Students' Family Support, Peer Relationships, and Learning Motivation and Teacher Fairness have an Influence on The Victims of Bullying in the Middle School of Hong Kong

Zhao Ruobing

A Thesis Submitted in Partial Fulfillment of the Requirement
for the Degree of Doctor of Philosophy
(Education Management),
Graduate School, China-ASEAN International College
Dhurakij Pundit University

2019

Certificate of Acknowledgement of the Dissertation

China-ASEAN International College, Dhurakij Pundit University

Doctor of Philosophy Program in Education Management

Title of Dissertation	Students' Family Support, Peer Relationships, And Learning Motivation And Teacher Fairness Have An Influence On The Victims Of Bullying In The Middle School Of Hong Kong
Researcher	Zhao Ruobing
Program	Doctor of Philosophy (Education Management)
Principle Supervisor	Dr. Yuan-Cheng Chang
Co-Supervisor	

Has been approved by

(Asst. Prof. Dr. Hugo Yu-Hsiu Lee) Chairman of the Committee

(Dr. Jian-Hao Huang) Committee Examiner

(Dr. Ren-Cheng Zhang) Committee Examiner

(Dr. Yi-Jian Huang) Committee Examiner

(Dr. Yuan-Cheng Chang) Principal Supervisor

Approved by the DPU China-ASEAN International College

(Dr. Chun-Shuo Chen) Dean of China-ASEAN International College

Date 18 JUN 2019

Form of Declaration of Independent Academic Work

I (Mr. / Ms. / Miss) Ms. Ruobing Surname Zhao

Student ID no. 569890020026 Program Ph.D Major Education Management

undertake that this ☑ Dissertation/Thesis ☐ Term Paper / Thematic Paper / Independent Study

titled

Students' Family Support, Peer Relationships, And Learning Motivation And Teacher Fairness Have An Influence On The Victims Of Bullying In The Middle School Of Hong Kong

hereby, presented for examination is my own work and has not been written for me, in whole or in part, by any other person(s). I also undertake that any quotation or paraphrase from the published or unpublished work of another person has been duly acknowledged and referenced in this research work.

I undertake to accept punishment in consequence of any breach of this declaration in accordance with the University regulation. Dhurakij Pundit University does not hold any obligation to take legal action on my behalf in the event of a breach of intellectual property rights, or any other right, in the material included in this research work.

Student's signature: Zhao Ruobing

Name *(Please print)*: → (Zhao Ruobing)

Date: 14. 06. 2019

Dissertation Title: Students' Family Support, Peer Relationships, And Learning Motivation And Teacher Fairness Have An Influence On The Victims Of Bullying In The Middle School Of Hong Kong

Author: Zhao Ruobing

Dissertation Principle Supervisor: Dr. Yuan-Cheng Chang

Dissertation Supervisor:

Program: Ph.D. (Education Management)

Academic Year: 2019

ABSTRACT

School bullying has become a major educational issue worldwide. While several studies have pointed out that a school environment has a positive influence on preventing school bullying from happening, those studies were primarily evaluating the projects of school bullying prevention or developing the explanatory model based on student level variables. Few researchers considered the impact of the environment and student level variables at the same time. In order to transcend the limitations, this study aims to explore the effect of students' gender, grade, family support, learning motivation and peer relationships and teacher fairness on the victims of school bullying in Hong Kong. Additionally, the model is analyzed by structural equation modeling (SEM). The participants in this study were 15 year-old middle school students living in Hong Kong. The data were collected from the PISA 2015 secondary data set and the valid student number was 4856. The result showed that family support, peer relationships, and teacher fairness have a negative influence on school bullying; learning motivation has a partial mediation effect on Teacher fairness, peer relationship, family support and the risk of being bullied.

Keywords - Bullying victimization, PISA 2015, **Peer relationship, Family support, Learning motivation**

Students' Family Support, Peer Relationships, and Learning Motivation and Teacher Fairness have an Influence on The Victims of Bullying in the Middle School of Hong Kong

Zhao Ruobing

Abstract

School bullying has become a major educational issue worldwide. While several studies have pointed out that a school environment has a positive influence on preventing school bullying from happening, those studies were primarily evaluating the projects of school bullying prevention or developing the explanatory model based on student level variables. Few researchers considered the impact of the environment and student level variables at the same time. In order to transcend the limitations, this study aims to explore the effect of students' gender, grade, family support, learning motivation and peer relationships and teacher fairness on the victims of school bullying in Hong Kong. Additionally, the model is analyzed by structural equation modeling (SEM). The participants in this study were 15 year-old middle school students living in Hong Kong. The data were collected from the PISA 2015 secondary data set and the valid student number was 4856. The result showed that family support, peer relationships, and teacher fairness have a negative influence on school bullying; learning motivation has a partial mediation effect on Teacher fairness, peer relationship, family support and the risk of being bullied.

Keywords - Bullying victimization, PISA 2015, Peer relationship, Family support, Learning motivation

ไม่มีเอกสารจากต้นฉบับ

หน้า Acknowledge

TABLE OF CONTENTS

List of Tables

List of Figures

I. INTRODUCTION

1.1 Research purpose

On Nov. 2nd, 2017, Beijing People's Court has sentenced five juvenile female students a set term of imprisonment (CCTV News, 2017) for school bullying, which shows the determination of Chinese administration to enforce the law in this respect and prevent the school bullying from spreading. In fact, school bullying incidents are not only happening in China but also in this world. More or less in extent this kind of school bullying happens everywhere which certainly cause the attention on this issue by scholars across the world (Andreou, Didaskalou, & Vlachou, 2015; Bourke & Burgman, 2010; Son, Parish, & Peterson, 2012). In view of the development of school bullying, several common acknowledgments have been reached: One, the school bullying is not the prank between the students, it is an educational problem which needs to be dealt with seriously(Ma & Yang, 2016; Ren, 2017), the American government has even enacted special legislation against the school bullying (Stuart-Cassel, Bell, & Springer, 2011) ; Second, the school bully can affect the self-esteem, and interpersonal relationship, anxious emotion and problematic behaviour (Center, 2015; Nakamoto & Schwartz, 2010; Rose, Monda-Amaya, & Espelage, 2011) which will cause the negative effect on the school life of the students; Third, it is proven that the management which the school is running can play an active role in prevention of school bullying (Li et al., 2015). The above mentioned indicates that the school bully can be a bad influence on students' performance in school and this issue has caused the attention over the world. To the administration of the school, a proper management should be adopted to reduce the school bully.

Bullying is one of the most important issues at school and some students are reported to be victims. According to the report of the OECD (2017), nearly 4% of the students from OECD (Organization for Economic Co-operation and Development)

member countries were pushed or hit a few times a month. The percentage of the victims varies from 1% to 9.5% according to each country. Moreover, 20% of the students from OECD member countries felt they were treated unfairly by their teachers at least a few times a month (they felt they were offended, teased or severely punished in front of others) (OECD, 2017).

There have been numerous studies related to school bullying in China. For example, the theory of school bullying (Wei & Fan, 2016), the investigation of school bullying (Wang, 2016), the research on the effect of school bullying to the physical and mental health of the students (Hwang, Wu, & Song, 2017; Zhao, Yang, Zhao, & Zhang, 2016). However, compared to the studies published in western journals, Nansel et al. (2001) and Smith and Shu (2000), which took the national sampling in America and UK, the studies of this issue in China were rarely made on a larger scale. the data analysis method lacks the level analysis, which will lead to the failure of the further analysis of the school environment effect on school bullying. Because the school bullying happens in the school, the school environment belongs to all students (Rodkin & Gest, 2011; Wang, Zhou, Lu, Wu, Deng, Hong, & He, 2012), the possibility of context effect may exist and worth in-depth investigated (Lei & Wang, 2017).

This thesis aims to have a breakthrough, and utilize the empirical data set released by programme for international student assessment in 2015 (PISA 2015) to undertake the data analysis. One of the five parts of the PISA 2015 survey was to explore students' well-being. The first OECD PISA assessment of students' well-being proposed a complete set of well-being indicators for adolescents including the negative effects (e.g. anxiety and low performance) and the positive impulses that increase healthy development (e.g. interest, engagement and motivation to accomplish). The survey showed that most adolescents were contented with their lives except homework anxiety and the issue of bullying in school. School bullying was a

key issue, with a great number of students saying that they were victims of bullying (OECD, 2017).

In PISA 2015, the investigation of school bullying was measured by students, providing the valuable data for this thesis. The application of the PISA 2015 data to do the secondary data analysis was expected to have two benefits. Firstly, PISA 2015 totally gathered over 4 thousand sample in Hong Kong. These large scale investigations went through careful sampling process, and therefore it is better revealing the actual situation of the school bullying of Hong Kong students. Pisa 2015 found that Hong Kong 15-year-olds came third from bottom in life satisfaction (6.48) (OECD, 2018). Studies in Hong Kong consistently point to the heavy price of Hong Kong academic excellence: Students are stressed, depressed, and bullied. Hong Kong compared to other PISA-participating countries and economies, the percentage of students who reported being bullied of includes any type of bullying act(32.3%), made fun of by other students (26.1%), getting hit or pushed around by other students(9.5%) at least a few times a month is most high(OECD, 2018). Therefore, it is of great value to study the bullying of Hong Kong students.

At present, less school bullying studies have been undertaken using the PISA 2015 data, so this thesis has the following values in these three aspects: First of all, the data of PISA 2015 is measured more rigorous and the sample came from more schools then previous studies in Hong Kong. That is, using the data in PISA 2015 would be more precise to represent the population and the result of this thesis can infer to the Hong Kong students of the same age. Secondly, this research uses the Structural equation modelling (SEM) investigating the effect from both student factors and school environment factors variables, which will provide the concrete references for the school administrators to manage the school environment. For example, if this thesis can prove that the strict student management module will help in reducing the occurrence of school bullying, the school administrators would

certainly deal with the attendance and truancy of the students.

