cognitive variables was significant in predicting their helping intention ($\beta = .07, p < .05$).

Table 6.7

Prediction of the Helping Intention from Cognitive and Social Influence Factors (N = 580)

Predictor Variables	<i>B</i>	<i>SE</i>	β	<i>t</i>
<u>Cognitive Factors</u>				
Empathy	.25	.12	.07	2.06*
Prosocial Moral Reasoning	1.55	1.98	.02	.78
<u>Social Factors</u>				
Peer Influence	.68	.21	.11	3.26***
Parental Influence	.87	.04	.65	20.34***
School Influence	.00	.07	.00	.01

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

$R^2 = .48$

For the male subjects, the regression model was able to predict a significant proportion of variance in their helping intention ($R^2 = .61$), Cohen's $f = .21$, which indicated it fell within the moderate range (Table 6.8). Peer influence ($\beta = .11$, $p < .05$) and parental influence ($\beta = .72$, $p < .05$) in social influence factors contributed significantly to the regression model, while the coefficients of empathy in the cognitive variables was no longer significant in predicting their helping intention ($p > .05$).

Table 6.8

Prediction of the Helping Intention from Cognitive and Social Influence Factors for Males and Females

Predictor Variables	Males (<i>n</i> = 172)				Females (<i>n</i> = 408)			
	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>B</i>	<i>SE</i>	β	<i>T</i>
Cognitive Factors								
Empathy	.31	.22	.08	1.43	.25	.15	.07	1.67
Prosocial Reasoning	3.89	3.59	.06	1.12	1.16	2.41	.02	.48
Social Factors								
Peer Influence	.74	.38	.11	1.95 *	.64	.25	.11	2.57 **
Parental Influence	.97	.08	.72	12.01*	.81	.05	.61	15.24***
School Influence	.02	.10	.01	.19	.03	.09	.01	.31

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

$R^2_{\text{males}} = .61$, $R^2_{\text{females}} = .42$

For the female subjects, the regression model was able to predict a significant proportion of variance in the helping intention ($R^2 = .42$), with Cohen's $f = .25$, which indicated it was within the moderate range (Table 6.8). Peer influence ($\beta = .11$ $p < .01$) and parental influence ($\beta = .61$, $p < .01$) in social influence factors contributed significantly to the regression model. As with the male subject group, the cognitive variables were again not significant in predicting their helping intention ($p > .05$).

The results showed that the regression models could consistently predict the helping intention. The explained variance of the models ranged from .42 to .61. Different samples were governed by different predictors. The only two common predictors across all

samples were peer influence and parental influence. The regression coefficient for parental influence was statistically larger than that of peer influence. Parental influence was the best predictor (β ranging from .18 to .72), (total subject: $\beta = .65$, male subject: $\beta = .72$, female subject: $\beta = .61$). Peer Influence was the second best predictor (β ranging from .15 to .22), (total subject: $\beta = .11$, male subject: $\beta = .11$, female subject: $\beta = .11$).

6.2.5 Predictors of Prosocial Behavior

A regression analysis was conducted to predict the prosocial behavior of adolescents using the adolescent behavior measure (ABQ) as the dependent variable and parameters which covered cognitive factors like empathy and prosocial moral reasoning, together with social factors like parental helping, peer helping and school influence. A total sample regression analysis was conducted. In order to further validate the regression model developed, the data file was separately analysed for males and females. Only predictors that were important for both models were regarded as key predictors of prosocial behavior.

In the total sample analysis, the regression model was able to predict a significant proportion of variance in their prosocial behavior ($R^2 = .28$), with Cohen's $f = .08$, which indicated it was in the small range (Table 6.9). Peer influence ($\beta = .18, p < .001$), school influence ($\beta = .23, p < .001$) and parental influence ($\beta = .18, p < .001$) in social influence

factors contributed significantly to the regression model, while the coefficients of empathy and moral reasoning in cognitive variables were not significant in predicting prosocial behavior ($p > .05$).

Table 6.9

Prediction of Prosocial Behavior from Cognitive and Social Influence Factors (N = 580)

Predictor Variables	<i>B</i>	<i>SE</i>	β	<i>t</i>
Cognitive Factors				
Empathy	.07	.04	.07	1.75
Prosocial Reasoning	-.36	.62	-.58	.56
Social Influence				
Peers Influence	.49	.65	.18	4.81***
Parent Influence	.07	.02	.18	4.81***
School Influence	.12	.02	.23	7.55***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$ ($R^2 = .28$)

Table 6.10

Prediction of Prosocial Behavior from Cognitive and Social Influence Factors for Males and Females

Predictor Variables	Male ^a (<i>n</i> = 172)				Female ^a (<i>n</i> = 408)			
	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>B</i>	<i>SE</i>	β	<i>t</i>
Cognitive Factors								
Empathy	.00	.07	.00	.02	.08	.05	.08	1.77
Prosocial Reasoning	-.05	1.12	.00	-.04	-.48	.75	-.03	-.64
Social Influence								
Peer Influence	.38	.12	.22	3.17 **	.54	.08	.33	6.94 ***
Parental Influence	.12	.02	.37	5.07 ***	.04	.02	.11	2.33 **
School Influence	.11	.03	.24	3.29 **	.13	.03	.22	4.52 ***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. ($R^2_{\text{males}} = .35$, $R^2_{\text{females}} = .26$)

In the male subject group, the regression model was able to predict a significant proportion of variance in prosocial behavior ($F = 15.73, p < .00, R^2 = .35$) (Table 6.10). Peer influence ($\beta = .22, p < .01$), school influence ($\beta = .24, p < .01$) and parental influence ($\beta = .37, p < .001$) in the social influence factors contributed significantly to the regression model, while the coefficients of empathy and moral reasoning in the cognitive variables were not significant in predicting prosocial behavior ($p > .05$).

In the female subject group, the regression model was able to predict a significant proportion of variance in prosocial behavior ($F = 27.90, p < .00, R^2 = .26$), with Cohen's $f = .06$, which indicated the small range (Table 6.10). Peer influence, school influence and parental influence in social influence factors contributed significantly to the regression model ($\beta = .33, .22$ and $.11$ respectively), while the coefficients of empathy and moral reasoning in the cognitive variables were not as significant in predicting prosocial behavior ($p > .05$).

The results showed that the regression models could consistently predict prosocial behavior. The explained variance of the models ranged from .26 to .35. In predicting prosocial behavior, different subsets of samples were governed by the same predictors. The three common predictors across all samples were peer influence, school influence and parental influence. The regression coefficient for parental influence and peer

influence was statistically larger than that of school influence. Parental influence was the best predictor (β ranging from .18 to .37), (total subject: $\beta = .18$, male subject: $\beta = .37$, female subject: $\beta = .11$). Peer Influence was the second best predictor (β ranging from .18 to .33), (total subject: $\beta = .18$, Male subject: $\beta = .22$, Female subject: $\beta = .33$). School influence was the worst predictor (β ranging from .22 to .24), (total subject: $\beta = .23$, male subject: $\beta = .24$, female subject: $\beta = .22$), However, it was worth acknowledging that both the β weight and the coefficient of determination (R^2) are small. It was important to address the fair statistical power in this phase of the study, as many results of the Pearson correlations and the regression analyses are so small. Even though there is a statistical significance, there might not be a practical significance. Further studies on the same issue are encouraged.

6.3 Hierarchical Regression Analysis

The standard multiple regression results reported in Section 6.2.4 to 6.2.5 showed that social correlates were the main predictors of the helping intention and prosocial behavior. However, they are mainly on the microsystem level. In order to further validate the generalizability of the regression models developed in predicting prosocial behavior, further validation of the regression model developed from the hierarchical regression analysis was performed. The analysis aimed at creating a cross-product term of different

variables to examine the relations between the ontogenic system and the exosystem. The following variables were entered as predictors into a hierarchical regression analysis: individual competence, like empathy and prosocial reasoning in an ontogenic system (block 1); social influence factors, like those in the microsystem (block 2), and school influence in the exosystem (Block 3). At each step, the variables were entered using a block entry selection approach: that is, within a given step, all variables were entered simultaneously. Separate analyses of their prosocial behaviors and helping intentions were conducted separately as reported in the following sections.

6.3.1 The Prediction of the Helping Intention.

A hierarchical regression analysis was performed for predicting the helping intention, and three data subsets were used for the analysis. The total samples were as shown in Table 6.11, male subjects as shown in Table 6.12 and female subjects as shown in Table 6.13.

Table 6.11

Hierarchical Regression Analyses For Predicting the Helping Intention (N= 580)

Dependent Variable	Step 1	Step 2	Step 3
<u>Ontogenic System</u>	β	β	β
Empathy	.11 *	..00	.00
Prosocial Moral Reasoning	.03	.02	.02
<u>Microsystem</u>			
Peer Influence		.13 ***	.12 ***
Parental Influence		.68 ***	.67 ***
<u>Exosystem</u>			
School Influence			.01
R^2	.02	.50	.50
R^2 change		.48	.00

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6.12

Hierarchical Regression Analyses For Predicting the Helping Intention in Male Subjects (n= 172)

Dependent Variable	Step 1	Step 2	Step 3
<u>Ontogenic System</u>	β	β	β
Empathy	.16	-.01	.02
Prosocial Moral Reasoning	.02	.02	.02
<u>Microsystem</u>			
Peer Influence		.12*	.11*
Parental Influence		.75***	.75***
<u>Exosystem</u>			
School Influence			.00
R^2	.02	.49	.51
R^2 change		.47	.02

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6.13

Hierarchical Regression Analyses For Predicting the Helping Intention in Female Subjects (n= 408)

Dependent Variable	Step 1	Step 2	Step 3
<u>Ontogenic System</u>	β	β	β
Empathy	.08	.00	.00
Prosocial Moral Reasoning	.07	-.04	.04
<u>Microsystem</u>			
Peer Influence		.13*	.14**
Parental Influence		.61*	.62***
<u>Exosystem</u>			
School Influence			.02
R^2	.01	.43	.43
R^2 change		.42	.00

* $p < .05$, ** $p < .01$, *** $p < .001$

After step 1, with the cognitive predictors of empathy and prosocial moral reasoning, R^2 only scored .02 in the total samples, .02 in the male subjects, and .01 in the female subjects. The effect sizes of Cohen's f ranged from .03 to .05. The effect size was small.

After step 2, with the addition of two more variables of social influence in the microsystem, namely peer influence and parental influence, R^2 then ranged from .02 to .50 in the total samples, from .02 to .49 in the male subjects, and from .01 to .43 in the female subject. The effect sizes ranged from .45 to .63. After step 3, with the addition of one more variable, school influence in the exosystem, R^2 ranged from .50 to .50 in the total samples, from .49 to .51 in the male subjects, and from .43 to .43 in the female subjects. The effect sizes ranged from .45 to .63. It was found that in all three subsets, only two variables could predict the helping intention were the peer influence and parental influence from the microsystem. These two variables were stable in predicting

the helping intention. This was consistent with other findings based on the standard regression analyses in the previous sections, which yielded social influences like peer influence and parental influence as consistent predictors for the helping intention.

6.3.2 The Prediction of Prosocial Behavior

A hierarchical regression analysis was performed for predicting prosocial behavior. Three data subsets were used, i.e. total samples as shown in Table 6.14, male subjects as shown in Table 6.15 and female subjects as shown in Table 6.16.

Table 6.14

Hierarchical Regression Analyses For Predicting Prosocial Behavior (N= 580)

Dependent Variable	Step 1	Step 2	Step 3
<u>Ontogenic System</u>	β	β	β
Empathy	.18***	.1***	.04
Prosocial Moral Reasoning	.04	-.02	-.31
<u>Microsystem</u>			
Peer Influence		.37 ***	.31 ***
Parental Influence		.21 ***	.18 ***
<u>Exosystem</u>			
School Influence			.24 ***
R^2	.03	.23	.28
R^2 change		.20	.05

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6.15

*Hierarchical Regression Analyses For Predicting Prosocial Behavior in Male Subjects
(n=172)*

Dependent Variable	Step 1	Step 2	Step 3
<u>Ontogenic System</u>	β	β	β
Empathy	.19 *	.09	.03
Prosocial Moral Reasoning	.07	-.02	-.02
<u>Microsystem</u>			
Peer Influence		.31***	.25 ***
Parental Influence		.37 ***	.34 ***
<u>Exosystem</u>			
School Influence			.24 ***
R^2	.04	.29	.34
R^2 change		.25	.05

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6.16

*Hierarchical Regression Analyses For Predicting Prosocial Behavior in Female Subjects
(n= 408)*

Dependent Variable	Step 1	Step 2	Step 3
<u>Ontogenic System</u>	β	β	β
Empathy	.17***	.09 *	.03
Prosocial Moral Reasoning	.03	-.02	-.05
<u>Microsystem</u>			
Peer Influence		.41***	.34 ***
Parental Influence		.12 ***	.10*
<u>Exosystem</u>			
School Influence			.24 ***
R^2	.03	.22	.26
R^2 change		.19	.04

* $p < .05$, ** $p < .01$, *** $p < .001$

After step 1, using cognitive predictors of empathy and prosocial moral reasoning,

R^2 only scored .03 in the total samples, .04 in male subjects, and .03 in female subjects.

The effect sizes of Cohen's f ranged from .01 to .03. The effect sizes were very small.

After step 2, with two more variables of social influence added to the microsystem, namely peer influence and parental influence, R^2 ranged from .03 to .23 in the total samples, .04 to .29 in male subjects, and .03 to .22 in female subjects. The effect sizes ranged from .32 to .52. After step 3, with the addition of one more variable, school influence, in the exosystem, R^2 ranged from .23 to .28 in the total samples, from .29 to .34 in male subjects, and from .22 to .26 in female subjects. The effect sizes ranged from .45 to .63. It was found that in all three subsets, only three variables predicting the helping intention were peer influence, parental influence and school influence. These three variables were stable in predicting prosocial behavior. Consistent with the findings based on the standard regression analyses described in the previous section, social influence like peer influence, parental influence and school influence were found to be consistent predictors of prosocial behavior.

6.4 Interaction Analyses by Cross Product Terms

To investigate the association, multiple linear regression and hierarchical regression analyses were conducted. Factors in social influence showed to be significant predictors for both helping intention and prosocial behavior. The interaction between microsystem and exosystem was tested through the addition of cross-product terms. The interaction terms of these systems, namely, peer influence, parent influence and school influence would create the peer-parent cross product, the peer-school cross product, the parent-school cross product and the peer-parent-school cross product. These cross

products would then put them all into regression model for further analyses. Table 6.17 summarizes the collection of cross-product sets.

Table 6.17

Collection of Cross-product Sets

<u>Regular</u>		<u>Regular</u>
Peer Influence	x	Parent Influence
Peer Influence	x	School Influence
Parent Influence	x	School Influence
<u>Peer Influence</u>	x	<u>Parent Influence</u> x <u>School Influence</u>

Partition the full set of logical definitions for helping intention and prosocial behavior into cross-product mapping. The prosocial behavior and helping intention would be mapped. The prosocial behavior and helping intention would be mapped to a definition in the microsystem× exosystem cross-product. Each cross-product mapping is maintained as an individual resource and independent of the others, and is available as optional add-ons to the prosocial behavior. Table 6.18 and Table 6.19 specifies the cross product terms analysis for both helping intention and prosocial behavior.