Nevertheless if the gentle student management module will help in reducing the incidence of the school bullying or the variables have no apparent effect, then the management may consider not putting too much energy on the check of the attendance of the students. Thirdly, though nowadays in Hong Kong, some of the studies of school bullying used SEM (Tam & Taki, 2007)，but these studies did not give the interpretation of the effect from school environment including the main effect and interaction effect. Therefore this is still a void for the theme study. In this sense, this thesis may cover the shortage to certain extent of the issue in Hong Kong.

1.2 Research questions

Considering previous studies and data measured in PISA 2015, the variables included in this model are: gender (Solberg & Olweus, 2003), grade, family support (Lereya, Samara, & Wolke, 2013), learning motivation (Haynes, Emmons, & Ben-Avie, 1997), peer relationship (Li et al., 2015) and teacher fairness (Hoy & Weinstein, 2006). Therefore, the purpose of this study is to explore the effect of students' gender, grade, family support, learning motivation and peer relationships and teachers' equity on the victims of school bullying in Hong Kong. Furthermore, it analyzes whether students' family support and peer relationships and teachers' equity indirectly influence victims of bullying through students' learning motivation by SEM.

This thesis examined the following questions:

RQ1. What are the relationships between school bullying victimization and gender, and grade?

RQ2. What influences do family support, learning motivation, peer relationships, and teacher fairness have on school bullying victimization?

RQ3. Does family support, peer relationships, and teacher fairness indirectly affect school bullying victimization through learning motivation?

II. LITERATURE REVIEW

2.1 The definition and connotation of the school bullying

"School bullying" means the bullying incidences that happen with the background of the school (Sun &Shi, 2017). Since the 70s of 20th century, Norwegian scholar (Olweus, 1993) was the first one who began to study the school bullying systematically. Olweus think, the school bullying is a group or a singular student that has long treated the specified student with negative and attacking behavior, the bullying is long and repeatedly. From his definition, one can see the three key elements of the bully: the negative attacking behavior, the long time period and repetition and the uneven in force. Here the bully we mean includes all kinds of attacks such as the push up physically, hitting, word insults, mocking, rejection in relationship, rumor etc. Combined with the viewpoints of Olweus and other Chinese domestic scholars (Li & Li, 2010), this thesis defines the school bullying as all sector negative attacking behavior undertaken by the powerful students against the vulnerable students purposely, long time and repeatedly.

Bullying is defined as threatening or physically or psychologically harm others on purpose or threaten to cause/actually cause physical injury, death, psychological damage or maltreatment/neglect to a group of individuals or a social group by World Health Organization (2002). Smith, Schneider, Smith and Ananiadou (2004) define bullying as "a particularly vicious kind of aggressive behavior distinguished by repeated ats against weaker victims who cannot easily defend themselves. Based on the above scholars' viewpoints, this paper defines schoolyard bullying behavior as purposeful, repeated, long-term, attacks/negative behavior perpetrated by stronger students on weaker students in a school environment. Olweus (1993) defines bullying victims as students who have suffered repeated physical harm at the hands of more powerful students.

In order to better understand the concept of school bullying, the scholar Hu (2017) and Lin (2017) have discussed this concept respectively, the writer sums them up and achieve the following connotation: one is that the negative attacking intention in school bullying is expressed in physical way, in another word, turned into action; two is that the bullying is dominated by the powerful party, and the attacking behavior of the powerful party onto the vulnerable party is repeated and continuous with the aim to insult the personality and dignity of the students; three is the dangerous outcome, the double harm to both the body and the mind caused by the participants; four is the cognitive bias for the school bullying such as the common acknowledgement of the notion that the quarrel and fight noisily between the kids in the school are normal; It is commonly acknowledged that the bullying only happens in those students who are lower in academic learning. These are all wrong cognition for the society to understand the school bully.

Previous scholars have divided bullying behavior into major types. Griffin and Gross (2004) divide bullying and aggressive behavior into open, relational, reactive and proactive behaviors. “Open” bullying means confronting another person or group; “relational” bullying refers to spreading rumors in order to embarrass someone in and/or ostracize someone from a certain social setting; “reactive” behavior refers to defensive responses to perceived threats, accompanied by some anger; “proactive behaviors” refers to unreasonable means of avoiding, influencing and/or coercing others. Espelage and Horne (2008) believe that bullying can be divided into open and concealed aggression. Bullying is a unique and complex form of interpersonal attack. It has many different forms and functions and manifests in many different types of relationships. Bullying is not just a binary problem between the bully and the victim; it is actually considered to be a group phenomenon that occurs in social settings; various factors contribute to the promotion, maintenance or suppression of such behavior (Rodkin & Hodges, 2003).

Most past research has concentrated on bullying, types of bullying and physical bullying. There has been relatively little research on bullying victims. Nakamoto and Schwartz (2010) have pointed out that a small but significant negative correlation exists between the victim and their level of academic achievement, and the lack of a strong relationship between the two is mainly due to the fact that many factors influence academic achievement and some of those factors are more influential than bullying. In fact, victimhood may be more related to experiences at school, including feelings, motivations, behaviors, awareness of learning aptitudes, etc. (Ladd, Ettekal, & Kochenderfer-Ladd, 2017). These factors can all have an impact on victims. However, only a few empirical studies have explored predictors of bullying victimhood (Wynne & Joo, 2011); very few people are focused on school-related factors. However, research has found that individual demographic factors and school characteristics are significantly associated with victimization. Therefore, it is crucial that we conduct research on causal factors with respect to victims of school bullying. By discovering the causes of said behavior, we can come up with ways to stop it.

2.2 Theory of school bullying

2.2.1 Psychology perspective

From the psychological perspective, the school bullyer and the bullyee both will receive the negative influence (Zhang, 2017). The bullying will easily lead to the formation of the passive personality, difficulty in adapting to the schooling and the barrier to access to the society, and also easier to form the unhealthy personality and appear the tendency of social setback and attacking (Zhang &Chen, 2016). So as to say the bullying will cause the mental harm for all the participants. Meanwhile this passive influence can even be spread over to all the participants and other students. In one way this will cause the insecurity of the students towards the surroundings and in another way this will enable the onlookers to model from the means of all bullying.

From the psychological perspective, “setback and attack”, the assumed theory has done something to explain the cause of the school bullying (Hu, 2017). At the same time, some scholars have pointed out that the occurrence of the school bully incidents and the cognitive bias of the society and the unhealthy psychology of the middle and primary school students have strong relationship with the personality characteristics (Zhang & Chen, 2016), especially those students with unhealthy psychological features like self- disrespect, timidity, solitary, and these weaknesses to a large extent, attract the bullying by others’, and the bullyers’ bias, tendency to attack and lack of compassion will haunt them to bully other people without control.

2.2.2 Pedagogy perspectives

The appearance of school bulling does not only go against the educational nature and principles but also against the active call (Chow, 2017) that the school should be the safest and brightest place to stay. The school is the place where bullying happens in special environment and background, so analysis of the school life and the present statues can to a certain extent disclose the causes of the incidences. Relevant study indicates that bring the function of the companion in the bully into full play may be an important channel for us to form the school civilization and harmonizing the relationship of the students and to deal with the school bullying (Chow &Ma, 2017). The other researches also indicate that the proportion of the school repeaters can positively affect the probability of the students who often suffer from the school bullying, otherwise the active discipline atmosphere of the school can reveal the negative influence on the probability of the students who suffer from the bullying, the unfair treatment by the teachers towards their students can increase the odds of the students that suffer from school abuse remarkably (Huang, 2017). For this reason, some scholars point out that the school bully relies on educational prevention (Xia, 2017), and the bully prevention weights on the construction of the educational ecology (Chow, 2017). Surely, the three elements of school, family and social

education should be bound tightly and they all have considerable influence on the personal behavior. In this scenario, some scholars put forward that the synergistic education should be enforced, only the combination of family, school and social education can steady the contemplation of the students and change the occurrences of the school bullying forever (Chen, 2017).

2.2.3 Sociology perspectives

Frequent occurrences of the school bullying can cause big negative influence and make the question a nonnegligible social problem. When participants developed from one person to a group of all the walks of life in the society, we cannot just put it on the moral ethics of the students or the poor management of the school, behind all these, the social influential factors are more deeper and in proximity to the nature (Yang & Bi, 2016). some scholars suggest that the current criteria in our education for good or not good students is based on their academic achievements, this make the students that are not good at schooling escape from the school purposely or purposelessly, as the "attack" is one of the forms of escaping culture" for the long run, it turns to be the school bullying (Sun, 2017). Furthermore, some scholars think the social "anomie" invasion breed the bullying action (Tian, 2017). Since the opening to the outside world, our economy enters the fast track period, and the social transformation phase, there are a lot "anomie" in many aspects. Affected by the social environment, the sacred place of schools can't be void any more, many unexpected problems will be emerging such as the vanity, craze to vie with each other, and self-egoism.

Aiming at this complicated social school bullying incidents, the relevant prevention and solvent should be put on the sociological comprehensive perspectives, and comprehensive management policy and prevention measures will be adopted. First of all, the "civilization" and the harmony" in the value of the socialism should be brought into full swing in the propaganda, the social cultural atmosphere should be improved and the spreading of violence culture should be controlled. Furthermore

some scholars point out that the call for the attention of the people to the school bullying should not be overstated while the potential perniciousness should be realized to avoid the "pregnant effect" (a kind of psychological reflection, an occasional attention being noted has been unconsciously regarded as the universal phenomenon (Yang &Bi, 2016). some scholars propose the prevention schemes towards the school abuse from the aspect of social ecological system, and they think the school bullying is also an ecological system, should deal with it inside and outside and from micro to macro points of view to prevent and upgrade the pertinence and pragmaticality of the solution to the school bullying (Zhu, Qi, & Mei, 2017).

Jeong, Kwak, Moon and San Miguel (2013) pointed out that some bullying-related research has focused on the atmosphere in the school, including the role that the characteristics of the school in question play in bullying/victimization. However, most research has ignored the importance of ecological factors with respect to bullying/victimization, in spite of the fact that ecology may be the most influential element in the growth of school violence. Some researchers also believe that in order to understand the factors behind school bullying, we must explore the complex interrelationships between individuals and their environments and that social ecological theory can explain the phenomenon of school bullying (Espelage & Swearer, 2010; Hong & Garbarino, 2012; Swearer et al., 2012).

During his discussion of a more comprehensive view of human growth and development, Bronfenbrenner (1979), brought forth an ecological model. This model is dominated by the individual's relationship to his environment, but social ecology theory divides human development into interactions between an individual and multiple different systems (family, neighborhood, school and society). Bullying is caused by the complex interactions between individuals and their environments, including proximal (family, peers, school environment) and remote (social and cultural influences) (Swearer & Hymel, 2015). Therefore, a few researchers use

ecological models to propose bullying mechanisms. Among these is the concept that adolescent development is influenced by the proximal environment and other environmental contexts, including interactions with parents, classmates, teachers and the school environment (Wearer & Doll, 2001).

The core of the ecological perspective is the interactions between four different ecosystems, microsystems, mesosystems, external systems and macrosystems (Bronfenbrenner, 1979). Microsystems are primarily those that involve interactions between individuals or between individuals and their environments (Bronfenbrenner, 1979). For example, parents may most easily influence and exert the most influence over adolescent behavior. The second type of system is a Mesosystem, relationships within microsystems that interactions between two or more elements such as how collaborative relationships between parents and peers or parents and the school can affect children's behavior. The third is external systems, systems that have no direct impact on developing children but still exert an indirect impact on them" (Bronfenbrenner, 1979). For example, parents in poor areas may face greater challenges when raising children. Thus, these children, who lack parental support, end up lacking social resources as well. Although this may not directly influence the behavior of these children, it still exerts an indirect influence. Lastly, there are macrosystems, which include the influences of culture, norms and mores on individuals (Bronfenbrenner, 1979) (Figure 2.1).

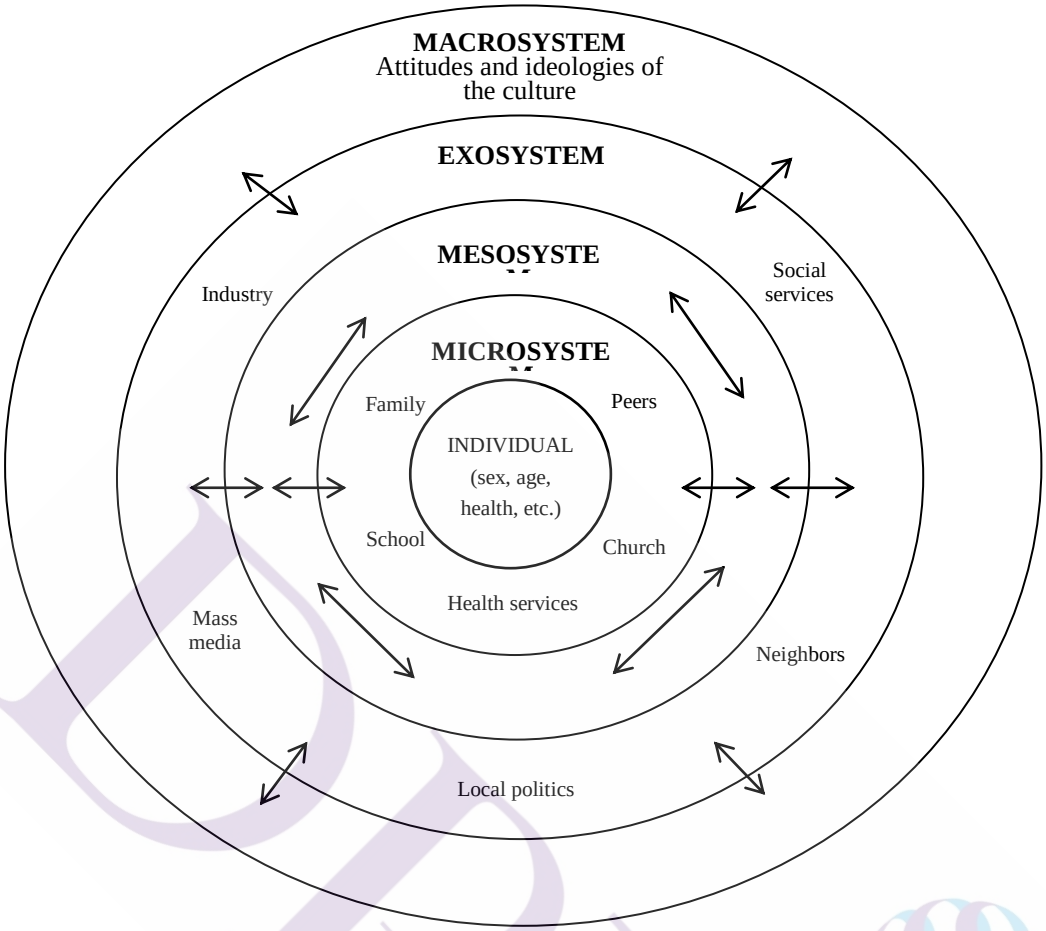

Figure 2.1 Social-Ecological Model of Human Development

Sources: Bronfenbrenner (1989)

Therefore, ecological theory provides many possible explanations for interactions between individuals and their environments, such as the notion that personal development is a result of interactions with parents, peers, students and/or other social factors. However, ecological theory actually does provide researchers of bullying with the best theoretical framework, because it describes the complex reciprocal interactions between peers, that is, bullying victims and bullies. The theory takes these relationships as the center of a network of systems, then moving towards various other systems that shape individuals, microsystems, mesosystems, external systems, macrosystems, etc. Some of them exacerbate the negative effects of asymmetrical power relationships at school (Jeong et al., 2013) and negatively affect bullying

victims. Therefore, this research uses the ecological theory framework to explore the impacts of factors such as individuals, families, classmates, teachers and society on victims of bullying.

2.3 Previous studies on school bullying

First, previous studies on school bullying are examined to better grasp the research developments. Second, some possible prevention schemes are introduced to mitigate the incidence of school bullying. These preventive schemes are based on constructed school environments and effective school operations that can stop students from being exposed to school bullying. Therefore, as there is a close connection between the school context variables and school bullying, this research has included environment context variables in the analysis. Third, to specifically examine the incidence of school bullying, secondary materials from the 2015 Hong Kong Programme for International Student Assessment (PISA) data are analyzed using common data analysis methods. Finally, from the results of the analysis, a discussion is presented that assesses the effects of family support, peer relationship, teacher equity, learning motivation, gender and grade on school bullying.

According to the social interactive theory by Lewin (1976), the personal behaviour is affected by the feature personality and the environment and these two elements may generate interactive effect. Based on this view, the school bullying behaviour may also be affected by the variables from student himself and school environment. Hence, this thesis develops a research model to examine the influence from student and environment on school bullying. Bronfenbrenner (1979) introduced an ecological systems theory in terms of a more comprehensive viewpoint on human growth and development. Bronfenbrenner's ecological framework presents the interrelationship between individuals and the environments. The Bronfenbrenner ecological model has been applied to mechanisms of bullying victimization by some researchers. The development of adolescents is affected by their surroundings and

other factors such as the interaction of their motivation, parents, peers, teachers and the school climate. Hence, the Bronfenbrenner ecological model can be applied to the mechanisms of bullying victimization.

2.3.1 The historical development of the school bullying

The research of school bullying has been continuous for a long time, as early as the beginning of 90th century, many articles in the journals in foreign countries have appeared. The Dittrick (2010) research outcome has shown: in the connection of physical appearance and body self-respect, the school bully has functioned as the medium part which indicate the physical self-respect has close connection with the school bullying; Lowenstein (1977)'s research asked the school administrators to recognize the 83 school bullyers and then compare the distributional differences of the different genders of the bullyers as well as the behavior outlooks rendered out. The result shows that the male has higher school abuse ratio than the females but the verbal attack ratio of females is higher than males. Meanwhile this research also demonstrates that there is a close link between the bullyer and his or her family background.

After 2000, the theme of school bullying has been continuously attended by scholars. For example, in Britoand (2013) research, aiming at 237 students who participate in the school health program, investigating their participation in the incidents of the school bullying, they found out that: the ratio is 67.5% of the students who get involved in the school bullying and their self-respect was greatly affected and the two variables connection was adjusted by the gender variables. Compared with the studies abroad, the school bullying research has gradually arisen until 2010, especially during the period from 2015 to 2017, during this period, more and more journal thesis on school bullying are published domestically. Taking the HowNet Retrieval system of China for example, put in the key words" school bullying" the results showing one thesis in 2014, but 216 works in 2017, which fully explains the higher alert and

attention of Chinese scholars on school bullying. At present the theme related empirical study including the rural stay at home students (Wu, Song, & Hwang, 2016), middle school students(Zhao, Yang, & Zhang, 2016), the preschool pupils (Dong & Zhang, 2013)and primary school students(Dong, 2015) are all brought into the study.

In recent years, scholars have also started to focus on bullying victims, but relatively speaking, there is far less research on bullying victims than there is on bullying. Yet, why people become victims of bullying is an important research topic. Studies have shown that students that engage in bullying or who are victims of bullying are often students with low academic participation and/or motivation levels (Nansel, Haynie & Simons-Morton, 2003). Conversely, students with low academic participation and/or motivation levels often become bullying victims (Glew, Fan, Katon, Rivara & Kernie, 2005; Beran, 2008; Swearer, 2011). Students with mental health issues (such as anxiety, depression, unhappiness, aggression and emotional difficulties) seem to be more vulnerable to school bullying than students who do not suffer from these issues. Victims of bullying are often students with low academic participation and/or motivation levels (Nansel，Haynie，& Simons-Morton，2003; Beran，2008; Swearer, 2011). Alavi (2015) bullying victims include girls, students with lower socioeconomic status, minorities, overweight students, students with learning disabilities and students with poor social skills, etc. Thus, we can see that research on bullying victims has gradually increased, and how to prevent students from becoming victims of bullying has become one of the main focuses of research on school bullying.