Table 6.18

Cross Product Terms Analysis of Helping Intention (N=580)

Predictors	Correlation		Collinearity Statistics	
	<u>Simple</u>	<u>Partial</u>	<u>Tolerance</u>	<u>VIF</u>
<u>Microsystem</u>				
Peer Influence	.26 ***	.16***	.88	1.13
Parent Influence	.69 ***	.67***	.93	1.07

<u>Exosystem</u>				
School Influence	.18	.01	.80	1.24

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6.19

Cross Product Terms Analysis of Prosocial Behavior (N=580)

Predictors	Correlation		Collinearity Statistics	
	<u>Simple</u>	<u>Partial</u>	<u>Tolerance</u>	<u>VIF</u>
<u>Microsystem</u>				
Peer Influence	.42 ***	.33***	.88	1.13
Parent Influence	.29 ***	.20***	.93	1.07
<u>Exosystem</u>				
School Influence	.37 ***	.25 ***	.80	1.24

* $p < .05$, ** $p < .01$, *** $p < .001$

In helping intention, there is significant simple and partial correlation in cross products among microsystem, but not in exosystem (as shown in Table 6.18).

Nevertheless, in predicting prosocial behavior, there is significant simple and partial correlation in both microsystem and exosystem (as shown in Table 6.19). A

preliminary collinearity analysis using tolerance and VIF in assessing the interaction in both prosocial behavior and helping intention revealed no major concerns.

Moreover, in further interaction analyses among cross-products, results showed similar findings as shown in Table 6.20. Regression model showed to be significant

in different cross-product analyses in helping intention. Nevertheless, all except the peer-parent-school cross-product showed significance in predicting prosocial

behavior as shown in Table 6.21.

Table 6.20

Hierarchical Regression Analyses For Predicting the Helping Intention by Cross-product Terms (N=580)

Dependent Variable	Step 1	Step 2	Step 3	Step 4
<u>Cross-Product Terms</u>	β	β	β	β
Peer-Parent	.61***	.79***	.39***	.83***
Peer-School		-.26***	-.15***	.05
Parent-School			.41***	.66***
Peer-Parent-School				-.81***
R^2	.38	.41	.46	.48
R^2 change		.03	.05	.02

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6.21

Hierarchical Regression Analyses For Predicting the Prosocial Behavior by Cross-product Terms (N=580)

Dependent Variable	Step 1	Step 2	Step 3	Step 4
<u>Cross-Product Terms</u>	β	β	β	β
Peer-Parent	.44***	.20***	.03	.03
Peer-School		.35***	.41***	.04
Parent-School			.28***	.44***
Peer-Parent-School				.10
R^2	.20	.26	.27	.27
R^2 change		.06	.01	.00

* $p < .05$, ** $p < .01$, *** $p < .001$

Cross-product terms provide a way to deal with interaction in predicting helping

intention and prosocial behavior. However, a more-elaborated model, such as

factorial regression models like regressions on covariates for each microsystem and

regressions on covariates for each exosystem would be needed in further study

6.5 Answers to Research Questions and Hypotheses Testing

In general, the results supported most of the hypothesized bivariate relationships between various social influence factors, cognitive factors, prosocial behavior and the helping intention. When the relative importance of the variables was examined in regression analyses, not all proposed social and cognitive variables were equally important in the prediction of prosocial behavior and the helping intention. The conceptual model was in general supported by the empirical findings. The main findings, according to the research questions, are summarized as follows:

First Research Question: Are individual competence factors in the ontogenic system, including empathy and prosocial reasoning, correlated with the helping intention and prosocial behavior in adolescents?

Empathy had positive and significant correlations with both helping intention and prosocial behavior ($p < .001$) as shown in Table 6.6. However, prosocial reasoning had no significant correlation with either the helping intention or prosocial behavior, as shown in Table 6.6. The hypothesis that “empathy showed significant correlation with prosocial behavior and the helping intention” (Hypothesis 1a) was supported. The hypothesis that “prosocial reasoning showed significant correlation with prosocial

behavior and the helping intention” (Hypothesis 1b) was not supported.

Second Research Question: Are social influence factors in the microsystem, including peer influence and parental influence, correlated with the helping intention and prosocial behavior in adolescents?

Peer influence and parental influence had positive and significant correlations with both the helping intention and prosocial behavior in adolescents ($p < .001$) as show in Table 6.6. The hypothesis that “peer influence has positive and significant correlations with the helping intention and prosocial behavior in adolescents” (Hypothesis 2a) was supported. The hypothesis that “parental influence has positive and significant correlations with the helping intention and prosocial behavior in adolescents” (Hypothesis 2b) was also supported.

Third Research Question: Is school influence in the exosystem of the social-ecological model correlated with the helping intention and prosocial behavior in adolescents?

School influence has positive and significant correlations with both the helping intention and prosocial behavior in adolescents ($p < .001$) as show in Table 6.6. The hypothesis that “school influence showed significant correlation with prosocial behavior

and the helping intention” (Hypothesis 3) was supported.

Fourth Research Question: Do individual competence factors (empathy and prosocial reasoning) in the ontogenic system, social influence factors (peer influence and parental influence) in the microsystem, and school influence as in the exosystem predict the helping intention and prosocial behavior in adolescents?

In individual competence, only empathy showed significance in predicting the helping intention ($p < .05$), but prosocial reasoning was not significant in predicting the helping intention ($p > .05$) (Table 6.7). Among the social influence factors, peer influence and parental influence showed they were significant ($p < .001$) in predicting the helping intention (Table 6.7), but school influence was not significant ($p > .05$) in the prediction of the helping intention.

Both empathy and prosocial reasoning showed no significance in the prediction of prosocial behavior ($p > .05$) as shown in Table 6.9. However, both the microsystem (peer influence and parental influence) and the exosystem (school influence) showed their significance in the prediction of prosocial behavior ($p < .001$). The hypothesis that the “individual competence factor in the ontogenic system could predict prosocial behavior and the helping intention” (Hypothesis 4a) was partially supported by empathy in

predicting the helping intention but not the prosocial behavior. The hypothesis “social influence in the microsystem could predict prosocial behavior and the helping intention” (Hypothesis 4b) was supported in both its prediction of prosocial behavior and the helping intention. Furthermore, the hypothesis “school influence in the exosystem could predict prosocial behavior and the helping intention” (Hypothesis 4c) was partially supported by its prediction of prosocial behavior but not the helping intention.

Fifth Research Question: Is there a difference between genders in the ontogenic system, the microsystem and the exosystem when predicting the helping intention and prosocial behavior?

In the prediction of the helping intention, there is a difference between genders in the social influence of the microsystem, as shown in Table 6.8. Males perceived their parents as having a higher level of the helping intention than females did ($p < .05$) as shown in Table 6.8. In the prediction of prosocial behavior, there is a difference between genders in the social influence of the microsystem as shown in Table 6.10. A significant difference was noted in peer influence between female and male subjects ($p < .05$). The hypothesis that “there is no difference between genders among the social influences of the microsystem when predicting the helping intention and prosocial behavior” (Hypothesis 5b) was partially supported by social influence factors. The hypothesis that

“there is no difference between genders among individual competencies in the ontogenic system when predicting the helping intention and prosocial behavior” (Hypothesis 5a) was supported. However, the hypothesis “there is no difference between genders in school influence in the exosystem when predicting the helping intention and prosocial behavior” (Hypothesis 5c) was partially supported as school influence showed a significant difference in predicting prosocial behavior (Table 6.10) but not the helping intention (Table 6.8).

Chapter 7. Discussion

This study intended to compare the contribution of individual competence and social influence to prosocial behavior and the helping intention. This chapter has four sections. It starts with a discussion of the key findings addressing the research questions and the hypotheses that study predictors of prosocial behavior and the helping intention. The second section discusses the contribution of this study. The third section discusses the implications of the results of this study for theory on prosocial development, youth development and education. The final section is about the limitations of this study and offers some recommendations for further studies.

7.1 Predictors of Prosocial Behavior and the Helping Intention

The results of the first phase of the study involving 518 participants showed that prosocial norms, pragmatic values, and empathy dimensions (personal distress and empathy) were key predictors of prosocial behavior. The study highlighted the importance of values and norms in predicting prosocial behavior, which has not been commonly explored in previous studies. The second phase of the study involved a sample of 580 prosocial subjects, and it was found that social influence factors, including peer, school and parent influence, are strong predictors of the helping intention and prosocial

behavior, while individual competence factors like empathy and prosocial moral reasoning are not. The findings indicate that social influence is strongly linked to prosocial behavior. This implies that socialization and social support for prosocial norms and behavior can exert a powerful influence on the behavior of young people in a Chinese population. Indicators of social influence have been identified as being more important in predicting both prosocial behavior and the helping intention than individual competence. Nevertheless, neither empathy nor prosocial moral reasoning were good predictors of the helping intention, and this result is different from similar studies in other countries that found a strong link between moral reasoning and prosocial behavior (Eisenberg et al., 1987), or between empathy and prosocial behavior (Cialdini et al., 1987; Davis, 1984).

It is interesting to note that prosocial reasoning did not correlate with prosocial behavior and the helping intention and hence could not predict them in the main study. It poses an important question regarding the convergent validity of the instrument, given that the overall weighted PROM score had a rather low but significant correlation with prosocial behavior ($r = .10$, $p < .05$) in the validation phase, and also ($r = .09$, $p < .05$) when compared with the results for internalized reasoning and prosocial behavior ($r = .27$, $p < .001$) in a study done by Carlo et al. (1996). This finding implied that the recruited samples showed they had adopted a less mature level of moral reasoning and might not

have fully internalized their participation in volunteer activities. They appeared to have adopted a lower level of reasoning such as stereotypic and approval oriented reasoning when they developed their prosocial behavior. Nevertheless, Eisenberg (1991) reported that the adolescents who adopt more mature and internalized moral reasoning and have higher empathy are more likely to follow and adopt norms of social responsibility. This form of higher level reasoning (empathic and internalized) would indicate their engagement in prosocial behavior. Therefore, further study of their moral reasoning and a longer longitudinal follow-up is recommended.

One of the key conclusions from the present study is that social influence, especially from parents, plays a very important role in the prosocial development of adolescents. This result could be explained by cultural norms and socialization practices among Hong Kong Chinese. Firstly, Chinese parenting places a strong emphasis on parental modeling (Chao, 2001) and school socialization regarding prosocial behavior (Chang et al., 2004). In particular, parents are expected to set a good example for their children. Secondly, Chinese individuals tend to have a strong inclination to align with and compare themselves with peers, and thus peer influence can have a great impact on the development of prosocial and antisocial behavior (Chen et al., 1992). It is likely that the prosocial sample had prosocial peers who contributed to their helping intention and prosocial behavior. Thirdly, being prosocial can be a way to save face (Chang et al.,

2005). Chinese people give great consideration to what others do in deciding what they themselves should do. In other words, Chinese people may undertake prosocial behavior to avoid shame or accusations of selfishness by others. Lastly, culture and the media are likely to have an impact on the promotion of prosocial behavior (Eisenberg et al., 2006), but media influence was not covered in this study. Further research could examine the role of the media in prosocial behavior development.

For both prosocial behavior and the helping intention, parental influence was the most important predictor, followed by peer and then school influence. These findings are different from those in the literature in Western countries, which showed that peer influence had a greater influence on adolescent development than parental or school influence (Schonert-Reichl, 1999). Parental influence and modeling have long been found to be positively related to the early prosocial development of children and early adolescents (Clary & Miller, 1986; Stukas et al., 1999). The results imply that the Chinese adolescent sample in this study could find it very hard to be prosocial when their peers, family or community do not see the importance of prosocial behavior or are not used to practicing such behavior.

It is worth noting that the percentage of variance explained in the prediction of the helping intention is significantly higher than that of prosocial behavior. This means

that the social influence predictors can explain more of the variance in attitudes towards helping (helping intention) than prosocial behavior. This also implies that there is probably a gap between willingness to help and the actual implementation of helping or prosocial behavior, which is generally consistent with meta-analyses showing a low but significant correlation of .38 between attitude and behavior (Kraus, 1995). Furthermore, it is likely that prosocial behavior could be reliant on not just predictors indicative of individual competence or social influence, but also factors like the cost or risks to self of helping, or prior experience and reward linked to helping (Fischer et al., 2011). This probably explains why the variance explained in the prediction of prosocial behavior is lower than that for the helping intention.

7.1.1 Individual Competence and Values as Predictors of Prosocial Behavior

Pragmatic values and prosocial norms are mostly shown as important predictors of prosocial behavior in the first phase of the study, and they are even more important than empathy-related variables (empathy & personal distress). It should be noted that values are not one kind of interpersonal competence, and they reflect a person's priorities, what they see as right and wrong, or meaningful. In the first phase of the study, young people who have high empathetic concern, personal distress, endorse prosocial norms and disagree with pragmatic values, were likely to engage in more prosocial behavior than

others who do not. These predictors remained significant when regression analyses were separately conducted on male and female subsamples. These results are largely consistent with theoretical predictions and previous empirical results (Carl et al., 1996; Eagly, 2009). The study also underscored the role of pragmatic values as a predictor of prosocial behavior in the general population, which has seldom been explored in previous studies. The first phase of the study suggests that agreement with pragmatic values (associated with materialism and self-centeredness) could hamper prosocial behavior. Based on this conjecture, further work should be conducted to examine how different values may promote or inhibit prosocial development. This study reiterated the importance of prosocial norms and values in predicting prosocial behavior, which has seldom been explored in previous studies.

Prosocial norms can be acquired and taught through social learning, including modeling, social reinforcement and school socialization. In other words, prosocial norms are largely shaped by social influences in childhood (Siu, Shek, & Law, 2012). Children and adolescents can learn prosocial norms and behavior from their preferred role models, who can demonstrate how the adoption of prosocial norms and orientation can lead to appreciation, an increase in task-related self-efficacy, and favorable outcome expectancies (Bandura, 1997). In the course of their offspring's childhood, parents can model emotional expressivity, sympathy, and perspective taking, which can play an

important part in prosocial development among children (Zahn-Waxler & Smith, 1997). Praise, affirmation, encouragement, and social pressure from teachers and peers can provide the incentive and support for adopting prosocial norms. Moreover, many prevalent prosocial norms are acquired in early life through social learning and identification with role models. These prosocial norms often include “reciprocity” which motivates people “to help those who help them”, or the norm of “social responsibility” that motivates people to provide help to others in need help or who depend on them (Eisenberg & Mussen, 1989). Through volunteering, children and young people can learn prosocial norms, understand the world, gain career related and leadership experience, and strengthen social competence and social relationships.

Children and adolescents could also learn prosocial norms and behavior from their preferred role models who demonstrate the adoption of prosocial norms and an appreciation of prosocial acts. Prosocial norms like reciprocity, social responsibility, altruism and volunteerism are ethical standards and beliefs that youth development programs often desire to enhance. It is clear from the theories that the influences on prosocial development are multifaceted, but few theories address the issue of how prosocial norms (in the form of feelings of moral obligation) may be deactivated by a norm of self-interest, when prosocial acts appear to be necessary. Although this study highlighted the importance of prosocial norms, more theoretical development is needed

to examine how young people perceive and receive prosocial norms (e.g., social responsibility, altruism, etc.), especially through school and peer influence.

In both the first phase and second phase of the study, prosocial moral reasoning was not an important predictor of prosocial behavior or the helping intention. This result runs counter to many studies in other countries that find a moderately strong link between moral reasoning and prosocial behavior (Eisenberg et al., 1987). There are several alternative explanations for this result. First, the current study results may reflect cultural differences between Chinese and other populations. Social influence could exert much more influence on prosocial behavior in Chinese populations than individual prosocial orientation does in other ethnic groups. Second, the failure of prosocial reasoning to predict prosocial behavior could be the result of significant collinearity among prosocial reasoning, empathy, and prosocial norms. However, an analysis using condition indices shows that these three variables share significant variance proportions in several dimensions. On the whole, prosocial reasoning only explained a small proportion of the variation in prosocial behavior (4.5%) when it was entered as the only predictor in the regression. Thus, prosocial reasoning may indeed be a less important predictor of prosocial behavior.

Third, it is possible that prosocial reasoning is less strong among the

participants of this study, when compared with those in previous studies in other countries. It may not predict prosocial behavior. Comparing the cross-national study by Carlo et al. (1996) with two local studies using Chinese participants (Lai et al., 2014; Siu et al., 2012), the weighted moral reasoning score was significantly lower than it was with foreign subjects. Thus, it is possible that prosocial reasoning is not a strong driving force behind prosocial behavior among Chinese adolescents in Hong Kong. Although moral reasoning has long been emphasized in the history of China, especially in Confucian thought, it may no longer be as strongly emphasized in modern Chinese societies like Hong Kong.

There were inconsistent results regarding whether or not empathy-related constructs are good predictors. Empathy was an important predictor of the helping intention and prosocial behavior in the first part of this study, but not in the second one. There are two possible explanations for this. First, like prosocial reasoning, empathy may not have been a strong driving force behind prosocial acts among the study participants. Second, empathy-related constructs have different elements that may have different relationship with prosocial behavior (Eisenberg et al., 1995). It is possible that the affective (empathetic concern) and cognitive (perspective taking) aspects of empathy had different relationships with prosocial behavior. In this study, we used a Chinese short form of the Interpersonal Reactivity Index in which the cognitive and affective subscales were

combined to indicate empathy. An insignificant relationship with prosocial behavior may come up if affective and cognitive aspects have a different relationship with prosocial behavior. This result runs counter to many studies in other countries that found a strong link between empathy and prosocial behavior (Eisenberg et al., 1987). Thus there is a need to try to replicate this result. Further research using longitudinal study designs may shed light on whether or not the relationship between prosocial behavior and empathy is really insignificant. It would be important to address the fair statistical power in this study, as many results of Pearson correlations and Regression analyses are so small. Even though there is statistical significance, there might not be practical significance. Further study would be suggested.

7.1.2 Social Influence on Prosocial Behavior

Social influence was shown to be more important than individual competence in predicting prosocial behavior in this study. The present study underscored the idea that social influence from parents, peers and school plays a very important role in the prosocial development of adolescents, which may be explained by cultural norms and socialization practices among Hong Kong Chinese.

Peer Influence. Peer influence is a significant predictor of prosocial behavior and the

helping intention in adolescents. These findings were in line with literature showing the great impact of peer influence on adolescent development (Schonert-Reichl, 1999).

Adolescents may identify themselves more with values and actions of peers, rather than with those of parents and school. Since Chinese individuals tend to have a strong tendency to align with and compare themselves with others, peer influence could have a great impact on the development of prosocial behavior (Chen et al., 1992). It is likely that a prosocial individual would have prosocial peers, which contribute to his or her helping intention and prosocial behavior.

Moreover, being prosocial can also be a way to save face (Chang et al., 2005).

Adolescents (and perhaps adults) tend to mind a lot about what others do in deciding what they should do. It could be shameful if one is accused of not being prosocial or helpful, and this could motivate people to act more responsively to the needs of others, if their peers agree to do so. Peers may exert their influence on adolescents' prosocial behavior via direct interpersonal influences or modeling (Eisenberg et al., 2006). It therefore would be beneficial to create a larger network of young people who would start to volunteer, even from their primary school days. The study also revealed a gender difference, showing that peer influence in females is more strongly related to prosocial outcomes than it is in males. This implies that peer influence could have more impact on females than males, which could be explained by social networks and support being

stronger in adolescent girls than it is in boys (Aronson et al., 2004).

Parental Influence. Parental influence was shown to be a significant predictor of both the helping intention and prosocial behavior in adolescents. This result is not consistent with current literature in Western countries. A substantial portion of this literature showed that adolescents tend to listen to their peers more than their parents (Atkins, Hart, & Donnelly, 2005; Calabrese & Schumer, 1986) and peers gradually become a more significant social resource than parents (Dekker & Halman, 2003; Dworkin et al., 2003; Steinberg, 2005). The prosocial participants in phase 2 of the study reported that their parents tend to provide much help to friends and family members. This is consistent with Amato's (1990) assertion that helping family and friends is the most common form of spontaneous help. Chinese parenting puts great emphasis on modeling by parents (Chao, 2001); parents in particular are expected to set a good example for their children. Previous research has indicated that parents' modeling and their influence were positively related to their children's prosocial development, particularly when they were young (Clary & Miller, 1986; Stukas, et al., 1999).

School Influence. School influence shows significant prediction of prosocial behavior, but not of the helping intention in adolescents. This result was different from previous findings that found recognition of prosocial behavior by schools to be related to

prosocial behavior and socio-emotional adjustment (Brand, Felner, Shim, Seitsinger, & Dumas, 2003). It was believed that a positive school culture might protect adolescents from experiencing emotional and behavioral problems (Amato, 1990) and could create a context critical for the development of self esteem (Coghill, 2010) and positive peer relations (Newcomb & Bagwell, 1995). However, it was worth noting that school influence was not a good predictor of the helping intention. This could be explained by the heavily academic-oriented learning environment in Hong Kong. To make better use of school influence, a positive reward system and positive recognition at school for prosocial behavior could further promote its development. This could make the school influence even more important.

7.2 Contributions of the Study

7.2.1 Social-ecological Model of Prosocial Behavior.

This study adopted the human ecological model, which provides a clear, cohesive and comprehensive theoretical framework for understanding complex human behavior. The ecological model could address the interaction between person and social environment, addressing how “layers” of influence in the ecological system may impact on the helping intention and prosocial behavior (Brower, 1988). This enables a comprehensive picture

of how individual competence and social influence could influence adolescents, and the relative contribution of the two types of influence. Furthermore, the current study is also a pioneering attempt to measure these influences in the Chinese population. Although there is no lack of literature on development and behavior, research on prosocial behavior is very limited, especially in the Chinese context (Shek & Ma, 2011; Shek et al., 2007). A lack of specific standardized instruments for measuring prosocial behavior could be the major barrier.

7.2.2 The Study of Prosocial Subjects

A prosocial sample of young people was recruited in the second phase of the study. This was to ensure that prosocial behavior would be relatively high in sample so that we could study predictors using linear models. Many previous studies, including the first phase of this study, showed that the frequencies of prosocial or volunteer behavior tended to be low and highly skewed towards the lower end. As revealed by the data screening in the data set of the prosocial sample, the distribution of prosocial behavior was largely normal, and it enabled the use of regression analyses in the predictive study. While the use of prosocial subjects has its advantages, it should be noted that the study results in the second phase of the study could only be generalized to young people who have a history of volunteering or are used to providing help to others. Furthermore, this prosocial group

of participants may have had a tendency towards social desirability when responding to the questionnaires. However, as we did not find significant differences in empathy and prosocial reasoning between this sample and two other, larger, samples in our previous studies (Lai et al., 2012; Siu et al., 2012), it is unlikely that social desirability would be a major issue affecting the validity of the results.

7.2.3 Validation of Scales for the Study of Predictors of Prosocial Behavior

Three scales, namely the PROM, AHM and PHM, were translated into Chinese and their psychometric properties were reviewed. Before using the Chinese PROM, the testing of the moral reasoning was conducted by asking respondents to comment on ethical or moral dilemmas in the format of semi-structured interviews. The PROM is one of the few self-completed instruments which could assess prosocial moral reasoning in a more efficient manner while retaining the use of ethical dilemmas. Through this study, a standardized instrument for the assessment of prosocial reasoning in Chinese populations was developed. Further examination of the construct validity should also be included in future validation testing of the Chinese PROM. Nevertheless, up till now, the PROM remains the only validated Chinese instrument for studying moral reasoning in adolescents. The further full development of the Chinese PROM in coming studies could enable professionals and researchers to assess prosocial reasoning among young people

in an objective and efficient manner, or to evaluate the outcomes of youth development programs.

Literature reviews showed there is a lack of instruments for measuring social influence on prosocial behavior among adolescents. Through a thorough search of the literature, the Modified Adolescent Spontaneous Helping Measures and Modified Parent Helping Measures developed by Bartel (2006) were identified, translated into Chinese, and validated in this study. The availability of these instruments enables educational professionals and family researchers to assess the helping intention in, and parental influence on, young people in an objective and efficient manner. As this study has only assessed the reliability and internal consistency of the translated instruments, further psychometric properties could be further enhanced through further validation of instruments.

7.3 Implications of the Study

7.3.1 The Development of Theory Regarding Prosocial Development

The strength of the ecological model relies on its attempt to examine multiple influences such as social influence and individual competence, but there are still methodological or practical limitations that prevent us from examining too many influences at one time

(Muuss, 1996; Pardeck, 1988). The inclusion of too many variables may lead to a very long research questionnaire and contribute to fatigue in the participants, affecting the responses. Moreover, the ecological perspective alone may not be adequate to describe the developmental process or explain how the variables are relevant to the prediction of prosocial behavior (Pardeck, 1988). There is a need to apply process theories in guiding the selection of predictor variables as well as in explaining the relationship among predictors and prosocial behavior. From the results, it is suggested that social learning or self-efficacy models (Bandura, 1997) may be combined with the human ecological model to explain the developmental process of prosocial behavior among young people.

Although in this study they had a low effect size, the results from the predictive value of social influence implies that prosocial norms and behavior are probably the results of modeling, social reinforcement and school socialization. However, this finding is worth studying further in the future.

The present findings showed that social influence may have an impact on prosocial behavior, and this could be a cultural phenomenon among Chinese populations. The results could be explained by cultural norms and socialization practices among Hong Kong Chinese, under the consideration of three points. Firstly, Chinese individuals tend to have a strong inclination to align with and compare themselves with others (Chen et al., 1992). Being prosocial can be a way to save face (Chang et al., 2005). Secondly, it is

highly likely that the prosocial sample had a prosocial peer group, and this could further motivate young people to act more responsively to the needs of others. Thirdly, culture and the media are likely to have an impact on the promotion of prosocial behavior (Eisenberg et al., 2006), and further research should focus on the role of the media in prosocial behavior development in a Chinese population.

7.4 Practical Implications

7.4.1 Positive Youth Development Program

The importance of social influence as a predictor of prosocial behavior and the helping intention points to important implications for structuring positive youth development. In fact, prosocial behavior could be regarded as one of the key outcomes of a youth development program, although this link has not been systematically examined (e.g. Catalano, Oxford, Harachi, Abbott, & Haggerty, 1999; Catalano et al., 2002; Lerner, 2003; Shek et al., 2007). Parents, educators, and youth workers may apply social influence strategies to promoting prosocial behavior in several ways like forming social service groups, the use of service learning and using foot-in-the door strategies in promoting prosocial behavior.

7.4.2 What Parents and School could do to Promote Prosocial Behavior

Parent-teacher associations may promote collaborative activities, encourage the participation of both parents and children in activities, and promote parents' workshops on character development, which includes prosocial and moral development. For example, they could promote collaborative activities like joining in community volunteering programs such as flag-selling, volunteering to help at elderly homes, and country-side beach cleaning. These activities could promote parents' early involvement in prosocial activities, and parents could guide students to treasure and reflect on their experiences gained in their early life of prosocial activities. Parents' actual participation in prosocial activities with children together could provide direct role modeling and positive reinforcement for their children participating in prosocial activities. Moreover, documenting and publicizing their experiences in school based events and community based events could enrich the communication between family and school.

With the involvement of parent-teacher associations in schools, this could become a regular school-parent function, and one which could facilitate the formation of a prosocial parent network. Moreover, this could enhance mutual support among parents for promoting prosocial behavior in young people.

It is good to have early encouragement from participation in school prosocial activities through the experiential approach in the early primary school stage involving activities like road safety patrols, class mentors and other duties in schools. These can help children know and reflect on the benefits of helping others. These soft approaches can be further encouraged in the present education system as part of the parents training of their children in order to foster the development of values in the earlier stages of their lives. Moreover, by applying foot-in-the-door strategies for prosocial behavior participation, schools could develop a system to recognize and reward prosocial and helping behavior. Prosocial behavior could be considered as a mandatory assessment apart from academic performance. A positive recognition of prosocial behavior, in addition to a reward system in school could further promote its development.

By setting up a network of positive peer influence and developing a positive reinforcement system in the community, and promoting prosocial behavior, we can use peer influence practically and positively. It would be beneficial to create a larger network of young people forming peer groups in school to start volunteer activities, as this could be integrated into existing community youth programs like those of the Red Cross Group.

While the results did not find moral reasoning, empathy and values to be significant predictors of prosocial behavior, it raises a query on how far the current

family and school education emphasizes the importance of these intrapersonal competencies and values. There are two ways that schools and parents may address this. First, School Board or Parent-teacher associations could conduct focus groups or discussion forum in the school to discuss if these were important as training curriculum in school or at home. Second, schools may consider formulating policies in integrating training for teachers and parents education to learn how to facilitate moral reasoning, empathy and clarify values in curriculum and family socialization, Third, research could be further conducted to examine the perceived values of moral and empathy education or training, and child health policy advocates may be interested to report such finding through press conference and media, in collaboration with schools or parent-teacher associations.

7.5 Limitations

7.5.1 Research Design

The present study has a cross-sectional design, which can only take a snap-shot.

Cross-sectional surveys can not provide strong evidence for causal inferences (Bukatko & Daehler, 2004). The identification of significant predictors from the regression analysis does not imply causal relationships between the predictors and prosocial behavior. Future research could adopt a longitudinal design to address the weaknesses of the cross-sectional design in this study. Moreover, the causal effect of individual competence and social influence could be better documented with longitudinal designs.