2.3.2 School bullying intervention program

Except for the commonly seen small scale school bully investigations, some of the scholars pay more attention to the school bully countermeasures. These scholars have developed the school bully intervention schemes based on the construction of school environment. For example, the Peer EXPRESS,(Peer experience to promote

recreation exposure and social skills), implemented in south California USA, this program is sponsored by Californian Government, aiming to solve the school bullying of handicapped students, a series of educational activities. The main purpose of Peer EXPRESS are to recruit handicapped students to work with the normal students together to participate in the entertainment, art activities and the community service, through 24 hours to 27 weeks, at least once a week, to train the social interactive capability. In order to evaluate the effect of Peer EXPRESS, Saylor and Leach (2009) carried out the empirical investigation to take the 24 handicapped students who took participation in the whole process of this program as the participators to evaluate the extent of the school bullying, school violence anxiety and social support. The results indicate: before the handicapped students participated in this scheme, they were suffering higher degree of school bullying and school violence anxiety than the normal students in the same school, whereas after this program intervention, the school bullying and violence anxiety towards the handicapped students were reduced in comparison with the past.

The other wildy used intervention scheme was: (Second Step: Student Success Through Prevention), it is the educational scheme activity supported and developed by American Committee for Children, which aims at training the empathy, exercises, communication and emotion adjustment of the participants through the direct teaching, class discussion, role play and after class practice, a variety of activities. Espelage and other team (2015) took 47 handicapped students who participated in the scheme as the experiment group and added 76 normal students who did not participated in the scheme as the control group to undertake a performance tracking analysis for as long as three years. During this period, the experimental group students carried out one class activity (50 min.) a week, totaling 41 subjects. Through the longitudinal analysis method of linear growth model, the result shows, in comparison with the control group, the grading points of the experimental group suffering the school bullying reduced remarkably, which proves that this scheme indeed has the benefits of

diminishing the school bullying towards the handicapped students.

Holt and Espelage (2003) found that school characteristics and environment (i.e. school behavior/rules, teachers' attitudes, teacher support, clarity/enforcement of rules, respect for students) are important predictors of whether students at a given school fall victim to bullying. In contrast, students at schools where teachers pay attention to bullying and intervene in/stop said behavior are not very likely to become victims of bullying (Payne & Gottfredson, 2004). Cowie and Smith (2012) believe peer support is a crucial method of intervention. Peer support includes peer counselors. Fellow students who serve as counselors can help support students who are experiencing difficulties. They can form teams with tutors to provide help for students in need. Peer counselors can also benefit from this support process, as they may increase their own self-confidence and learn to care about others. For vulnerable students, utilizing peer support feels like a more effective, proactive way of seeking help. Schools that have started peer support programs have seen the growth of more secure and caring environments with improved relationships among peers (Houlston, Smith, & Jessel, 2011; Cowie, 2014).

2.3.3 The secondary data analysis study on the school bullying

The first-hand empirical investigation can directly integrate into the needs of the researchers, but due to the limited human and material force, it is difficult to implement the large scale investigation, for this reason, some scholar are doing their research on school bullying based on the data released by the state level institutions to undertake the secondary data analysis. Nansel (2001) has mentioned in his article, although school bully is a highly concerned topic for most of Americans but few researches are based on the large-scale national data to undertake the data analysis, which lead to the obscure understanding of the whole national school bullying. So this research is based on the data of the World Health Organization's Health Behavior in School-aged Children survey issued by the World Health Organization (WHO), to

carry out the secondary data analysis. The participators range from the primary school to middle school with a total number of 15686 students. The result shows: 16.9% students suffer middle degree to frequent degree school bullying, with female being easier to be the victims. Meanwhile this research has found it out that the school bullying has close link with the psychological discomfort.

Blake (2012) and Son's (2012) research focused on the empirical analysis on the data released by the large data base of USA as they thought the country lacks of the research based on the state level as being the unit. Among them Blake and his team were using the Special Education Elementary Longitudinal tracking data base and the National Longitudinal Transition Study-2, data from those two large data bases and found it out that the ratio of the handicapped students suffering from school bullying in the primary schools is up to 24.5% and 34.1% in middle schools, these two numerical values are much higher than the ratio of 15% and 28% school bullying of normal students. Son and his team's analysis results based on the special educational Pre-elementary educational longitudinal study showed that 25% to 33% of the pre-school handicapped students experienced the school bullying and this situation is getting worse, the suffering percentage rises from 21% 2003 to 30% 2006.

The above mentioned school bullying study adopts the secondary data base, the number of the participators is huge and the sampling is precise. The extrinsic inference of the results is better than the general questionnaire with better extrinsic effect. As this is the first time PISA 2015 data was brought into the theme of school bullying, few people dig the potential educational value of hidden in this data, so the analysis method of this research has the initiatives.

2.3.4 School bullying behavior

Bullying has been found to be one of the most prevalent and potentially damaging forms of school violence (Elinoff, Chafouleas, & Sassu, 2004; Raskauskas & Modell,

2011) and one of the major problems children face in the education system (Rose & Monda-Amaya, 2011; Shahria et al., 2015). Each year, more than a quarter of middle and high school students are subjected to some form of bullying in their school environments (Neiman, 2011). The potentially harmful immediate and long-term consequences of bullying-involved youth has been linked to the quality of school environments and to unsafe school learning conditions (Copeland, Wolke, Angold, & Costello, 2013; DeVoe & Kaffenberger, 2005).

Bullying is defined as a deliberate act aimed to inflict physical and psychological harm and is commonly characterized by frequency, intention to hurt, and an asymmetric relationship between the bully and the victim (Houbre, Traquinio, & Thuillier, 2006; Al-Raqqad et al., 2017) Bullying may involve verbal abuse, physical assault, threats, jokes or language, and criticism. Cowie (2014) argued that bullies rarely acted alone and relied on reinforcement from their immediate group of friends as well as on the tacit approval of onlookers. Jan and Husain (2015) claimed that bullying can create barriers to learning and have negative outcomes on the part of both the students and the institutions. Bigger, burlier students have been found to sometimes act as bullies in certain situations.

Alison (2016) pointed out that bullying affects the emotional, social, and physical wellbeing of school-age children worldwide, can occur at any time and negatively impacts academic performance (Shahria et al., 2015), and social development and emotional at school (Kartal & Bilgin, 2009). Al-Raqqad et al. (2017) concluded that school bullying affected the academic achievements of both the victims and the bullies. However, bullying can emerge as early as preschool and can be an increasingly chronic experience for many children throughout their childhood (Monks, Smith, & Sweetenham, 2003). Bullying research has mainly focused on the identification of the psychological and familial characteristics related to being a victim and/or aggressor (Brendgen, Girard, Vitaro, Dionne, & Boivin, 2016; Möble,

Kleimann, & Rehbein, 2008; Sheng, Herbert, Kang, & Yu, 2009), and has linked bullying to a wide range of correlates; social, emotional, behavioral, medical, and academic (Gini & Pozzoli, 2009; Nakomoto & Schwartz, 2010). Bullying has also been associated with long-term consequences in adulthood, with bullying behavior being linked to later criminality (Sourander, Jensen, Rönning, Niemelä, Helenius, Sillanmäki, & Almqvist, 2007) and peer victimization being connected to poor health, lowered wealth, and problematic relationships (Wolke, Copeland, Angold, & Costello, 2013). Parental involvement has been found to contribute significantly to the victim/bully cycle at elementary level whereas the academic expectations of peers and teachers has been considered a major bullying factor at secondary level.

Doll, Song, Champion and Jones (2011) Schools are composed of classrooms; therefore, healthy classroom environments will reduce bullying and victimization. There are four attributes regarding classes which are pertinent to higher levels of bullying and victimization. The first attribute is negative friendships. The second one is a poor relationship between teachers and students. The third is a shortage of self-control and the final is students' poor problem-solving abilities.

Doll et al. (2011) point out that a school is actually made up of several different classrooms, and health classroom environments will reduce bullying and victimization. There are four classroom characteristics associated with high levels of bullying and victimization: (1) negative peer friendships, (2) poor student-teacher relationships, (3) a lack of self-control and (4) an insufficient ability/effort to solve students' problems. Bullying may take many forms, such as criticism, verbal abuse, harsh language or jokes, threats and/or physical assaults (Al-Raqqad et al., 2017). Ladd and Troop-Gordon (2003) showed that bullying victimization shows several interpersonal correlates, such as low friendship quality, having few friends and rejection that can persist into adolescence and beyond (Rudolph & Clark, 2001).

2.4 Factors affecting victims of bullying

2.4.1 Status, gender, grade and victims of bullying

Ma (2001) argued that gender, socioeconomic status, and physical health all contributed to the victim/bully cycle. While level of parental care, family socioeconomic status, number of siblings, family system type, and academic conditions have been found to be significantly associated to the victim bully cycle, research has also found that these factors are not necessarily categorical as children who belong to different social groups, those who are perceived as being weaker, and those with disabilities or requiring special educational needs are also bullying victims (Zych, Ortega-Ruiz, & Del Rey, 2015). Furthermore, Seo, Jung, Kim and Bahk (2017) pointed out that victims of bullying are highly likely to have lower socioeconomic status, lower than average academic performance, more symptoms of depression and a poorer relationship with their parents.

Although any child can become the target of social bullying, those who are perceived to visibly differ from conventional social norms are at a heightened risk. Victims of bullying are more likely to be those teenagers who lack social skills, have developmental disorders, are overweight or underweight, and are considered to be homosexual, bisexual or transsexual (Wang, Iannotti, & Luk, 2010; Zablotsky, Bradshaw, Anderson, & Law, 2012).