7.5.2 Other Potential Predictors of Prosocial Behavior

The regression predictors contributed significantly to the prediction of the helping intention and prosocial behavior, however, the percentage of variance explained in the prediction (R^2) was .48 for the helping intention and .28 for prosocial behavior. This means that there are other predictors that were not included in this study, especially for the prediction of prosocial behavior. These variables may include prior experience of helping, socio-cognitive abilities, and sympathetic tendencies of individuals, as well as

contextual factors (e.g., the cost of helping) (Baumrind, 1996; Eisenberg & Fabes, 1998; Gollwitzer, 1999). However, the inclusion of more predictors would have lengthened the research questionnaire, and made it less acceptable to participants.

7.5.3 Use of Self-Reported Questionnaires and the Perception of Parents'

Behavior

It should be noted that the variables indicating peer, family and school influence were indicated by variables that measured how participants perceived the prosocial behavior of their parents and peers, and how much they perceived their schools to be supportive of volunteering, and helping behavior. These are not exactly social influence variables, but are measured to reflect the degree of social influence. To truly reflect these social influences, it may be good to involve parents, schools or peer informants in filling out questionnaires for further study. Asking young people how their parents or peers affected their prosocial development or behavior was believed to be the qualitative measure. These qualitative results could then be used to validate the results that have already been collected in present studies.

Moreover, some participants found that the Chinese PROM tended to demand more time and attention than the other sections of the questionnaire, and some

participants may have tended to hurry through it rather than reflecting deeply on their responses. The ethical dilemma format has been used as a standardized format measuring moral or prosocial reasoning in overseas populations, but it is relatively more challenging to administer it to our Chinese population. Moreover, instead of adopting 5 out of 6 test scenarios of the original PROM, further research should consider adding one to a few more scenario which are culturally relevant to Hong Kong. Researchers may also consider the use of interview, like in the earliest test of moral reasoning (Kohlberg, 1976), which could further enhance the validity of data collection using the Chinese PROM.

7.5.4 Characteristics of Recruited Subjects

There are limitations to recruiting subjects by means of convenience sampling, and to the small sample size in the validation study. The recruitment of a prosocial sample in this study addressed the highly skewed distribution and low frequency of prosocial behavior in adolescent populations, which enabled the identification of predictors using regression analyses. However, we did not find significant differences in empathy and prosocial reasoning between this prosocial sample and the two other, larger samples in our previous studies (Lai et al., 2012; Siu et al., 2012), although the current sample shows significantly more prosocial behavior. Thus, we do not consider social desirability to be a major issue affecting the validity of the results. However, those variables measured to

what degree participants who perceived prosocial behavior would answer the questionnaire out of social desirability. To truly reflect these social influences, it may be good to involve parents, schools or their peers so that they can provide their opinions collectively. It is also worth noting that 70% of the prosocial sample group is female. In exploring gender differences, female participants presented higher levels of the helping intention than males, but both groups presented similar levels of prosocial behavior. Females also perceived their parents as more prosocial and their school as being more supportive of prosocial behavior than did males. The overall conclusion of the study could have been affected by these gender differences. However, when we conducted a regression analyses on the male and female samples, the significant predictors remained the same, although there were some differences in the explained variance.

7.6 Recommendations for Further Studies

To summarize the discussion of the whole study, several areas are suggested for further investigation:

- 1) To ensure the generalizability of the study results, it is suggested that more scientific sampling strategies be adopted, like using random sampling in further studies.

- 2) Recruit a large sample to examining the construct validity of the Chinese PROM, the Chinese AHM and the Chinese PHM.

- 3) In future studies, the quality of data used to measure participation in prosocial activities could be improved. Instead of using a rating scale, we could ask participants to record their hours of volunteer activity per week, as well as how long (in months) they participated in the activities.

- 4) Adopting a longitudinal study design could further ensure the stability of different social and individual predictors across the time of growth in the adolescents. Moreover, a longer duration study of two to three years is suggested, which can trace the logical sequence of variables in the development of prosocial behavior in young people. With the addition of this temporal dimension, the causal linkage of cognitive and personal factors, and prosocial behavior, can be further disseminated and justified. However, longitudinal design demanded more time and resources in following through the subjects from time to. Depending on the duration of study, to subjects tend to drop-out from the study over time, which would shrink the sample size and create threats to the validity of study. Apart

from this, influence of social events (e.g. major societal events like “Occupy Central”) could greatly influence the values, moral reasoning, and prosocial behavior of young people.

There are some suggestions to overcome those barriers. Relationship building between researchers and research participants is known to secure subjects’ engagement in the longitudinal study. The researcher should also consider ways to remove logistical barriers, such as reducing changes to schedules of data collection, make repeated data collection procedures user-friendly and convenient to participants .

- 5) Studying how cultural norms shape individual norms and values linked to the helping intention and prosocial behavior. This would be important in motivating more adolescents to broaden their roles in the community. Apart from relying on social influence alone, plans are needed to enhance the positive personal and environmental influence in Hong Kong. It needs the involvement of systematic policies and service integration.
- 6) Pragmatic values showed to be a significant predictors in prosocial behavior in phase one of the main study. However, the inclusion of pragmatic values is only

one of the many proposed predictors at community level. Future studies should examine how current societal values may impact on prosocial behavior.

7) Findings in this study showed that Chinese individuals tend to have a strong inclination to align with and compare themselves with peers, and thus peer influence can have a great impact on the development of prosocial and antisocial behavior. Moreover, this finding echoed with the study by Chen et al. (1992). It is likely that the prosocial sample had prosocial peers who contributed to their helping intention and prosocial behavior. Therefore, further study should gear toward studying this directive relationship.

8) The prediction of helping intention and prosocial behavior are satisfactory. However, the proportion of variance explained by predictors is about 40%. There are other predictors which may not have been accounted for in the regression. It is suggested that media could made a major impact on the promotion of prosocial behavior (Eisenberg et al., 2006). Further research could examine the role of the media in prosocial behavior development in Chinese adolescents.

9) In present study, prosocial moral reasoning is not important predictor for prosocial behavior. One alternative explanation is that moral decision making in Chinese adolescent is not so much based on thinking through the arguments or

ethical principles. Recent studies also suggested that prosocial action tendencies could arise from moral emotions (Haidt, 2003a, 2003b; Tangney, Stuewig & Mashek, 2007), and it would be interesting to examine it in future studies.

10) This study did not try to conduct structural equation modeling (SEM), as it is hard to put up a well-justified hypothesized model for testing at this time. This is one of the very few studies that have examined both individual and social predictors of prosocial behavior, as most previous studies used individual cognitive or emotional characteristics as predictors. Therefore, it is not mature enough to use SEM at this stage, but it could be a recommendation for further study.

Chapter 8. Conclusion

Based on the human ecological model, this study hypothesized that some individual cognitive and emotional competencies, as well as social influence, are closely linked to prosocial behavior and the helping intention in young people. To address the research question, there was a need to translate and validate several instruments that could be used to measure key variables such as prosocial moral reasoning, the helping intention in young people and the influence of their parents. In the validation study, the Chinese versions of three scales, namely the Chinese Prosocial Reasoning Objective Measures (Chinese PROM), the Chinese Adolescents Helping Measures (Chinese AHM), and the Chinese Parent Helping Measure (Chinese PHM) were developed. The validation results showed that the three instruments had satisfactory reliability and validity, so that these instruments could be used in the main study. To ensure the quality of translation, the use of back translation was recommended for the Chinese version of the scales. Moreover, due to the limited time resources and sample size used in the present validation study for the Chinese PROM, further validation and refinement work of criterion-related validity should be conducted to rectify its psychometric properties for use in further studies. To ensure the stability of the psychometric properties, further examination of the construct validity of these Chinese scales, and particularly the construct validity of the Chinese PROM, was suggested.

The main study was composed of two phases. In the first phase of the main study, we recruited 518 subjects who had been nominated by their schools to complete a questionnaire survey. Moreover, in the second phase of the main study, 580 young people with regular volunteer activities were recruited to complete another questionnaire survey. Further study should adopt a random sampling strategy to ensure the generalizability of study results. Moreover, data screening checks should be carried out to improve the data quality before the commencement of multivariate data analyses.

The first phase of the main study aimed to examine the correlation and predictors of prosocial behavior. It theorized that individual values, norms and, individual cognitive and emotional competencies are the key predictors of prosocial behavior. The study supported the theory that prosocial norms, pragmatic values, empathetic concern and personal distress are shown to be statistically significant. However, prosocial moral reasoning was found to be not significant. The results of this phase of the study implied there was significant collinearity among prosocial moral reasoning, empathy and prosocial norms. Multi-collinearity among these three variables may therefore force prosocial moral reasoning to become an insignificant predictor.

Moreover, it was noted that the prosocial behavior reported by the participants

was not high. The most frequent prosocial act by young people was assisting in household chores. However, altruistic acts like volunteering were rather uncommon. Nevertheless, assisting in school activities, or receiving commendation from school were infrequent or largely absent in this group of recruited young people. It was because of this phenomenon that a prosocial sample was purposely recruited for the second survey to ensure that prosocial behavior was relatively high. This sampling strategy addressed the highly skewed distribution and low frequency of prosocial behavior as it was shown in the general sample recruited for the first survey. This enabled the identification of predictors through statistical analysis like regression analyses.

The second survey aimed at identifying predictors of the helping intention and prosocial behavior from previously identified individual cognitive factors, and with the additional consideration of social influence factors. Results showed that social influence factors, including peer, and parent influence were predictors of the helping intention and prosocial behavior, while individual cognitive factors like empathy and prosocial moral reasoning were not. The findings indicate that social influence is strongly linked to prosocial behavior. This implies that socialization and social support for prosocial norms and behavior can exert a powerful influence on the behavior of young people in a Chinese population.

Parental influence is the most important predictor for both prosocial behavior and the helping intention, followed by peer and then school influence. These findings are different from those in the literature, which showed the great impact of peer influence on adolescent development. Parental influence and modeling have long been found to be positively related to the early prosocial development of children and adolescents, especially in children and early adolescents. Peers may exert their influence on adolescents' prosocial behavior via direct interpersonal influence or modeling. It is worth noting that peer influence among females is more strongly related to prosocial outcomes than it is among males. This implies that peer influence could have a greater impact on females than on males, which could be explained by the stronger social networks and support found among adolescent girls. Moreover, when children reach adolescence, they tend to listen to their peers more than their parents, and peers gradually become a more significant social resource than parents.

There were significant gender differences, but when age was considered as a covariate of the prediction of prosocial behavior, the predictors also differed slightly. Male participants had higher empathy scores and stronger intentions of helping than females did, perceived their parents as being more helpful, and their schools as more supportive of prosocial behavior. However, the significant predictors of prosocial behavior and the helping intention were similar across gender. The findings indicate that

social influence is strongly linked to prosocial behavior. This implies that socialization and social support for prosocial norms and behavior can exert a powerful influence on the behavior of young people in a Chinese population. It is important to address the fair statistical power in this phase of the study, as many results of the Pearson correlations and Regression analyses are so small. Even though there is statistical significance, there might not be practical significance. Further study would be encouraged.

The present study underscored the idea that social influence from parents and peers plays a very important role in the prosocial development of adolescents, which may be explained by cultural norms and socialization practices among Hong Kong Chinese. First, Chinese parenting puts great emphasis on modeling by parents and school socialization. Parents in particular are expected to set a good example for children. Second, Chinese individuals tend to have a strong inclination to align with and compare themselves with peers, and thus peer influence can have a great impact on the development of prosocial and anti-social behavior. Third, being prosocial can be a way to save face. Chinese people give great consideration to what others do in deciding what they themselves should do. It would be shameful to be accused of not being prosocial or helpful, and this could motivate people to act more responsively to the needs of others. Furthermore, culture and the media are likely to have an impact on the valorization of prosocial

behavior, and further research should focus on the role of the media in prosocial behavior development.

To conclude, the prosocial behavior and the helping intention of young people was studied broadly, and the inter-relationships among these variables became clearer as specific patterns among them emerged through the phases of this study. The results of this study provide an important reference for educational and social services who want to develop prosocial behavior among young people. This pioneering study of prosocial behavior in young people could serve as a strong base for future research.

APPENDIX

Appendix 1. Study of Content Validity of the Chinese Prosocial Reasoning Objective Measure (Chinese PROM)

Aims and Objective of Panel Review

The present study is aimed at assessing the content validity and quality of translation of the Chinese Prosocial Reasoning Objective Measure (Chinese - PROM). The Prosocial Reasoning Objective Measure (PROM) was originally established by Professor Gustavo Carlo, Department of Psychology of The University of Nebraska-Lincoln. The English version of PROM was then translated into traditional Chinese by Dr. Yuh-Ling Shen, Department of Psychology, National Chung Cheng University of Taiwan. The Chinese version was further edited by a professional translator in Hong Kong to make the writing consistent with local usage and understanding by respondents in Hong Kong.

I have got the permission of the authors to adopt the Chinese PROM in my thesis – for measuring the prosocial reasoning of adolescence in Hong Kong. In this present validation study, which is part of the full thesis, I would like to invite you as a panel member, and help to evaluate:

- 1) Quality and accuracy of translation
- 2) Content relevance
- 3) Content representativeness

In case of any queries about this study, please contact Frank LAI at 91XXXXX

The Prosocial Reasoning Objective Measure (PROM)

Prosocial Reasoning Objective Measure (PROM) designed to examine prosocial moral reasoning in adolescence. The PROM was initially developed for administration to children as well as adults (ages 10-21+ years). It takes approximately 20-30 minutes to complete. In addition, the PROM has been translated to Chinese, Portuguese, Spanish, Korean, and Tagalog (Phillipino). As pointed out by these and other researchers (e.g. Gibbs et al 1984, Kurtines & Pimm, 1983; Rest 1983) paper-and-pencil measures of moral reasoning have been designed to assess the individual's ability to choose among alternative moral viewpoints, a skills that is related, but distinct from spontaneously producing, elaborating and defending moral viewpoints PROM contained five story dilemmas designed to invoke a conflict between the actor's needs, wants and desires and those of another (or others). The dilemmas dealt with the following issues:

- 1) Donating blood to a needy other versus losing time and money at work and school;
- 2) Choosing to get an injured child's parents versus going to a friend's party;
- 3) Continuing to stay and play in one's own backyard versus going to try and stop a bully that is picking on a peer;
- 4) helping disabled children strengthen their legs by teaching them to swim versus practicing for a swimming contest to win prize money;
- 5) keep food after a flood versus giving some food to others who had none.

After reading each story, subjects are asked to respond to what the character in the story should do (or what they would do in the character's situation) and to rate (on a scale of one to five, from greatly important to not important) how important each of the following six reasons were in making their decision as to what the character should do. Under each story, there are 3 behavioral choices listed as to what the character in the story should do (immediately under each PROM story dilemma), 6 reasons why the character should behave as specified.