A national survey also indicated differences in the prevalence of social bullying across gender groups and grade levels. Age and grade level have also been found to be significant predictors of being victimized (Olweus, 1993; DeVoe et al., 2004). Female students are more likely to experience social bullying than male ones by their peers. 20% of girls and 13% of boys are edged out by their peers. Similarly, 6 percent of female students reported being the subject of rumor spreading compared with 4 percent of males. Among all of the students, the students in sixth grade experience

bullying in any forms the most of any form (39%) as well as the highest rates of social bullying victimization; 21% of all sixth-grade students reported being the subject of rumors compared to 17% of ninth-grade students and 13 % of 12th-grade students (Nieman, 2011). Shahria et al. (2015) found that females were more affected than males by bullying. Studies examining gender differences in direct and indirect aggression suggest that girls may be more adversely impacted than boys by socially aggressive interactions as they place greater value on social relationships (Speiker et al., 2012). Accordingly, girls who encounter social bullying within close friendships may experience heightened levels of social anxiety, social avoidance, loneliness, feelings of distress, and behavioral problems (Crick & Nelson, 2002).

Salmon, Turner, Taillieu, Fortier and Afifi (2018) The odds of bullying victimization were higher in Grades 8 to 12 compared to Grade 7. A large research targeting on the students in third to eighth grade showed that more seniors from elementary and junior high schools experience social bullying than others. Specifically, between 41% - 48% of girls and 31% - 42% of boys reported being the targets of social bullying within a 30-day period. Even more striking, 20% - 28% of girls and 20% -24% of boys reported engaging in socially aggressive behavior themselves, most commonly by ignoring someone on purpose (Nishioka, Coe, Burke, Hanita, & Sprague, 2011). Archer (2004) found that female aggressive behaviors were mostly relational aggression and male aggressive behaviors involved mostly verbal and physical aggression. Other research has found, however, that bullies and victims are mostly male students (Güvenilir, 2008; Yurtal & Cenkseven, 2007). Ndibalema (2013) found that as physical bullying was perceived as a dominant behavior, boys more preferred to be bullies than girls. Therefore, Salmon et al. (2018) effective anti-bullying intervention strategies need to address a range of victimization types and should consider gender and school grade.

2.4.2 Peer relationships and victims of bullying

Jowett and Lavalle (2008) believe that a peer is a person of the same or similar age. Anyone who directly participates in the same activities and shares the same goals as you can be a peer, regardless of the length of the interaction. Peers are also called classmates, companions and friends. Lair (1984) proposes that peer relationships are the basic interpersonal relationships by which individuals develop and undergo socialization. Furman (1999) proposes that peers are people of a similar age, social status and ability and that relationships among people of similar social statuses are mutually beneficial ones. Vannattaa, Gartsteinb, Zellerc and Nolld (2009) also believe that peer relationships are developed through mutual interactions, important indicators of children's social skills and capability for social/psychological adjustment. They believe peer relationships are interpersonal relationships and the basic relationships that lead to personal development and socialization. Peer relationships are also an important source of happiness, social development, social skills and emotional support for adolescents (Contrearas & Kern, 2000).

The importance of peer relationships at the beginning of puberty is rapidly increasing (Brown & Larson, 2009). Henderson (2012) points out that the development of peer relationships is a key factor in youths' development. Wight & Chapparo (2008) also believe that, when predicting a person's ability to adapt, you should not look at classroom behavior or academic achievement, but instead focus on an individual's ability to get along with his/her peers. In addition, they believe that good peer relationships have an important impact on students' personal growth and academic success. Vygotsky (1995) believes that interactions between adolescent peers, especially those with higher levels of development, as well as interactions with parents and teachers, contribute to their cognitive development. Talbot, Astbury and Mason (2010) proposed three important functions of peer relationships: 1. Providing basic social status and establishing a concept of self; 2. Promoting the development of

social skills, providing standards by which to manage behavior; 3. Reducing dependence on families, providing support and a sense of belonging, promoting emotional relief.

Scholars have highlighted the importance of high quality peer relationships to student's sense of self and academic participation, motivation and performance, especially for people who have experienced low quality relationships as children (Martin & Dowson, 2009; Pianta, Hamre & Allen, 2012). Warmth is a key feature of high-quality peer relationships. When students have the opportunity to talk and listen to each other, provide emotional support, share learning experiences and develop respect for one another, they are more likely to fel that they belong and are understood and cared for by their peers. The intense interactions with classmates help create a comfortable atmosphere, which in turn helps meet students' relationship needs (Ciani, Middleton, Summers, & Sheldon, 2010; Martin & Dowson, 2009). Adolescents without close peer relationships are less likely to receive emotional support during stressful times (Hussong, 2000). Without the support of their peers, adolescents may be more vulnerable to the negative effects of conflict.

Bullying can have a negative impact on emotional and social development (Kartal & Bilgin, 2009). Adolescents without close peer relationships are less likely to receive emotional support during stressful times (Hussong, 2000). Without the support of their peers, adolescents may be more vulnerable to the negative effects of conflict. Bullying behavior normally reaches a peak at the early stage of adolescence, as adolescents start to need to be with their companions and romantic partners in order to be socially supported (Yoon, Barton, & Taiariol, 2004). The need to belong to a group, experiencing social power, and the development of a friendship are parts of the factors that support bullying behavior. (Macklem, 2003).

Although further research is needed to fully understand the complex factors that contribute to social bullying, the available research suggests that certain factors may

put youth at risk at being targeted. For example, compared to their peers, the targets of social bullying tend to be disliked more often by their peers, have fewer friends, have stronger intimacy needs, and report higher levels of conflict and betrayal within their friendships (Crick et al., 1999).

Bullied students often have difficulties making friends, progressively feel like they do not belong at school, and are less involved in classroom activities (Houbre et al., 2006). Bullying victimization has been found to have several interpersonal correlates such as rejection, having few friends, and a low friendship quality, all of which can persist into adolescence and beyond (Ladd & Troop-Gordon, 2003; Rigby & Slee, 1999). However, Houston et al., (2009) claimed that peer support systems were able to identify many relationship problems such as rejection, isolation, and social exclusion. However, school heads and staff need to fully understand the functions, duties, and responsibilities of peer support systems to introduce suitable preventions and interventions.

Caputo (2014) noted that bullying victimization can lead to a negative self-view that can reduce a student's personal sense of power regarding the learning process because of the lack of peer reinforcement. However, for vulnerable pupils, the use of peer support systems can be a critical part of the process of feeling more positive about themselves and dealing with difficulties such as victimization (Houlston et al., 2011; Cowie, 2014). Not only do the peer supporters have a direct knowledge of the complex network of relationships in the peer group, they are able to extend the protectiveness beyond the immediate friendship group and help develop a school community founded on principles of equality, concern for others, and empathy for others' feelings.

2.4.3 Teacher fairness and victims of bullying

Chory-Assad and Paulsel (2004) defines teacher fairness by observing whether

or not the distribution results and process in the classroom are genuinely fair to the students. When students evaluate the "fairness" in teachers' behavior or policies (Rodabaugh, 1996), it usually refers to their perception towards teachers' behavior and policies instead of the teachers' intentions. That is to say so long as the teacher's way of doing things and treating his/her students make the them feel that he/she is fair, the fact that the teacher is unfair sometimes will not affect students' attitude towards the teacher (Chory-Assad, 2002). Likewise, when the students feel that the teacher is supportive, fair, and has high expectations of them, students tend to be more willing to participate in school affairs, thus resulting in higher academic performance (Klem & Connell, 2004).

Rodabaugh (1996) proposed three different types of fairness. 1. "Interaction fairness" refers to the interaction between the teacher and the students. 2. "Procedural fairness" refers to the assessment methods and classroom management practices. 3. "Outcome fairness" refers to scores and score distribution. Horan & Myers (2009) found in their research that teachers pay most attention to interaction fairness, followed by procedural fairness and distribution fairness. College students, however, reported procedural unfairness as the most common type of unfairness behavior committed by teachers (Horan, Chory & Goodboy, 2010).

Olweus (1993) highlighted the importance of providing class time to discuss bullying and using lessons to foster social-emotional skills and competencies, effective communication, and strategies in response to bullies (Farrington & Ttofi, 2009) The way that student bystanders respond to bullying has been found to be related to the frequency of bullying in their classes (Salmivalli, Voeten, & Poskiparta, 2011). Bullying has also been linked to less supportive student–teacher relationships as the students feel less empowered and less encouraged by their teachers (Nation, Vieno, Perkins, & Santinello, 2008). Jan and Husain (2015) found that students who reported being bullied or who were suffering from some other form of peer

mistreatment had lower academic achievements than their non-bullied peers; students who reported a better rapport with their teachers also showed higher academic achievements.

Teacher support refers to the students' perception of the academic, psychological, and/or emotional support provided by their teachers (Alampay & Macapagal, 2011). Rodkin and Hodges (2003) pointed out that teachers are the best resource in terms of preventing school bullying, as the students' perceptions of the teachers' responses to the bullying situations affected the behavior of the victims, the aggressors, and even the spectators (Salmivalli, Voeten, & Poskiparta, 2011). Successful teachers could better educate their students moral judgments and interpersonal relationships by getting to know their students' classmates, friends and enemies. A good teacher stops any form of aggression between the students, protects the victims, and punishes the aggressors. There is evidence that these practices can significantly reduce the frequency of bullying (Rigby, 2014; Veenstra, Lindenberg, Huitsing, Sainio, & Salmivalli, 2014). Practices that show disapproval toward bullying demonstrate to the students that teachers care about the interactions in the classroom (Rodkin & Gest, 2011).

2.4.4 Family support and victims of bullying

Ma (2001) emphasized that school disciplinary rules need to be reinforced by school staff to develop, monitor and reinforce any anti-bullying policy, and that involvement by teachers and parents must be compulsory to ensure the supervision of all school activities. Jan and Husain (2015) also claimed that parental involvement was particularly needed to control victim bully cycles at elementary level.

Lester (2017) shows that family's involvement in the prevention and management of school bullying is an important success factor in preventing bullying. Parents can help reduce the likelihood of children involving in bullying behavior by shaping

positive social behavior, providing advice on bullying behavior in a timely manner, and encouraging children to seek help. Resources for parenting skills and ways to strengthen parent-child communication can be established, including encouraging parents to complete family activities with their children and contact their children's schools to reduce the likelihood of being bullied.

Kawabata, Alink, Tseng, van Ijzendoorn, and Crick, (2011) found that parenting styles that were characterized by psychological control and a lack of nurture could lead to social bullying (Pernice-Duca, Taiariol, & Yoon 2010). Parents may exert psychological control by using guilt, engaging in personal attacks, threatening to withdraw love or support, invalidating feelings, and constraining verbal expression (Barber, 1996). Furthermore, the relationship between bullying and academic performance is complex. Glew, Fan, Katon, Rivara and Kernic (2005) noted that victims of bullying may be those who have poor academic performance in school. However and Beran (2008) suggested that victims of bullying with less support from their parents and their parents' disengagement in school can lead to a stronger relationship between the victims of bullying and their low academic performance.

Lereya et al. (2013) also pointed out that a close and intimate relationship between parents, parents' high participation and support, effective family communication and supervision can prevent victimization, but maladaptation, abuse and neglect may lead to student victimization. Early research found that victimization is also associated with overprotection, punishment, and the way authority is used in a child's upbringing (Nakamoto & Schwartz, 2010).

Carney and Merrell (2001) suggested several victim characteristics and variables associated with victim behavior and also claimed that parental monitoring and involvement could predict individual behavior. Young people from families that give low parental care, apply harsh and unpredictable discipline, are controlling and in which individuals experience bullying from siblings are at more risk of becoming

victims rather than becoming bullies (Pepler et al., 2008).

2.4.5 Learning motivation and victims of bullying

Sekol and Farrington (2016) found that bullied students were often unable to follow or pay attention to their study and many did not like to going to school. When students are exposed to high levels of social bullying, either as a target or as a witness to the behavior, they are more likely to perceive their schools as less safe (Nadine, 2014). Youths who were frequently subjected to social bullying have also been found to have negative feelings about their own social experiences and the social climate in their schools (Goldstein, Young, & Boyd, 2008). Mehta, Cornell, Fan and Gregory (2013) also found that when students felt that bullying was common in their school, they felt unsafe and were less engaged with the school community. Therefore, they had little motivation to do well at school and did not participate in school activities. Other studies have found that social bullying such as chronic exclusion can impact classroom participation and can cause students to become increasingly disengaged from their classroom activities as they progress through school (Buhs, Ladd, & Herald, 2006).

Glew et al. (2005) reported that bullying prevented concentration and subsequent academic achievement as the bullying victims lose interest in learning and experience a drop in their academic grades because their attention is distracted from learning (Nadine, 2014). Skrzypiec's (2008) survey on 1400 seventh, eighth, and ninth graders in Australian primary schools examined the effects of bullying on student learning, social and emotional wellbeing, and mental health status, from which it was found that a third of students who had been seriously bullied also reported having serious difficulties concentrating and paying attention in class because of the bullying and the fear associated with it. However, as school bullying is common throughout the world, it has been widely found that bullied students often develop concentration problems and learning difficulties (Plan International, 2008). Caputo (2014) found that boys

who had been subjected to bullying victimization tended to have worse academic self-concepts and intrinsic motivations than girls and that students in grade 8 were more likely to have lower measures compared to other grades (poorer academic self-concept and learning motivation, and higher test anxiety).

Bullying experiences can have both direct and indirect effects on school and learning motivation (Nishina et al., 2005; Schwartz, Gorman, Nakamoto, & Toblin, 2005). Juvonen, Wang and Espinoza (2011) observed that bullied students may become worried and afraid of being teased and therefore may stop participating in class or may have trouble concentrating on class work because of fear. Learning motivation has also been found to be affected by bullying (Caputo, 2014), which can lead to a poorer involvement in school activities, a poorer commitment to study, negative attitudes toward school, increased school absenteeism (Boulton & Underwood, 1992; Kochenderfer-Ladd, 2004), and affect the student learning motivation to pursue particular activities (Caputo, 2014). Students may therefore get mislabeled as low achievers because they do not want to speak up in class for fear of getting bullied, which teachers then misinterpret as a lack of motivation to learn (Wright et al., 2012).

Although several studies have showed that bullying influences victims' learning motivation, Swearer (2011) suggested that one of the reasons that students get bullied is related to their academic engagement. Nansel, Haynie and Simons-Morton (2003) suggested that victims of bullying tend to be those who have lower academic engagement and learning motivation. As a result, students who have a strong learning motivation, can accept challenges and have good academic performance are less likely to be bullied. Additionally, Sun (2017) argued that academic performance is used to judge whether he or she is a good student or not, which makes the students who are not good at studying escape from school intentionally or unintentionally since "attack" is one of the types of escaping culture. In the long term, those students

become the target of bullying.

III. METHODOLOGY

This thesis is based on a secondary data analysis of the PISA 2015. Secondary data analysis is when the first-hand data has been collected by others, with the secondary analysis being conducted with its own aims. The advantage of secondary data analysis is that as the large database has often been obtained by random sampling, it can better reflect the population characteristics. Further, as the database measurement tools have been compiled by experts, they can have high reliability and validity.

3.1 Study Model

Using Bronfenbrenner (1979) ecological systems theory and social interactive theory as the research framework, this study adopted structural equation modeling (SEM) for the analysis to examine whether family support, peer relationships, and teacher fairness indirectly affected school bullying victimization through a reduction in learning motivation. The specific study hypothesis path reference diagram is shown in Figure 3.1.

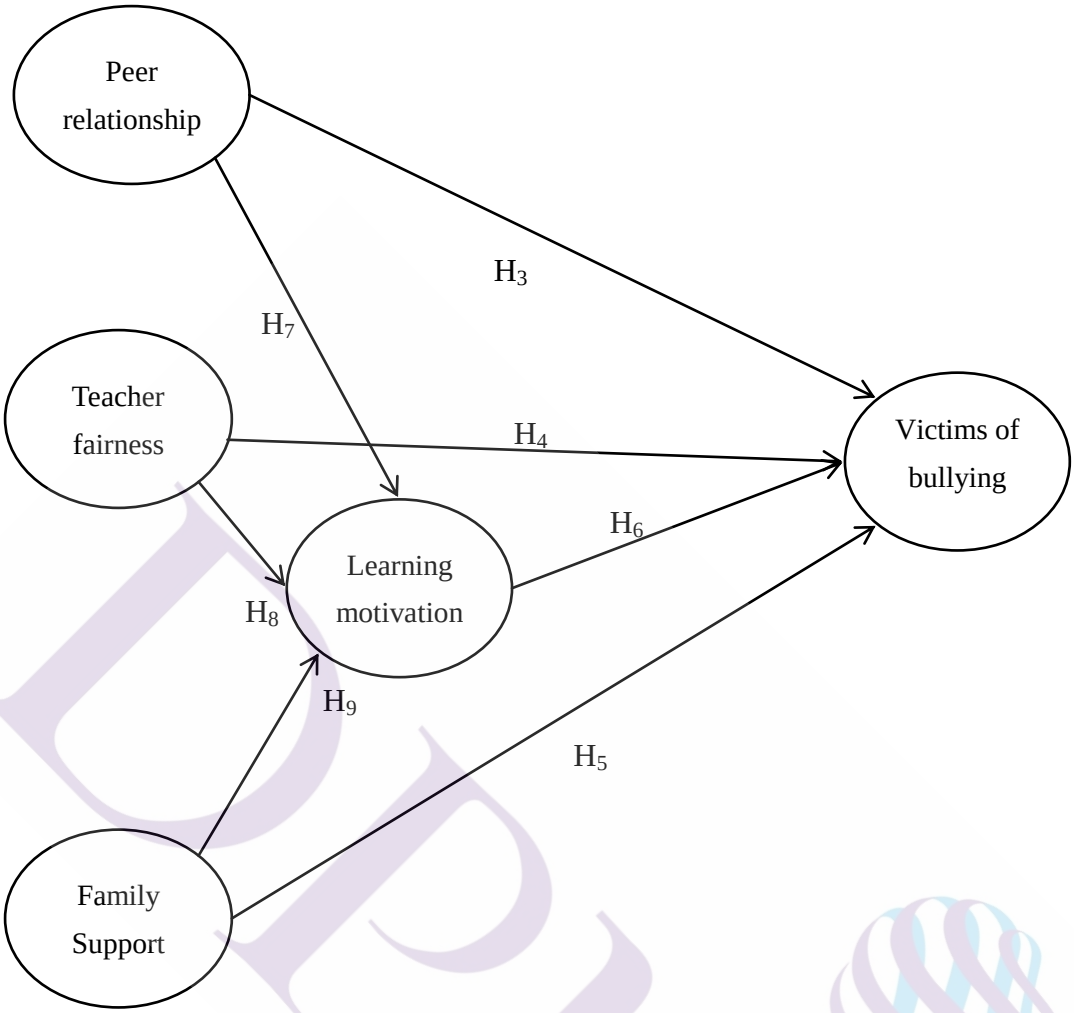

Figure 3.1 Research framework

Sources: Bronfenbrenner (1979); Card et al. (2008); Haynes et al. (1997); Hoy & Weinstein (2006); Lereya et al. (2013); Li et al. (2015); & Seo et al. (2017)

3.2 Research Hypotheses

After organizing the research purpose, literature review and research framework, the research hypotheses were finalized as shown below:

Common perception is that social bullying is predominantly a “girl” issue, research suggests that males engage in social bullying more often than previously

thought (Card, Stucky, Sawalani, & Little 2008). Nonetheless, most studies have shown that girls are more likely to engage in social bullying than other more physical forms of aggression and are more likely to be the targets of social bullying (Crick, Ostrov, & Kawabata, 2007).