There are 5 category scores plus a lie/nonsense category score designed to screen out socially desirability answers of subjects. There are hedonistic category score (which includes hedonistic and direct reciprocity items), a needs-oriented score, an approval-oriented score, a stereotypic score, and an internalized score (which includes sympathy, role-taking, positive and negative affect, generalized reciprocity, and internalized value items) and a ranking of how important each reason was in making their decision. The six reasons listed under each story were based on previous typical or common responses to the interview measure and typical or common responses which correspond to a specific prosocial reasoning category (N. Eisenberg, personal communication, 1990).

Furthermore, the establishment of the content validity would provide evidence for the construct of the test and support the subsequent validation process in the present study.

To complete this review, you would like to refer to the more detailed information about the PROM in the Appendices:

1. The Prosocial Reasoning Objective Measure (PROM) Manual (Original English 5 story version).
2. The Chinese version of Prosocial Reasoning Objective Measure.

The Chinese Prosocial Reasoning Objective Measure (Chinese-PROM)

An expert review on its content and construct validity

I. Personal Information

Name of Reviewer: _____

Occupation: _____

Work Setting: _____

Date of Review: _____

II. Review of Translation of Scenarios

Please indicate whether the translation of the following five stories in the Chinese Prosocial Reasoning Objective Measure (Chinese PROM) is equivalent in meaning as the English version. Please check your answer (Agree/Disagree) and give additional comments or suggestions for modifications.

1. Chinese: <故事一> 一位名叫樂思的女生擁有非常特殊的血型。開學不久，樂思才剛加入了學校球隊的第二天，便收到一位醫生的來電，請求樂思為一個生了重病而急需輸血的小女孩捐出大量血液。由於樂思是這裏唯一一個與那個小女孩擁有相同血型的人，而小女孩患上的是一種罕見而嚴重的疾病，需要在幾個星期內進行多次輸血，所以如果樂思同意捐血，便需要留院幾個星期。留院期間，樂思身體可能會感到虛弱，令她無法繼續為球隊出力，而且學校成績也可能因而落後很多。

English: A young girl named Lucy had a very unusual type of blood. One day right after Lucy had begun school and was accepted on the baseball team, a doctor called Lucy to ask her to give a large amount of blood to a girl who was very sick and needed more blood of the same kind as Lucy's to get well. Because Lucy was the only person in the town with the sick girl's type of blood, and since this was a rare and serious sickness, the blood would have to be given a number of times over a period of several weeks. So, if Lucy agreed to give her blood, she would have to go into the hospital for several weeks. Being in the hospital would make Lucy feel weak for a while, she would lose her spot on the team, and she would be very far behind in school.

Agree / Disagree, Comment or Suggestions for Change:

2. Chinese : <故事二> 一天，美兒正要去參加朋友的派對時，在途中遇到一個跌倒腿受傷的小孩。那個小孩請求美兒去他家裡通知他的父母，這樣他們就能來帶他去看醫生。但是，如果美兒真的跑去小孩家通知他的父母，她就會遲到，而且不能跟朋友一起玩樂了。

English : One day Mary was going to a friend's party. On the way, she saw a girl who had fallen down and hurt her leg. The girl asked Mary to go to the girl's house and get her parents so the parents could come and take her to a doctor. But if Mary did run and get the girl's parents, Mary would be late to the party and miss the fun and social activities with her friends.

Agree / Disagree, Comment or Suggestions for Change:

3. Chinese : <故事三> 一天，雅雯在公園裡玩耍時，看到一個小惡霸推倒並且嘲笑另一個不認識的小孩，而附近沒有任何大人。雖然被欺負的小孩一直試著要站起來，卻不停地被對方推倒。雅雯在公園裡玩得很愉快，但如果她去幫助那位受到欺負的小孩，自己也有可能會被欺負。

English : One day while Ann was playing in her yard, she saw a bully push and tease another child whom she did not know. There weren't any grownups around. As Ann watched, the one girl kept pushing the other girl down every time she tried to get back up. Ann was having a good time playing in her yard, and the bully might pick on her too if she tried to help.

Agree / Disagree, Comment or Suggestions for Change:

-

-

-

4. Chinese: <故事四> 德文很會游泳。有人請他在沒有報酬的情況下義務幫助有健康問題而不能走路的小孩學游泳，好讓他們的腿變得強壯，可以行走。因為德文不但很會游泳，更是一位游泳老師，所以他是這裏唯一可以勝任的人。為了一個即將到來的重要泳賽，德文正打算用盡工餘時間盡全力練習游泳，希望勝出之後可以利用比賽獎金來應付大學學費或完成其他想做的事。可是一旦決定幫助這些孩子的話，就會花掉德文很多時間，可能因此輸掉比賽而無法贏得獎金。

English : Scott was very good at swimming. He was asked to help young handicapped children who could not walk, learn to swim so that they could make their legs strong for walking. Scott was the only one in town who could do the job because he was a good swimmer and a swimming teacher. But helping the crippled children would take much of Scott's free time left after work and he wanted to practice swimming very hard for an important swimming contest coming up. If Scott could not practice swimming in all his free time, he would probably lose the swimming contest and not receive the prize for winning, which was money. Scott was planning to use the prize money for his college education or for other things he wanted.

Agree / Disagree, Comment or Suggestions for Change:

-

-

-

5. Chinese : <故事五> 暴風雨過後河水開始泛濫，淹進了市內的街道及房屋。洪流處處，令外地的食物無法送進災場。國威住在災場附近，儲有一些糧食，但如果他把食物分給災場的人，自己就會不夠吃，而且可能會有段時間得不到任何食物。國威雖然不會因為沒東西吃而死，卻可能因此生病。

English : One day, in a town near a big river, there was a big rain storm and the river started to overflow. The water from the river got into the streets and houses and everywhere. Because of the flooding, there was no way for food to be brought into the town from far away. Mike had some food, and lived close to the town. But if Mike took food to the town's people, then he would not have enough food for himself and he may not be able to get anymore food for a long time. If Mike had no food he would not die, but he would get sick.

Agree / Disagree, Comment or Suggestions for Change:

-

-

-

III. Review of Relevancy and Representativeness of Test Scenarios

Content Relevancy

Please indicate how far the content of each story is relevant in measuring the construct of “Prosocial Reasoning” in adolescents.

1. 《故事一》捐血的故事

Relevant 5 4 3 2 1 Irrelevant

Comments on the relevance of story (if any): _____

2. 《故事二》意外的故事

Relevant 5 4 3 2 1 Irrelevant

Comments on the relevance of story (if any): _____

3. 《故事三》看到小孩被欺負的故事

Relevant 5 4 3 2 1 Irrelevant

Comments on the relevance of story (if any): _____

4. 《故事四》游泳的故事

Relevant 5 4 3 2 1 Irrelevant

Comments on the relevance of story (if any): _____

5. 《故事五》暴風雨過後的故事

Relevant 5 4 3 2 1 Irrelevant

Comments on the relevance of story (if any): _____

Content Representativeness

How far do you think the five stories are a good collection of scenarios that elicits helping behavior, for assessment of prosocial reasoning of adolescents? Please circle your answer in the rating scale below, and give additional comments if any.

Representative 5 4 3 2 1 Not Representative

What helping scenario(s) you may want to add to the collection to make it more complete?

Others

Do you have any other comments on this Chinese Prosocial Reasoning Objective Measure ??

IV. Comment on the rating scale and scoring system

Please indicate whether the rating options under each story of the Chinese Prosocial Reasoning Objective Measure (Chinese PROM) are appropriate in examining prosocial moral reasoning of adolescents. The X in the following table indicates the nature of the prosocial moral reasoning assessed by the item. Please check if you **Agree** or **Disagree** the item assess the particular type of reasoning (see Marking in page 13 for definitions of the types of reasoning). If you check disagree, please give reasons or comments on why you disagree.

《故事一》捐血的故事	<i>Stereotyped</i>	<i>Lie / Nonsense</i>	<i>Approval-Oriented</i>	<i>Hedonistic</i>	<i>Internalized</i>	<i>Needs-Oriented</i>	Comment & Remarks
1. 樂思認為幫助別人是否一件好事	X						<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____
2. 樂思認為社交水平不容易解決		X					<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____
3. 樂思的朋友和父母會否同意她所做的決定			X				<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____
4. 樂思不能再為球隊出力是否重要				X			<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____
5. 樂思能否瞭解這個生病的小女孩有多難受					X		<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____

《故事一》捐血的故事	<i>Stereotyped</i>	<i>Lie / Nonsense</i>	<i>Approval-Oriented</i>	<i>Hedonistic</i>	<i>Internalized</i>	<i>Needs-Oriented</i>	Comment & Remarks
6. 視乎那個小女孩病得有多嚴重						X	<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>

《故事二》意外的故事	<i>Stereotyped</i>	<i>Lie / Nonsense</i>	<i>Approval-Oriented</i>	<i>Hedonistic</i>	<i>Internalized</i>	<i>Needs-Oriented</i>	Comment & Remarks
1. 美兒幫助或不幫助這個小孩之後，會對自己的行為有什麼看法					X		<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>
2. 美兒認為那個派對會有多好玩，多想知道派對內的趣事				X			<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>
3. 社區羣體會不會影響到對自己的看法		X					<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>
4. 美兒的父母和朋友會否覺得美兒做對或做錯			X				<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>
5. 視乎那個小孩是否真的需要幫助						X	<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>

《故事二》意外的故事	<i>Stereotyped</i>	<i>Lie / Nonsense</i>	<i>Approval-Oriented</i>	<i>Hedonistic</i>	<i>Internalized</i>	<i>Needs-Oriented</i>	Comment & Remarks
6. 美兒是否覺得幫助人是恰當的	X						<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>

《故事三》看到小孩被欺負的故事	<i>Stereotyped</i>	<i>Lie / Nonsense</i>	<i>Approval-Oriented</i>	<i>Hedonistic</i>	<i>Internalized</i>	<i>Needs-Oriented</i>	Comment & Remarks
1. 被欺負的小孩有否受傷						X	<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>
2. 雅雯會否擔心被欺負的小孩					X		<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>
3. 雅雯認為不去幫助別人是否太殘忍	X						<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>
4. 雅雯是不是對病理有責任		X					<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>
5. 雅雯是否玩得正高興				X			<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>

《故事三》看到小孩被欺負的故事	<i>Stereotyped</i>	<i>Lie / Nonsense</i>	<i>Approval-Oriented</i>	<i>Hedonistic</i>	<i>Internalized</i>	<i>Needs-Oriented</i>	Comment & Remarks
							_____ _____ _____
6. 雅雯的父母和朋友知道雅雯幫或不幫之後會怎樣想			X				<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____

《故事四》游泳的故事	<i>Stereotyped</i>	<i>Lie / Nonsense</i>	<i>Approval-Oriented</i>	<i>Hedonistic</i>	<i>Internalized</i>	<i>Needs-Oriented</i>	Comment & Remarks
1. 德文是否相信社會福利機構的宗旨		X					<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____
2. 德文是否相信教導這些孩子游泳是好事	X						<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____
3. 德文是否真的很想在泳賽中勝出				X			<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____
4. 視乎那些孩子的腿痛不痛						X	<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____

《故事四》游泳的故事	<i>Stereotyped</i>	<i>Lie / Nonsense</i>	<i>Approval-Oriented</i>	<i>Hedonistic</i>	<i>Internalized</i>	<i>Needs-Oriented</i>	Comment & Remarks
5. 德文的父母和社區會否認為他做對或做錯			X				<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____
6. 孩子能夠走得更好會否讓德文覺得開心					X		<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____

《故事五》暴風雨過後的故事	<i>Stereotyped</i>	<i>Lie / Nonsense</i>	<i>Approval-Oriented</i>	<i>Hedonistic</i>	<i>Internalized</i>	<i>Needs-Oriented</i>	Comment & Remarks
1. 國威的父母和朋友會否贊成她所做的決定			X				<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____
2. 視乎災場內的人們會否生病						X	<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____
3. 災場的人如果生病了會否讓國威感到難過					X		<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____
4. 國威會否覺得不去幫助別人可能太殘忍	X						<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : _____ _____ _____

《故事五》暴風雨過後的故事	<i>Stereotyped</i>	<i>Lie / Nonsense</i>	<i>Approval-Oriented</i>	<i>Hedonistic</i>	<i>Internalized</i>	<i>Needs-Oriented</i>	Comment & Remarks
5. 風雨總是會過去的。		X					<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>
6. 國威是否想到，他自己某天可能也需要災民的幫助				X			<input type="checkbox"/> Agree <input type="checkbox"/> Disagree & Comment : <hr/> <hr/> <hr/>
<p>The End Thank you very much for your participation</p>							

Marking

Definitions of the types of moral reasoning

1. **Hedonistic** (a) Hedonistic gain to the self (orientation to gain for oneself; e.g., “She might get a reward”), (b) direct reciprocity (orientation to personal gain because of direct reciprocity or lack of reciprocity from the recipient of an act; e.g., “They might return the favor someday”), (c) affectional relationship (orientation to the individual’s identification or relationship with another or liking for the other; e.g., “He might be a friend”);
2. **Needs-oriented** (orientation to the physical, material, or psychological needs of the other person; e.g., “He needs blood,” or “He’s sad”);
3. **Stereotyped** (orientation to stereotyped images of a good or bad person; e.g., “It is the kind thing to do”);
4. **Approval orientated** (orientation to others’ approval and acceptance in deciding what is the correct behavior; e.g., “Others would think she did the right thing”);
5. **Internalized**—(a) sympathetic orientation (expression of sympathetic concern and caring for others; e.g., “He’d feel sorry for them”), (b) role taking (the individual explicitly takes the perspective of the other or has the story protagonist do so; e.g., “He’d think about how he would feel if he were in that situation”), (c) internalized positive affect related to consequences (orientation to internal positive affect as a result of a particular course of action because of the consequences of one’s act for the other person; e.g., “She’d feel good because the children who needed help would walk better”), (d) internalized negative affect related to consequences (the same as Item c but for negative affect);
6. **Lie/nonsense** - is not a prosocial moral reasoning type and should not be used in computing preferences for prosocial moral reasoning. The lie/nonsense items may be used to screen out subjects that may have chosen answers randomly or who might not have been concentrating.

Note: Hedonistic and direct reciprocity are considered Hedonistic types, psychological and physical needs-oriented are considered Needs-oriented types, approval-oriented is considered Approval-oriented type, stereotypic is considered Stereotypic, and sympathy, role-taking, positive and negative affect, generalized reciprocity, and internalized value are considered Internalized reasoning types.

Appendix 2. Study of Content Validity of the Chinese Adolescent Helping Measure (Chinese AHM) and Chinese Parent Helping Measure (Chinese PHM)

Aims and Objective of Panel Review

The present study is aimed at assessing the content validity and quality of translation of the Chinese Adolescents Helping Measure (Chinese AHM) and the Chinese Parent Helping Measure. The Adolescents Spontaneous Helping Measures (ASHM) and Parent Planned Helping Measure (PPHM) were originally established by Dr. Jeffrey Bartel at 2006, in which, the same set of statement in offering help to different subjects (namely help to “friends”, “non-friends” and “strangers” for adolescents; “family & friends” and “strangers” in parent) will be asked. The Chinese version was further edited by a professional translator in Hong Kong to make the writing consistent with local usage and understanding by respondents in Hong Kong. In this present validation study, which is part of the full thesis, I would like to invite you as a panel member, and help to evaluate:

- 4) Quality and accuracy of translation
- 5) Content relevance
- 6) Content representativeness

In case of any queries about this study, please contact Frank LAI at 9XXXXXXX

Furthermore, the establishment of the content validity would provide evidence for the construct of the test and support the subsequent validation process in the present study.