Olweus (1993) found that elementary and middle school students were more vulnerable to victimization than high school students. And the odds of bullying victimization were higher in Grades 8 to 12 compared to Grade 7 (Salmon et al., 2018). Studies have shown that differences in the prevalence of social bullying across gender groups and grade levels (DeVoe et al., 2004; Nieman, 2011).

H_1: Differences in gender affect school bullying victimization.

H_2: Differences in grade affect school bullying victimization.

Kaltiala-Heino and Fröjd (2011) Peer relationships are crucial for adolescent development. Adolescents may suffer from emotion dysregulaiton and low self-esteem after being bullied (Turner, Finkelhor & Ormrod, 2010). Adolescents start to develop socially slower and reduce their self-protection as think they will be edged out by others (Prinstein, Cheah, & Guyer, 2005), which then makes them to become the target for bullies.

Perren and Alsaker (2006) also recognized the importance of peer relationships in victims of bullying. Victims of bullying may face psychological and social issues due to a lack of friends, thereby making them even more susceptible to being a target of bullying. Therefore, this study proposes the following hypothesis:

H_3: Peer relationships influence school bullying victimization.

Pellegrini (2002) pointed out that the first step is teachers' awareness and attention. Teachers must be aware that if their students experience social bullying.

Once the teachers find out that their students are being socially bullied, they should tell the bullies' teachers and discuss the situation with them. Therefore, the perception of teacher support decreases the risk of students becoming involved in bullying situations. Past and more current studies (Di Stasio, Savage, & Burgos, 2016) have suggested that when students feel protected by their teachers and can talk to them about their problems, they feel empowered, which can decrease the probability of being victimized. Erdoğdu (2016) found that the positive attitudes of teachers and their efforts to develop empathy skills in students were important in decreasing school bullying. Therefore, the following hypothesis is proposed:

H_4: Teacher fairness significantly influences school bullying victimization.

Carney and Merrell (2001) suggested several victim characteristics and variables associated with victim behavior and also claimed that parental monitoring and involvement could predict individual behavior. Young people from families that give low parental care, apply harsh and unpredictable discipline, are controlling and in which individuals experience bullying from siblings are at more risk of becoming victims rather than becoming bullies (Pepler, Jiang, Craig, & Connolly, 2008). Zych, Ortega-Ruiz, and Del Rey (2015) claimed that children who were overprotected in their family environment and somewhat naïve were also, more often than not, the victims of bullies. A group of children, whose parents attract their attention and love through relational manipulation, are more likely to experience social bullying (Brendgen, 2012). Therefore, this study proposes the following hypothesis:

H_5: Family support significantly influences school bullying victimization.

A number of studies have showed that some students with a low learning motivation and poor academic achievements became victims of bullying (Glew, Fan, Katon, Rivara & Kernic, 2005; Beran, 2008; Swearer, 2011; Sun, 2017). For example, students having poor academic performance and a lower learning motivation become

objects of ridicule among their peers and teachers.

The Bronfenbrenner's ecological model has been applied to mechanisms of bullying victimization by some researchers (Jeong et al., 2013). The development of adolescents is affected by their surroundings and other factors such as the interaction of their motivation, parents, peers, teachers and the school climate (Swearer & Doll, 2001). Hence, the Bronfenbrenner ecological model can be applied to the mechanisms of bullying victimization. Therefore, this study proposes the following hypothesis:

H_6: Student Learning motivation is significantly influenced by school bullying victimization.

H_7: family support indirectly affect school bullying victimization through learning motivation

H_8: peer relationships indirectly affect school bullying victimization through learning motivation

H_9: teacher fairness indirectly affect school bullying victimization through learning motivation

3.3 Data Resource

The Programme for International Student Assessment (PISA) is now used as an assessment tool in many regions around the world. In the first assessment, it covered 43 countries and economies (32 in 2000 and 11 in 2002), in the second (2003), 41, in the third (2006), 57, in the fourth, 75 (65 in 2009 and 10 in 2010), and in the fifth, 65. To date, 72 countries and economies have participated in PISA 2015. In each PISA round, one core domain is tested in detail and takes up nearly half the total testing time.

The report uses “15-year-olds” as the target PISA population; however, the survey covers students between 15 years 3 months and 16 years 2 months at the time of

assessment. Respondents must be enrolled at school and have completed at least 6 years of formal schooling regardless of the institution in which they are enrolled, whether they are in full-time or part-time education, whether they attend academic or vocational programs, or whether they attend public, private, or foreign schools in the country.

The PISA 2015 survey focused on science, with reading, mathematics, and collaborative problem solving as minor assessment areas. PISA 2015 also included an assessment of financial literacy, which was optional. Representing about 29 million 15-year-olds at school in the 72 participating countries and economies, approximately 540000 students completed the assessment in 2015. All countries in the world are concerned about school bullying (OECD, 2017), the 2015 survey put bullying at middle school into the questionnaire, and therefore was suitable for the theme of this study.

3.4 Sample

In PISA 2015, the investigation of school bullying was measured by students, providing the valuable data for this thesis. The application of the PISA 2015 data to do the secondary data analysis was expected to have two benefits. Firstly, PISA 2015 totally gathered over 5 thousand sample in Hong Kong. These large scale investigations went through careful sampling process, and therefore it is better revealing the actual situation of the school bullying of Hong Kong students. Pisa 2015 found that Hong Kong 15-year-olds came third from bottom in life satisfaction (6.48)(OECD, 2018). Studies in Hong Kong consistently point to the heavy price of Hong Kong academic excellence: students are stressed, depressed, and bullied. According to the survey of PISA, 32.2% of the Hong Kong students said they were bullied at least a few times a month by different types of bullying. 26.1% of them were often teased by their classmates. The percentage of these two parts was highest among the results of all participating countries in the PISA survey (OECD, 2018).

Therefore, it is of great value to study the bullying of Hong Kong students.

The samples used in this thesis were the students who answered the 2015 Hong Kong PISA. A total of 5359 students surveyed. Excluding unanswered and omitted answer samples for the focus variables in this study, the survey results from 4856 data samples from 138 schools were included in the analysis (2437 boys and 2419 girls) (OECD, 2017).

3.5 The PISA 2015 data used in this dissertation

Table 3.1 shows the variables analyzed in this statistical model and the corresponding PISA 2015 data used in this study, which are divided into two columns. (1) Variable column of model analysis: this column shows the variable to be analyzed by the statistical model in this study. (2) Item questionnaire column: this column includes the consolidated items and the original unconsolidated items. In this column, variables derived by calculating the scores in the original questions by PISA project team item response theory means (OECD, 2017). This study used consolidated item data as the measurement indicators for the model analysis variables. School bullying, Family support, Learning motivation, Peer relationship, Teacher fairness, Cronbach's α values of the four Variables, 0.84, 0.81, 0.80, 0.80 and 0.73, were all greater than 0.7, exceeding the standard recommended (Cuieford, 1965)。

Table 3.1 Variables and respective items

Variables in the model	Items	Question	Note
School bullying	ST038Q03NA	Other students left me out of things on purpose.	This variable is computed by PISA Cronbach's α is 0.84
	ST038Q04NA	Other students made fun of me.	
	ST038Q05NA	I was threatened by other students.	
	ST038Q06NA	Other students took away or destroyed things that belonged to me.	
	ST038Q07NA	I got hit or pushed around by other students.	
	ST038Q08NA	Other students spread nasty rumours about me.	
Family support	ST123Q01NA	My parents are interested in my school activities.	This variable is computed by PISA Cronbach's α 0.81
	ST123Q02NA	My parents support my educational efforts and achievements.	
	ST123Q03NA	My parents support me when I am facing difficulties at school.	
	ST123Q04NA	My parents encourage me to be confident.	
Learning motivation	ST119Q01NA	I want top grades in most or all of my courses.	This variable is computed by PISA Cronbach's α 0.80
	ST119Q02NA	I want to be able to select from among the best opportunities available when I graduate.	
	ST119Q03NA	I want to be the best, whatever I do.	
	ST119Q04NA	I see myself as an ambitious person.	
	ST119Q05NA	I want to be one of the best students in my class.	
Peer relationship	ST034Q01TA	I feel like an outsider (or left out of things) at school.	This variable is computed by PISA Cronbach's α 0.80
	ST034Q02TA	I make friends easily at school.	
	ST034Q03TA	I feel like I belong at school.	
	ST034Q04TA	I feel awkward and out of place in my school.	
	ST034Q05TA	Other students seem to like me.	
	ST034Q06TA	I feel lonely at school.	

Table 3.1 (Continued)

Variables in the model	items	Question	Note
	ST039Q01NA	Teachers called on me less often than they called on other students.	
	ST039Q02NA	Teachers graded me harder than they graded other students.	
	ST039Q03NA	Teachers gave me the impression that they think I am less smart than I really am.	
	ST039Q04NA	Teachers disciplined me more harshly than other students.	
	ST039Q05NA	Teachers ridiculed me in front of others.	
	ST039Q06NA	Teachers said something insulting to me in front of others.	

Data Source: researchers collate

3.6 Data analysis

The samples of this study was15 years old middle school students located in HK. And the data sources are collected from PISA 2015 secondary data set. The valid number is 4856.

3.6.1 Reliability Analysis

The variables in the research model first underwent descriptive analysis and reliability analysis.

A. Family support

The variables in the research model first underwent descriptive analysis and reliability analysis. Conducting the reliability analysis, the Cronbach's Alpha of the family support scale, as shown in table 3.2, was 0.80 and its Cronbach's Alpha if Item

Deleted (ST123Q01NA-ST123Q04NA), were found to be 0.70 to 0.83. The accepted standard for Cronbach's Alpha coefficient should 0.7 and above Cuieford (1965) showing that the factors are reliable.

Table 3.2 Reliability of Family support

Item	Mean	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
ST123Q01NA	2.74	0.46	0.83	0.80
ST123Q02NA	3.23	0.64	0.75	
ST123Q03NA	3.11	0.73	0.70	
ST123Q04NA	3.14	0.67	0.73	

Data Source: researchers collate

B. Learning motivation

Reliability analysis found, the Cronbach's alpha of the learning motivation scale, as shown in table 3.3, was 0.83 and its Cronbach's Alpha if Item Deleted (ST119Q01NA - ST119Q05NA), were found to be 0.77 to 0.82. Therefore, learning motivation has good reliability.