Chinese Adolescent Helping Measure (Chinese AHM) and Chinese Parent Helping Measure (Chinese PHM) An expert review on its content validity

I. Personal Information

Name of Reviewer: _____

Occupation: _____

Work Setting: _____

Date of Review: _____

II. Review of Translation of Scenarios

** For SUBJECTS

**“friends”, “non-friends” and “strangers” in measuring adolescents;
“family & friends” and “strangers” in measuring parent**

Statement 1 : 幫助一名 [SUBJECT] 拾起他/她掉下的東西 (例如一包雜物)。

Agree / Disagree, Comment or Suggestions for Change:

Statement 2 : 突然下起大雨時，與一名 [SUBJECT] 共用你的雨傘。

Agree / Disagree, Comment or Suggestions for Change:

Statement 3 : 為一名雙手拿滿東西的 [SUBJECT] 開門 (或保持開啟)。

Agree / Disagree, Comment or Suggestions for Change:

Statement 4: 協助一名跌倒的 [SUBJECT] 站起來。

Agree / Disagree, Comment or Suggestions for Change:

Statement 5 [SUBJECT] 手上的一大疊書快要掉下時，為他/她拿書。

Agree / Disagree, Comment or Suggestions for Change:

Statement 6 幫助一名[SUBJECT] 尋找走失的寵物。

Agree / Disagree, Comment or Suggestions for Change:

Statement 7 安慰一名剛看過一則手機短訊而顯得極度憂傷的 [SUBJECT] 。

Agree / Disagree, Comment or Suggestions for Change:

Statement 8 與一名獨自一人並顯得非常傷心的 [SUBJECT] 坐下來傾談。

Agree / Disagree, Comment or Suggestions for Change:

III. Review of Relevancy and Representativeness of Test Scenarios

Content Relevance

Please indicate how far the content of each story is relevant in measuring the helping in adolescents.

Statement 1 : 幫助一名 [SUBJECT] 拾起他/她掉下的東西 (例如一包雜物)。

Relevant 5 4 3 2 1 Irrelevant (for Adolescents in AHM))

Relevant 5 4 3 2 1 Irrelevant (for Their Parents in PHM)

Comments on the relevance of story (if any): _____

Statement 2 : 突然下起大雨時，與一名 [SUBJECT]共用你的雨傘。

Relevant 5 4 3 2 1 Irrelevant (for Adolescents in AHM))

Relevant 5 4 3 2 1 Irrelevant (for Their Parents in PHM)

Comments on the relevance of story (if any): _____

Statement 3 : 為一名雙手拿滿東西的 [SUBJECT] 開門 (或保持開啟)。

Relevant 5 4 3 2 1 Irrelevant (for Adolescents in AHM))

Relevant 5 4 3 2 1 Irrelevant (for Their Parents in PHM)

Comments on the relevance of story (if any): _____

Statement 4: 協助一名跌倒的 [SUBJECT] 站起來。

Relevant 5 4 3 2 1 Irrelevant (for Adolescents in AHM))

Relevant 5 4 3 2 1 Irrelevant (for Their Parents in PHM)

Comments on the relevance of story (if any): _____

Statement 5 [SUBJECT] 手上的一大疊書快要掉下時，為他/她拿書。

Relevant 5 4 3 2 1 Irrelevant (for Adolescents in AHM))

Relevant 5 4 3 2 1 Irrelevant (for Their Parents in PHM)

Comments on the relevance of story (if any): _____

Statement 6 幫助一名[SUBJECT] 尋找走失的寵物。

Relevant 5 4 3 2 1 Irrelevant (for Adolescents in AHM))

Relevant 5 4 3 2 1 Irrelevant (for Their Parents in PHM)

Comments on the relevance of story (if any): _____

Statement 7 安慰一名剛看過一則手機短訊而顯得極度憂傷的 [SUBJECT] 。

Relevant 5 4 3 2 1 Irrelevant (for Adolescents in AHM))

Relevant 5 4 3 2 1 Irrelevant (for Their Parents in PHM)

Comments on the relevance of story (if any): _____

Statement 8 與一名獨自一人並顯得非常傷心的 [SUBJECT] 坐下來傾談。

Relevant	5	4	3	2	1	Irrelevant	(for Adolescents in AHM))
Relevant	5	4	3	2	1	Irrelevant	(for Their Parents in PHM)

Comments on the relevance of story (if any): _____

Content Representativeness

How far do you think these statements are a good collection of scenarios that elicits helping behavior ?
Please circle your answer in the rating scale below, and give additional comments if any.

Representative 5 4 3 2 1 Not Representative

What helping scenario(s) you may want to add to the collection to make it more complete?

Others

Do you have any other comments on this Chinese Adolescents Helping Measures (Chinese AHM) ??

Do you have any other comments on this Chinese Parent Helping Measures (Chinese PHM) ??

Appendix 3. Invitation Letter to NGOs

致： 香港 XXX 會，
香港 XX 道 XX 號

邀請貴機構參與一項有關香港青少年的親社會行為的發展研究

致執事先生、女士，

本人是香港理工大學的博士研究生。本人的學術導師是蕭敏康博士及石丹理教授。

本人的博士論文是去集中研究香港青少年人親社會行為的發展。我們知道親社會行為，像助人行為、關顧行為和義務工作等等，都是家庭和學校教導的重要成果。本研究推論是青少年的道德邏輯、同理心、以及朋輩和家長等的社會因素，都會對青少年人親社會行為的發展構成影響。本人的學科研究計劃亦是朝著這方向進行，去評定以上因素對香港青少年的影響。

這份調查問卷包含 8 個部份。其中包括親社會行為的道德邏輯、青少年人對親社會行為的趨勢、正向青少年發展、以及朋輩和家人等等因素。受訪對象需要約 20-25 分鐘去填寫這份問卷。研究員會希望在你們舉辦的活動中，找尋受訪對象並派發問卷，以進行問卷調查。為方便貴機構運作，活動導師亦可以自行分發問卷。本研究的要求受訪對象是：(1) 中國裔學生；(2) 年齡介乎 12 至 16 歲；(3) 可以自行書寫及閱讀中文；及 (4) 該青年人在貴機構有即極參與親社會行為或其他助人行為的活動。

如果對本研究感到興趣，或者有任何查詢。歡迎你透過電郵 (XXXX@connect.polyu.hk) 或致電 91XXXXX 聯絡本人。我會盡快回覆你的查詢。

為感謝貴機構的參與及寶貴的支持，本人樂意向貴機構分享有關青少年人親社會行為的新資訊，和分享問卷調查的研究報告。

謝謝你對本研究計劃的興趣。

香港理工大學
康復治療學系 - 博士研究生
黎浩然敬上

Appendix 4. Invitation Letter to Schools

Frank Lai
PhD Candidate
Department of Rehabilitation
Sciences
The Hong Kong Polytechnic
University
Hung Hom, Kowloon.
c/o Dr. Andrew Siu

2 Nov 2012

Mr. Tai XX
The Principal
XX Secondary School
N.T.

Invitation for Participation in a Study of Prosocial Behavior Development of Young People in Hong Kong

Dear Principal,

I am a PhD student under the supervision of Dr. Andrew Siu and Professor Daniel Shek of the Hong Kong Polytechnic University. I would like to invite your school in participating to this study. I am planning to conduct a questionnaire survey for adolescents in studying the above-mentioned topic. Professor Shek told me that he had discussed this request with you, and grateful if you agree to help in making this survey possible.

My PhD thesis focuses on studying the development of prosocial behavior adolescents. Prosocial behavior, like helping, caregiving, or volunteering, are important outcomes of family and school education. This thesis hypothesizes that adolescent moral reasoning and empathy, as well as social influence from peers and family, are important factors shaping such development.

This questionnaire composes of 8 sections, which measures parameters like prosocial moral reasoning, prosocial behavior tendency in adolescent, positive youth development measures and influence from peers and their parents. The participants would normally take 20 - 25 minutes in completing the questionnaire. The researcher will conduct the questionnaire in the class or the class teacher could choose to do so. We intend to recruit participants who are: (1) Ethnic Chinese; (2) aged from 12 to 16; (3) able to read and write Chinese; and (4) students who have active participation in prosocial or helping activity in school.

If you have questions about this invitation, or your school is interested to participate, please contact me via email (XXXX@connect.polyu.hk) or mobile 91XXXXXX. I would try to call back as soon as possible.

In appreciation of your support, I am happy to present updated literature on prosocial development of adolescents or my research findings to the school teaching team if you would give me the opportunity to do so.

Thank you very much for your kind attention.

Best Regards,

Frank Lai
PhD Candidate
Department of Rehabilitation Sciences
The Hong Kong Polytechnic University.

香港理工大學 香港青少年發展研究問卷

親愛的朋友：

為了解青少年的成長，現懇請你完成本問卷。你所提供的一切意見及資料，只會用於本計劃之研究上，而個別參與者的資料將**絕對保密**。你**並不需要**寫上你的名字。

本問卷**並非**用於評估你的能力，而問卷內的問題亦**沒有所謂對或錯的答案**，所以請你**憑著你對自己的認識或感覺作答**。當你完成這份問卷後，請你直接將問卷交給有關的工作人員。負責的工作人員、校長、老師及你的父母是**絕對不會**在日後知道**個別參與者**的資料分析結果。

此問卷共有八個部分。**請你回答每一部分的所有問題**。在回答某一部分的問題前，請先詳細閱讀有關的指示及例子。請不要花太多時間在任何一條問題或句子上。如有任何疑問，請詢問有關的工作人員。

研究人員

黎浩然先生、蕭敏康博士、石丹理教授

同意書

我們十分希望你能夠參與這項研究。如果你願意回答這份問卷內的問題，請你在「**願意**」旁邊的格內打上✓號（我們很感謝你的參與）；如果你不願意回答這份問卷內的問題，請你在「**不願意**」旁邊的格內打上✓號（我們絕對尊重你的決定）。如果你不願意參與這項研究，請你留在座位中，安靜休息。

我：

- 願意**回答這份問卷內的問題
- 不願意**回答這份問卷內的問題

簽名：_____

* 你所提供的個人資料均會絕對保密。校長、老師、家長及其他人士，均不會知道個別參與者的資料。*

第一部分

請小心閱讀下列各句子，並(✓)出一個你認為最能夠代表你的感覺的數字答案。

過去一年之內，你做過以下的事情有多少次？	沒有	1-2 次	3-4 次	5-6 次	7-8 次	9-10 次	10 次以上
1. 送禮給父母。							
2. 幫助做家務 (例如煮飯、洗碗、掃地)。							
3. 代表學校參加公開比賽。							
4. 做錯事後向人道歉。							
5. 把別人遺失的東西交給警方或有關部門。							
6. 原諒別人做了對不住你的事。							
7. 在任何一科考試或測驗得到滿分或全班最高分。							
8. 在家裡或學校表現良好而被父母讚賞。							
9. 在學校表現良好而被老師或校長讚賞。							
10. 在校內比賽得獎。							
11. 勸告同學不要打架或鬧事。							
12. 賺錢幫補家用 (包括幫父母看鋪或做小販)。							
13. 幫助同學溫習功課。							
14. 捐款給慈善團體 (包括買旗)。							
15. 乘坐交通工具時讓座給老弱婦孺。							
16. 幫助傷殘人士過馬路。							
17. 參加慈善團體的籌款運動 (如公益金百萬行)。							
18. 做義務工作 (義工)。							
19. 在網上討論區，去幫助解答網友的詢問。							

第二部分

請小心閱讀下列各句子，並(✓)出一個你認為最能夠代表你的感覺的數字答案。

		同意程度					
		非常不同意	不同意	有點不同意	有點同意	同意	非常同意
1.	當我盡力把事情做好時，老師會稱讚我。						
2.	當我幫助同學時，同學會認同我的行為。						
3.	在學校裡，老師重視我是否把事情做好。						
4.	我覺得老師對同學的行為是賞罰分明的。						
5.	學校和老師鼓勵同學參與義務工作。						
6.	我知道參與義務工作的途徑。						
7.	我感到學校鼓勵同學互相幫助。						
8.	我覺得班裡的同學鼓勵彼此分享。						
9.	我會盡力為學校或社會作出貢獻。						
10.	我關心社會上遭遇不幸的人。						
11.	如有機會，我會參與義務工作。						
12.	我同意每個人都應該受到法律的約束。						
13.	我樂意遵守校規。						

第三部分

以下的句子敘述有關你與朋友的關係，及你對朋友的看法。請從你的朋友中選一個與你較好的來作答下列問題。請不要花太多時間去思考每一個問題，以第一印象回答即可，請(✓)出你的答案。

以你所知，你最好的朋友在過去一年內，有沒有做過下列的事情？	從來沒有	很少	間中	時常
1. 幫助同學溫習功課。				
2. 參加慈善機構籌款運動 (例如公益金百萬行)。				
3. 做義務工作。				
4. 代表學校參加公開比賽。				
5. 在任何一科考試或測驗得滿分或全班最高分。				
6. 在學校表現良好，而被老師或校長讚賞。				

第四部分

閱讀故事並回答相關問題。作答時，請仔細閱讀每道題目的選項，並圈出你認為最適當的答案。

《故事一》					
一位名叫樂思的女生擁有非常特殊的血型。開學不久，樂思才剛加入了學校球隊的第二天，便收到一位醫生的來電，請求樂思為一個生了重病而急需輸血的小女孩捐出大量血液。由於樂思是這裏唯一一個與那個小女孩擁有相同血型的人，而小女孩患上的是一種罕見而嚴重的疾病，需要在幾個星期內進行多次輸血，所以如果樂思同意捐血，便需要留院幾個星期。留院期間樂思身體可能會感到虛弱，令她失去在球隊的位置，而且學校成績也可能因而落後很多。					
樂思應該怎樣做？					
1. 應該捐血 2. 不應捐血 3. 不知道					
在替樂思做決定時，下列這些理由對你而言有多重要？(請將答案圈起來)					
	一點也不重要	不太重要	有些重要	重要	非常重要
1. 樂思認為幫助別人是否一件好事	1	2	3	4	5

2.樂思認為社交水平不容易解決	1	2	3	4	5
3.樂思的朋友和父母會否同意她所做的決定	1	2	3	4	5
4.樂思不能再為球隊出力是否重要	1	2	3	4	5
5.樂思能否瞭解這個生病的小女孩有多難受	1	2	3	4	5
6.視乎那個小女孩病得有多嚴重	1	2	3	4	5

《故事二》

一天，美兒正要去參加朋友的派對時，在途中遇到一個跌倒腿受傷的小孩。那個小孩請求美兒打電話通知他的父母、並且留在現場陪伴他，直至他父母來接他去看醫生。但是，如果美兒真的留下陪伴該小孩，她就會遲到，而且不能跟朋友一起玩樂了。

美兒應該怎樣做？

1.通知小孩的父母 2.參加朋友的派對 3.不知道

在替美兒做決定時，下列這些理由對你而言有多重要?(請將答案圈起來)

	一點也不重要	不太重要	有些重要	重要	非常重要
1.美兒幫助或不幫助這個小孩之後，會對自己的行為有什麼看法	1	2	3	4	5
2.美兒認為那個派對會有多好玩，多想知派對內的趣事	1	2	3	4	5
3. 社區羣體會不會影響到對自己的看法	1	2	3	4	5
4.美兒的父母和朋友會否覺得美兒做對或做錯	1	2	3	4	5
5.視乎那個小孩是否真的需要幫助	1	2	3	4	5
6.美兒是否覺得幫助人是恰當的	1	2	3	4	5

《故事三》

一天，雅雯在公園裡玩耍時，看到一個小惡霸推倒並且嘲笑另一個不認識的小孩，而附近沒有任何成年人。雖然被欺負的小孩一直試著要站起來，卻不停地被對方推倒。雅雯在公園裡玩得很愉快，但如果她去幫助那位受到欺負的小孩，自己也有可能被那個小惡霸欺負。

雅雯應該怎樣做？

1.繼續玩耍 2.幫助被欺負的小孩 3.不知道

在替雅雯做決定時，下列這些理由對你而言有多重要?(請將答案圈起來)

	一點也不重要	不太重要	有些重要	重要	非常重要
1. 被欺負的小孩有否受傷	1	2	3	4	5
2. 雅雯會否擔心被欺負的小孩	1	2	3	4	5
3. 雅雯認為不去幫助別人是否太殘忍	1	2	3	4	5
4. 雅雯是不是對病理有責任	1	2	3	4	5
5. 雅雯是否玩得正高興	1	2	3	4	5
6. 雅雯的父母和朋友知道雅雯幫或不幫之後會怎樣想	1	2	3	4	5

《故事四》					
德文很會游泳。有人請他在沒有報酬的情況下義務幫助有健康問題而不能走路的小孩學游泳，好讓他們的腿變得強壯，可以走路。因為德文不但很會游泳，更是一位游泳老師，所以他是這裏唯一可以勝任的人。為了一個即將到來的重要泳賽，德文正打算用盡工餘時間盡全力練習游泳，希望勝出之後可以利用比賽獎金來應付學費或完成其他想做的事。但是決定幫助這些孩子的話，就會花掉德文很多時間，可能因此輸掉比賽而無法贏得獎金。					
德文應該怎樣做？					
1.教小孩游泳 2.為參加游泳比賽好好練習 3.不知道					
在替德文做決定時，下列這些理由對你而言有多重要?(請將答案圈起來)					
	一點也不重要	不太重要	有些重要	重要	非常重要
1. 德文是否相信社會福利機構的宗旨	1	2	3	4	5
2. 德文是否相信教導這些孩子游泳是好事	1	2	3	4	5
3. 德文是否真的很想在泳賽中勝出	1	2	3	4	5
4. 視乎那些孩子的腿痛不痛	1	2	3	4	5
5. 德文的父母和社區會否認為他做對或做錯	1	2	3	4	5
6. 孩子能夠走得更好會否讓德文覺得開心	1	2	3	4	5

《故事五》					
暴風雨過後河水開始泛濫，淹進了市內的街道及房屋。洪流處處，令外地的食物無法送進災場。國威住在災場附近，儲有一些糧食，但如果他把食物分給災場的人，自己就便會不夠吃，而且可能會有很長一段時間得不到任何食物。國威雖然不會因為沒東西吃而死，卻可能因此生病。					
國威應該怎樣做？					
1.將食物分給其他人 2.留在家裡 3.不知道					
在替國威做決定時，下列這些理由對你而言有多重要?(請將答案圈起來)					
	一點也不重要	不太重要	有些重要	重要	非常重要
1. 國威的父母和朋友會否贊成他所做的決定	1	2	3	4	5
2. 視乎災場內的人們會否生病	1	2	3	4	5
3. 災場的人如果生病了會否讓國威感到難過	1	2	3	4	5
4. 國威會否覺得不去幫助別人可能太不近人情	1	2	3	4	5
5. 風雨總是會過去的。	1	2	3	4	5
6. 國威是否想到，他自己某天可能也需要災民的幫助	1	2	3	4	5

第五部分

請細心閱讀下列各句字，並指出它們各句子是否能恰當地形容自己。請從 0（形容不恰當）至 4（形容非常恰當）中，選出一個最適合的號碼來代表恰當的程度，並在該欄加上✓號。

	選項				
	0	1	2	3	4
	形容不恰當				形容非常恰當
1. 在緊急的情況下，我會感到焦慮和不安。					
2. 當我情緒極波動時，有時我會感到無助。					
3. 看到別人受傷時，我會保持鎮定。					
4. 我害怕處於精神緊張的狀態。					
5. 我時常因看見外界發生的事物而感到情緒不安。					
6. 在緊急情況下，我會變得失控。					
7. 當我看見有人在危急中需要幫助時，我會驚惶失措。					
8. 我一向同情及關心那些比我不幸的人。					
9. 作決定前，我會嘗試從別人不同的觀點了解問題。					
10. 看到別人被利用時，我想去保護他們。					
11. 有時為了更能了解我的朋友，我會從他們的角度看事物。					
12. 別人的不幸，有時我會不太在乎。					
13. 當我認為自己是對的時候，我不會聽取別人的意見。					
14. 別人受到不公平對待，有時我不會表示太同情。					
15. 我相信每個問題都有正反兩面，而兩方面我都會考慮到。					
16. 我會形容自己是一個心腸頗軟的人。					
17. 當我因為某人而生氣時，我通常會嘗試了解他的立場。					
18. 批評別人前，我會切身處地想想別人的感受。					

第六部分

為了符合這部分調查的目的，請只考慮朋友、非朋友及與你年齡相若（不多於兩三年大少）的陌生人。
朋友，非朋友及陌生人三詞有以下定義：

- **朋友**：一個你認識、喜歡及信任的人。
- **非朋友**：一些你不認為他們是朋友，但又不是陌生人的人。你對他們會有正面、中立或甚至負面的感覺。這個類別包括了所有你認識而不認為是朋友的人。
- **陌生人**：包括所有與你年齡相若，而你之前從未見過的人。

這份問卷簡單介紹了幾個幫助別人的例子。我們希望你為每個例子作出回應。首先，你以往曾否出現過這種行為？請在例子左邊圈出適合的答案。其次，細想一下如果你發現自己身處那種狀況，你有多大機會會出現這種幫助別人的行為？

在每一個例子中，請回答這問題：**假如這種狀況突然出現，你有多大機會會出現這種行為？**請使用例子右邊的刻度尺回答，(✓)出最能反映你誠實意見的數字。

	機會不大		可能		非常大機會	
6	7	1	2	3	4	5

你有否出現過
這種行為？

有	否

1. 幫助一名 [朋友] 拾起他/她掉下的東西（例如一包雜物）。
2. 突然下起大雨時，與一名 [朋友] 共用你的雨傘。
3. 為一名雙手拿滿東西的 [朋友] 開門（或保持開啟）。
4. 協助一名跌倒的 [朋友] 站起來。
5. [朋友] 手上的一大疊書快要掉下時，為他/她拿書。
6. 幫助一名 [朋友] 尋找走失的寵物。
7. 安慰一名剛看過一則手機短訊而顯得極度憂傷的 [朋友]。
8. 與一名獨自一人並顯得非常傷心的 [朋友] 坐下來傾談。

你有多大機會出現
這種行為？

1	2	3	4	5	6	7

你有否出現過
這種行為？

有	否

9. 幫助一名 [非朋友] 拾起他/她掉下的東西（例如一包雜物）。
10. 突然下起大雨時，與一名 [非朋友] 共用你的雨傘。
11. 為一名雙手拿滿東西的 [非朋友]

你有多大機會出現
這種行為？

1	2	3	4	5	6	7

- 開門（或保持開啟）。
12. 協助一名跌倒的 [非朋友] 站起來。
 13. [非朋友] 手上的一大疊書快要掉下時，為他/她拿書。
 14. 幫助一名[非朋友] 尋找走失的寵物。
 15. 安慰一名剛看過一則手機短訊而顯得極度憂傷的 [非朋友]。
 16. 與一名獨自一人並顯得非常傷心的 [非朋友] 坐下來傾談。

你有否出現過
這種行為？

你有多大機會出現
這種行為？

有	否

17. 幫助一名 [陌生人] 拾起他/她掉下的東西（例如一包雜物）。
18. 突然下起大雨時，與一名 [陌生人] 共用你的雨傘。
19. 為一名雙手拿滿東西的 [陌生人] 開門（或保持開啟）。
20. 協助一名跌倒的 [陌生人] 站起來。
21. [陌生人] 手上的一大疊書快要掉下時，為他/她拿書。
22. 幫助一名[陌生人] 尋找走失的寵物。
23. 安慰一名剛看過一則手機短訊而顯得極度憂傷的 [陌生人]。
24. 與一名獨自一人並顯得非常傷心的 [陌生人] 坐下來傾談。

1	2	3	4	5	6	7

第七部分

為了符合這部分調查的目的，請先考慮家人和朋友、及陌生人二詞有以下定義：

- 家人和朋友：一個你的家長認識及有關係的人。
- 陌生人：包括所有與你的家長不認識，而且之前從未見過的人。

這份問卷簡單介紹了幾個幫助別人的例子。我們希望你為你的家長於每個例子作出回應。

- 首先，請你回應你的家長以往曾否出現過這種行為，並在例子左邊圈出適合的答案。
- 其次，細想一下如果你的家長發現自己身處那種狀況，他有多大機會會出現這種幫助別人的行為？在每一個例子中，請回答這問題：**假如這種狀況突然出現，他有多大機會會出現這種行為？**請使用例子右邊的刻度尺回答，(✓)出最能反映你誠實意見的數字。

機會不大				可能			非常大機會
1	2	3	4	5	6	7	

你的家長有否出現過這種行為？

你的家長有多大機會出現這種行為？

有	否

1. 幫助一名 [家人和朋友] 拾起他/她掉下的東西（例如一包雜物）。
2. 突然下起大雨時，與一名 [家人和朋友] 共用你的雨傘。
3. 為一名雙手拿滿東西的 [家人和朋友] 開門（或保持開啟）。
4. 協助一名跌倒的 [家人和朋友] 站起來。
5. [家人和朋友] 手上的一大疊書快要掉下時，為他/她拿書。
6. 幫助一名 [家人和朋友] 尋找走失的寵物。
7. 安慰一名剛看過一則手機短訊而顯得極度憂傷的 [家人和朋友]。
8. 與一名獨自一人並顯得非常傷心的 [家人和朋友] 坐下來傾談。

1	2	3	4	5	6	7

你的家長有否出現過這種行為？

有	否

1. 幫助一名 [陌生人] 拾起他/她掉下的東西 (例如一包雜物)。
2. 突然下起大雨時,與一名 [陌生人] 共用你的雨傘。
3. 為一名雙手拿滿東西的 [陌生人] 開門 (或保持開啟)。
4. 協助一名跌倒的 [陌生人] 站起來。
5. [陌生人] 手上的一大疊書快要掉下時,為他/她拿書。
6. 幫助一名 [陌生人] 尋找走失的寵物。
7. 安慰一名剛看過一則手機短訊而顯得極度憂傷的 [陌生人]。
8. 與一名獨自一人並顯得非常傷心的 [陌生人] 坐下來傾談。

你的家長有多大機會出現這種行為？

1	2	3	4	5	6	7

第八部分 個人資料

以下是問及一些有關你個人和家庭現況的資料，你提供的資料會絕對保密。因此請放心選出你的答案。

1. 你的年齡是：

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11歲	12歲	13歲	14歲	15歲	16歲	17歲	18歲

2. 性別：

男 女

3. 你覺得自己在學校的操行如何？

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
非常差	比一般差	普通	比一般好	非常好

4. 請列出你過去兩年內有參加過和參加中的課外義務工作活動（如紅十字會、童軍、領袖生計劃等等）並(✓)出一個你認為最能夠代表你的感覺的答案。

- a. _____ [參加中() 參加過()] _____ 經驗：良好 () 一般 () 不好 ()
- b. _____ [參加中() 參加過()] _____ 經驗：良好 () 一般 () 不好 ()
- c. _____ [參加中() 參加過()] _____ 經驗：良好 () 一般 () 不好 ()
- d. _____ [參加中() 參加過()] _____ 經驗：良好 () 一般 () 不好 ()
- e. _____ [參加中() 參加過()] _____ 經驗：良好 () 一般 () 不好 ()

5. 你家中有多少人一起居住？（包括你自己在內，但不包括家庭傭工）

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1人	2人	3人	4人	5人	6人	7人	8人	9人	10人	10人以上

6. 你有多少 _____ 兄 _____ 弟 _____ 姊 _____ 妹

7. 你父母現時的婚姻狀況是怎樣？

- 父親與母親是夫婦關係
- 父親與母親已分居
- 父親與母親已離婚
- 其他（請註明）：_____

8. 你父母的**最高**教育程度是怎樣？（請在加上✓號）

父親	母親
<input type="checkbox"/> 沒有接受任何正式教育，亦不識字	<input type="checkbox"/> 沒有接受任何正式教育，亦不識字
<input type="checkbox"/> 沒有接受任何正式教育，但識字	<input type="checkbox"/> 沒有接受任何正式教育，但識字
<input type="checkbox"/> 小一至小五	<input type="checkbox"/> 小一至小五
<input type="checkbox"/> 小學畢業	<input type="checkbox"/> 小學畢業
<input type="checkbox"/> 中一至中三（包括文法或工業學校）	<input type="checkbox"/> 中一至中三（包括文法或工業學校）
<input type="checkbox"/> 中四至中五（包括文法或工業學校）	<input type="checkbox"/> 中四至中五（包括文法或工業學校）
<input type="checkbox"/> 中六至中七（包括文法或工業學校）	<input type="checkbox"/> 中六至中七（包括文法或工業學校）
<input type="checkbox"/> 大專或理工（非學位課程）	<input type="checkbox"/> 大專或理工（非學位課程）
<input type="checkbox"/> 大學或以上（學位或以上）	<input type="checkbox"/> 大學或以上（學位或以上）
<input type="checkbox"/> 不知道	<input type="checkbox"/> 不知道

9. 你覺得你的學校生活愉快嗎？

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 很不愉快 | 不愉快 | 普通 | 愉快 | 很愉快 |

10. 你覺得你的家庭生活愉快嗎？

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 很不愉快 | 不愉快 | 普通 | 愉快 | 很愉快 |

11. 你覺得你參加課外義務工作活動愉快嗎？

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 2 | 3 | 4 | 5 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 很不愉快 | 不愉快 | 普通 | 愉快 | 很愉快 |

謝謝你的參與！

Appendix 6. Comments for Panel to Chinese PROM

Scenario 1

One reviewer commented should add the component of age of the subject; however, it was not added, as it was noted included in the original English version.

One reviewer commented “這裏” (line 3) should be changed to “本市鎮”, “本市” or “本邨”, however, for better understanding to young people, and to have a better concept on here and now; rather than a geographical zone. The wording of “這裏” was kept.

The Chinese phrase “可能” (line 5 to 6) was suggested to be deleted by one reviewer. However, after detail review, the original English version also contain “would”, it implies possibility. The Chinese phrase “可能” implies possibility, then this Chinese phrase was keep.

One review suggest to change the “令她無法繼續為球隊出力” (line 6) to “失去在球隊的位置”; in view of better grammatical expression as in English version as “would lose her spot on the team”. Reviewer’s suggestion was adopted.

Scenario 2

One reviewer commented to change the name of party from Chinese “派對” to “聚會”; but in view of the original English version, the name of “派對” was kept.

One reviewer commented to change the name of the subject to “小美”; however, “美兒” is a more genuine Chinese name. Therefore, the name of “美兒” was retained.

The Chinese version “那個小孩請求美兒去他家裡通知他的父母，這樣他們就能來帶他去看醫生。但是，如果美兒真的跑去小孩家通知他的父母，她就會遲到.....。” (line 2-4) was considered as not appropriate for modern Hong Kong culture, as most of the communication will be via mobile or telephone contact. A detailed discussion in the phrase was held, and these phrases were refined as “那個小孩請求美兒留在現場照顧他，直至他父母來接他去看醫生。但是，如果美兒真的留下照顧該小孩，她就會遲到...。”

Scenario 3

For better grammatical expression and easier understanding. “沒有任何大人” (line 2) was revised as “沒有任何成年人”

One reviewer suggested to add “小惡霸” (line 4) in making the sentence to be more complete. For better grammatical expression, this amendment was adopted accordingly.

Scenario 4

One reviewer commented “德文” will be easily mixed up with “German”, however, Chinese name as “德文” is appropriate enough adolescent’s name.

Two reviewers commented “可以行走” (line 4) is difficult to understanding. For grammatical improvement, “可以走路” was adopted is an improvement

In original English version, “was a good swimmer and a swimming teacher.”. The Chinese phrase of “更是” (line 3) showed a sequential improvement, and was kept

“One reviewer commented “這裏” (line 3) should be changed to “本市鎮”, “本市” or “本邨”, however, for better understanding to young people, and to have a better concept on here and now; rather than a geographical zone. The wording of “這裏” was kept.

For better grammatical understanding, “但是” replaced “可是” (line 5)

Scott was planning to use the prize money for his college education or for other things he wanted. For better grammatical improvement, with consideration of respondent’s age, the phrase was changed as “希望勝出

之後可以利用比賽獎金來應付學費或完成其他想做的事。” (line 5)

Scenario 5

For grammatical improvement, “自己就會不夠吃” (line 3) was changed to “自己就便會不夠吃”

The original English version “she may not be able to get anymore food for a long time” (line 6). In view of keep the idea of the original English version, therefore, keep “可能會有很長一段時間得不到任何食物” (line 4)

In marking, no. 4. 不去幫助別人可能太殘忍 ... “殘忍” was considered as too strong, then the phrase was changed to “不去幫助別人可能太不近人情”

Appendix 7. Data Screening Checklist

Data Screening Check List

(Refer to chapter 4 of Using Multivariate Statistics; Tabachnick & Fidell, 2007)

Name of Data file _____

1. Accuracy of the Data file – Was the data entered correctly? If possible the data should be proofread against the original data (on the questionnaires, etc) to check that item has been entered correctly. Preferably someone other than the person who entered the data should do this.

Date Verified _____

Verifier Name (please print) _____

2. Missing Data – the important thing in dealing with missing data is to figure out if the data is missing randomly or if there is some pattern (reason) to why the data points are missing.

- a. If no pattern can be found by looking at the data run this test.

- i. Step 1: Dummy code a variable that puts those missing in one group and those remaining in another
- ii. Step 2: Do a T-test using other related variables as a DV (i.e. if there is a missing value on ethnicity test the groups on attitudinal scales).
- iii. Step 3: If there is no difference than you can feel safe deleting subjects (or selecting subjects out of the analysis) with missing values (given that there are no too many) or if the missing values are concentrated to one variable consider deleting the variable instead. If there is a significant difference then other steps need to be taken to replace the missing values (see below).

Test Ran: yes no

Date: _____

Significant: yes no

Missing: left deleted selected out

- b. If there is a pattern to the missing data or there are too many missing (there is no strict guideline to how many is too many) choose one of the following options:

- i. Option 1: Replace values with numbers that are known from prior knowledge or from an educated guess. Easily done but can lead to researcher bias if your not careful.
- ii. Option 2: Replace missing values with variable mean. The simplest option but it does lower variability and in turn can bias results.
- iii. Option 3: Replace missing values with a group mean (i.e. the mean for prejudice grouped by ethnicity). The missing value is replaced with the mean of the group that the subject belongs to. A little more complicated but there is not as much of a reduction in the variability.
- iv. Option 4: Using regression to predict the missing values. Other variables act as IVs predicting the variable with the missing values (which acts as the DV). This method is only works if there is significant prediction of the variable with the missing values. Variability is still reduced but it is more objective than a guess and not as blind as inserting a mean.

Option used: 1 2 3 4

Date values imputed: _____

Name of imputer: _____

Note: You may want to create a dummy variable that keeps track of the missing values so it can be used as a variable later (Differences between complete and incomplete subjects, etc). It is also wise to run the analysis with and without missing values. If there is a difference in the results then you may want to investigate.

3. Outliers - These are case scores that are extreme and therefore have a much higher impact on the outcome of any statistical analysis. In order to avoid biased results the data set must be checked for both univariate (outliers on one variable alone) and multivariate (outliers on a combination of variables) outliers.
- a. Four basic reasons you'd get an outlier
 - i. There was a mistake in data entry (*a 6 was entered as 66, etc.*), hopefully step one above would have caught all of these.
 - ii. The missing values code was not specified and missing values are being read as case entries (*99 is typically the missing value code but it will be read as an entry and possibly an outlier if the computer is not told that these are missing values, in SPSS 10 variable view click on the missing values box and select discrete missing values, in the first box enter 99, click on OK*).
 - iii. The outlier is not part of the population from which you intended to sample (*you wanted a sample of 10 year olds and the outlier is a 12 year old*). In this case the outliers should be removed from the sample.
 - iv. The outlier is part of the population you wanted but in the distribution it is seen as an extreme case. In this case you have three choices 1) delete the extreme cases or 2) change the outliers' scores so that they are still extreme but they fit within a normal distribution (*for example: make it a unit larger or smaller than last case that fits in the distribution*) 3) if the outliers seem to part of an overall non-normal distribution than a transformation can be done but first check for normality (see below).

b. Detecting Outliers

- i. Among dichotomous variables – If you have a dichotomous variable with an extremely uneven split (i.e. 90 – 10 split, 90% say yes and 10% say no) this will produce an outlier. The only fix for this is to delete the variable. This is easily identified by SPSS FREQUENCIES.

List any dichotomous variables with uneven splits (delete any in excess of a 90 – 10 split). If you need more room attach a sheet to the back of this worksheet.

Name _____

- ii. Among continuous variables – whether searching for univariate or multivariate outliers the method depends on whether the data is grouped or not. If you are performing analyses with ungrouped data (i.e. regression, canonical correlation, factor analysis, or structural equations modeling) univariate and multivariate outliers are sought among all cases at once. If you are going to perform on of the analyses with grouped data (ANOVA, ANCOVA, MANOVA, MANCOVA, profile analysis, discriminant function analysis, or logistic regression) both univariate and multivariate outliers are sought within each group separately.
 1. Univariate outliers are those with very large standardized scores (z scores greater than 3.3) and that are disconnected from the distribution. SPSS DESCRIPTIVES will give you the z scores for every case if you select *save standardized values as variables* and SPSS FREQUENCIES will give you histograms (use SPLIT FILE/ Compare Groups under DATA for grouped data).

List all univariate outliers here and how they were handled. Attach a sheet if you need more room. (Note: it is wise to check if a univariate outlier is also a multivariate outlier before making any decisions about what to do with it.)

Describe where they were found (what type of analysis, grouped, ungrouped, "A grouped by B", etc.)	Case Number	Z score	Reason for being an outlier (refer to 1-4 above).	How handled (fixed, changed, deleted, *transformed)

*Only after a check for normality is performed.

Name _____

2. **Multivariate Outliers** are found by first computing a Mahalanobis Distance for each case and once that is done the Mahalanobis scores are **screened in the same manner that univariate outliers are screened.**
 - a. To compute Mahalanobis distance in SPSS you must use REGRESSION/ LINEAR under ANALYZE. Use a dummy variable as the DV and all variables that need to be screened as IVs, under SAVE/ Distances check the Mahalanobis box. There should be a new variable saved in your data set. For grouped data the Mahalanobis distances must be computed separately for each group.

List all Multivariate outliers here and how they were handled. If you need more room attach a sheet.

Describe where they were found (what type of analysis, grouped, ungrouped, "A grouped by B", etc.)	Case Number	Mahalanobis Score	Z score	How handled (fixed, changed, deleted, *transformed)

*Only after a check for normality is performed.

Name _____

4. **Normality** – The data needs to follow a normal distribution in order for most analyses to work properly. Even in situations where normality is not required if normality exists it will make for a stronger assessment. There are two aspects to normality of a distribution, skewness and kurtosis, and both must be tested before normality can be established.
 - a. **Skewness** – this describes how unevenly the data is distributed with a majority of scores piled up on one side of the distribution and a few stragglers off in one tail of the distribution. Skewness is often but not always caused by outliers, which hopefully were taken care of in step 3.
 - i. **Skewness test** – in SPSS DESCRIPTIVES/ EXPLORE skewness and the standard error for skewness are given as a default. By hand divide the skewness value by the standard error for skewness and what you get is a z score for skewness. If the number is greater than 3.3 then there is a problem. Note: skewness tends to have more influence on analyses than kurtosis.
 - b. **Kurtosis** – this describes how “peaked” or “flat” a distribution is. If too many or all of the scores are piled up on the or around the mean then the distribution is too peaked and it is not normal, vice versa for when a distribution is too flat.
 - i. **Kurtosis test** - in SPSS DESCRIPTIVES/ EXPLORE kurtosis and the standard error for kurtosis are given as a default. By hand divide the kurtosis value by the standard error for kurtosis and what you get is a z score for kurtosis. If the number is greater than 3.3 then there is a problem.

Note: the larger the sample size you are using the more likely you will get violations of skewness and/or kurtosis with just small deviations. With larger sample sizes you may want to use less conservative number than a z-score of 3.3.

- c. **How to Fix Non-Normality** – If a variable is not distributed normally than a transformation can be used as a correction. Transformations will be discussed below.
5. **Homoscedasticity, Homogeneity of Variance and Homogeneity of Variance-Covariance Matrices** – If you can say the first word in the title of this section you have a head start. All three of these are related in that they are similar types of assumptions that need to be met before an analysis can be interpreted correctly. The question is which assumption goes with what analysis?
 - a. **Homoscedasticity** – this is an assumption for analyses using ungrouped univariate data. Variables are said to be homoscedastic when “the variability in scores for one continuous variable is roughly the same at all values of another continuous variable”. This is related to the assumption of normality because if both variables are normally distributed than you

should have homoscedasticity. There is no formal test for this, but it can be seen graphically. “The bivariate scatterplots between two variables are roughly the same width all over with some bulging towards the middle” (see page 81). In SPSS GRAPHS choose SCATTERPLOT/ SIMPLE and enter two variables in the X and Y axes. Heteroscedasticity is corrected by transformations, which will be discussed below.

Pair of variables to be checked.	Pass / Fail	Researcher Name

- b. Homogeneity of Variance – This assumption is important when you have grouped data. The assumption states that the “variability in the DV is expected to be about the same at all levels of the grouping variable (IV)”. In most analyses that require this SPSS gives the Levene’s test as a measure of homogeneity of variance. Reaching a significant value ($p < .05$) on the Levene’s test means that you have heterogeneity of variance, but the test is very conservative. So you either should increase the alpha level to .001 for the test or better yet apply the F-Max test. If the sample sizes in the cells are roughly equal (4 to 1 or less) then take the largest cell variance and divide it by the smallest cell variance and if that number is less than 10 the assumption has been met. Note: If Levene’s test is passed there is no need to run F-Max test. Failure to achieve homogeneity of variance can be corrected by 1) increasing the alpha level of your test (.25, .001, etc) or 2) through transformation (which is discussed below).
 - c. Homogeneity of Variance-Covariance Matrices – this is a multivariate assumption that is similar to homogeneity of variance. It roughly states that an entry in a variance-covariance matrix using one DV should be similar to the same entry in a matrix using another DV. The formal test for this in SPSS is Box’s M, it is given automatically any time the assumption is needed. It is a highly conservative test that is far too strict with large samples of data. It is better to increase the alpha level to .01 or .001.
6. Multicollinearity and Singularity – Both of these have to do with correlations among variables. If you have a correlation between two variables that is .90 or greater they are multicollinear, if two variables are identical or one is a subscale of another they are singular. Either way you cannot have variables that are multicollinear or singular in the same analysis because the analysis will not work (I will spare you the explanation). There are two things you can do to find out 1) run bivariate correlations between all of your variables and make sure they are neither subscales of another or above .90 or 2) run your analysis and wait and see if you get an error/warning message telling you that you have multicollinearity/singularity. The only way to fix this is to drop one or the variables from the analysis.
7. Common Data Transformations – transformations are recommended as a last resort only because of the added difficulty of interpreting a transformed variable. There are three common types of transformations 1) square root, used when there is moderate skewness/ deviation, 2) logarithm, used when there is substantial skewness/ deviation and 3) inverse, used when there is extreme skewness/ deviation. The best approach is to try square root first to see if that fixes your problem, if not then move to logarithm and then to inverse until you have satisfactory normality/ homoscedasticity.

Common Transformations in SPSS

Condition of Variable	SPSS Compute Language	List variables that apply
Moderate Positive Skewness	$NEWX = \sqrt{X}$	
Substantial Positive Skewness	$NEWX = \lg_{10}(X)$	
Variable includes 0	$NEWX = \lg_{10}(X + C)$	
Severe Pos Skewness, L Shaped	$NEWX = 1/(X)$	

Variable includes 0	$NEWX=1/(X + C)$	
Moderate Negative Skewness	$NEWX=\text{SQRT}(K - X)$	
Substantial Negative Skewness	$NEWX=\text{LG10}(K - X)$	
Severe Neg Skewness, J Shaped	$NEWX=1/(K - X)$	

C = constant added to each score so that the smallest score is 1.

K = constant from which each score is subtracted so that the smallest score is 1; usually equal to the largest score + 1.

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