Table 3.3 Reliability of Learning motivation

Item	Mean	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
ST119Q01NA	3.34	0.60	0.80	0.83
ST119Q02NA	3.41	0.65	0.79	
ST119Q03NA	3.14	0.71	0.77	
ST119Q04NA	2.80	0.55	0.82	
ST119Q05NA	3.01	0.64	0.79	

Data Source: researchers collate

C. Peer relationship

Reliability analysis found, the Cronbach's alpha of the peer relationship scale, as shown in table 3.4, was 0.78 and its Cronbach's Alpha if Item Deleted (ST034Q01TA - ST034Q06TA), were found to be 0.74 to 0.77. Therefore, peer relationship has good reliability.

Table 3.4 Reliability of Peer relationship

Item	Mean	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
ST034Q01TA	2.85	0.58	0.74	0.78
ST034Q02TA	2.96	0.57	0.74	
ST034Q03TA	2.75	0.44	0.77	
ST034Q04TA	2.94	0.46	0.77	
ST034Q05TA	2.83	0.52	0.75	
ST034Q06TA	2.98	0.62	0.73	

Data Source: researchers collate

D. Teacher fairness

Reliability analysis found, the Cronbach's alpha of the peer relationship scale, as shown in table 3.5, was 0.78 and its Cronbach's Alpha if Item Deleted (ST039Q01NA - ST039Q06NA), were found to be 0.72 to 0.82. ST034Q01TA (Cronbach's Alpha if Item Deleted= 0.82) did not meet reliability standard and were therefore eliminated; the Cronbach's alpha of this dimension was 0.82.

Table 3.5 Reliability of Teacher fairness (1)

Item	Mean	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
ST039Q01NA	2.32	0.32	0.82	
ST039Q02NA	3.16	0.64	0.72	
ST039Q03NA	3.14	0.55	0.75	
ST039Q04NA	3.52	0.66	0.72	0.78
ST039Q05NA	3.49	0.57	0.74	
ST039Q06NA	3.68	0.55	0.75	

Data Source: researchers collate

Table 3.6 Reliability of Teacher fairness (2)

Item	Mean	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
ST039Q02NA	3.16	0.61	0.78	
ST039Q03NA	3.14	0.53	0.81	
ST039Q04NA	3.52	0.71	0.75	0.82
ST039Q05NA	3.49	0.62	0.78	
ST039Q06NA	3.68	0.60	0.78	

Data Source: researchers collate

3.6.2 Confirmatory Factor Analysis

Maximum likelihood estimation (ML) (Finney & Distefano, 2006) was used to conduct the confirmatory factor analysis on the family support, learning motivation, peer relationshipand, peer relationship and teacher fairness. It is generally agreed that the interpretation ability of every variable should be greater than 0.5 (Bagozzi and Yi,

1988; Fornell and Larcker, 1981; Hair, Anderson, Tatham and Black, 1998). Therefore, to support the interpretation ability of each variable, all variables with interpretation abilities lower than 0.5 were omitted.

The scale in this study was developed based on numerous research studies to substantiate the content validity and guarantee the scale reliability. This study used the confirmatory factor analysis in AMOS to separately test convergent validity and discriminant validity. Bogozzi and Yi (1988) believed that the purpose of convergent validity was to avoid any interaction between the structural model and the measurement model and to improve the precision and reliability of the variables.

Awang (2012) stated that validity was the ability of an instrument to measure what it is supposed to measure for a latent construct. Convergent validity is achieved when all items in a measurement model are statistically significant. The convergent validity can be verified by computing the Average Variance Extracted (AVE) for each construct; however, as the AVE should be 0.5 or higher, retaining low factor loading items in the model can cause the construct to fail convergent validity.

Awang (2012) also stated that reliability was the extent that the measurement model measured the intended latent construct. Composite reliability (CR) is the reliability and internal consistency of a latent construct. A CR value of > 0.6 is required to attain the composite reliability for a construct. (CR is calculated using a given formula). The AVE is the average percentage variation explained by the measuring items for a latent construct. An AVE > 0.5 is required for every construct, but we can accept 0.4. Fornell and Larcker (1981) pointed out that if AVE is less than 0.5, but the composite reliability (CR) is higher than 0.6, meaning that the convergence validity of the structure will still be sufficient (the AVE is calculated using a given formula). The AVE and CR are calculated as follows:

$AVE= \Sigma K^2/n$

$CR= (\Sigma К)^2 / [(\Sigma К)^2 + (\Sigma 1-К^2)]$

К= factor loading of every item

n= number of items in a model

A. Family Support

Concerning goodness of fit for the model's internal structure, we can see in Figure 1 that the scale's measurement errors for the observed variables, a negative error variance did not occur. Secondly, all factor loadings ranged from 0.59 to 0.88, which is higher than the 0.50 value proposed by Bentler and Wu (1993) and they have convergent validity as well (Figure 3.2).

The reliability of individual items for the measurement index (which is squared multiple correlation) mostly exceeded the 0.20 value proposed by Bentler and Wu (1993). The measurement index of this study's scale ranged from 0.35 to 0.77. Furthermore, CR values for latent variables was 0.83 exceeded the evaluation standard of 0.60. AVE figures were 0.56 the figures exceeded the 0.50 evaluation standard (Table 3.7).

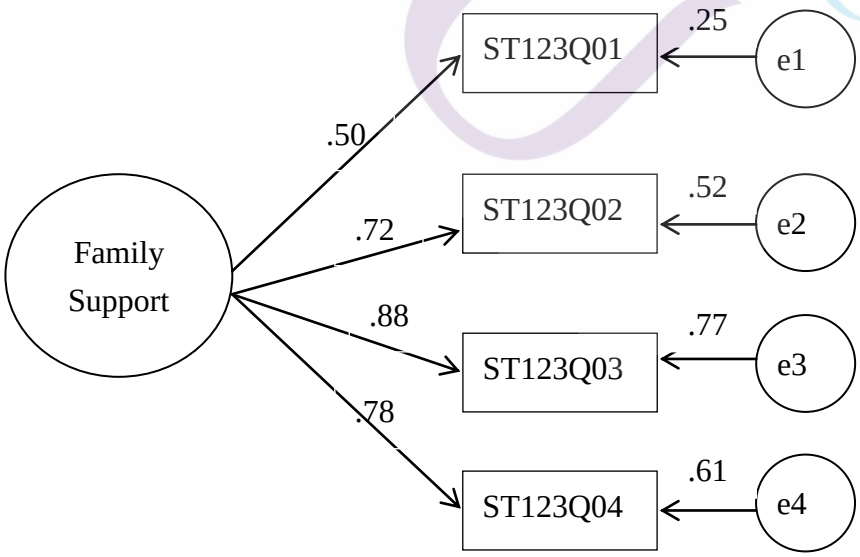

Figure 3.2 Family Support

Table 3.7 Testing Results for Family Support Model's Internal Quality

Items	standardized factor loading	Reliability for individual items	CR	AVE
ST123Q01	0.50	0.25	0.82	0.54
ST123Q02	0.72	0.52		
ST123Q03	0.88	0.77		
ST123Q04	0.78	0.56		

Data Source: researchers collate

B. Learning motivation

Concerning goodness of fit for the model's internal structure, we can see in Figure 1 that the scale's measurement errors for the observed variables , a negative error variance did not occur. Secondly, all factor loadings ranged from 0.61 to 0.77, which is higher than the 0.50 value proposed by Bentler and Wu (1993) and they have convergent validity as well (Figure 3.3).

The reliability of individual items for the measurement index (which is squared multiple correlation) mostly exceeded the 0.20 value proposed by Bentler and Wu (1993). The measurement index of this study's scale ranged from 0.37 to 0.59. Furthermore, CR values for latent variables was 0.84 exceeded the evaluation standard of 0.60. AVE figures were 0.50 the figures coincidence the 0.50 evaluation standard (Table 3.8).

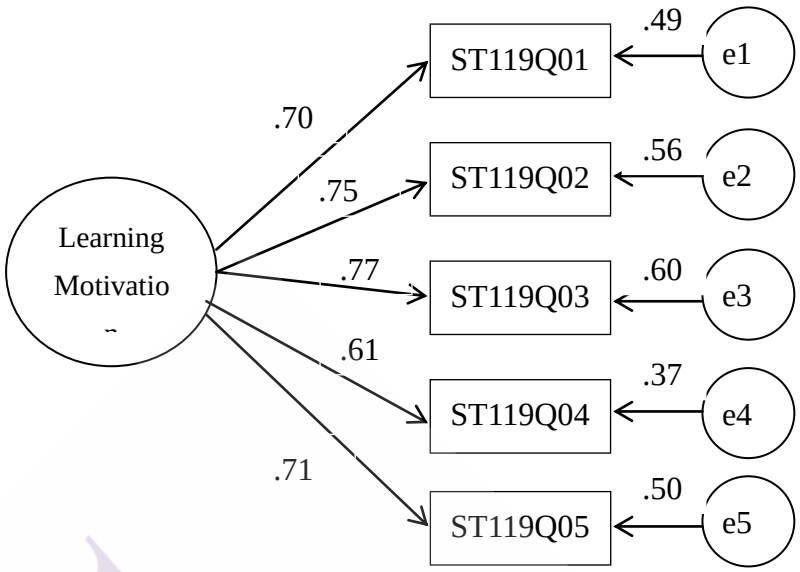

Figure 3.3 Learning Motivation

Table 3.8 Testing Results for Learning Motivation Model's Internal Quality

Items	standardized factor loading	Reliability for individual items	CR	AVE
ST119Q01	0.70	0.49		
ST119Q02	0.75	0.56		
ST119Q03	0.77	0.59	0.84	0.50
ST119Q04	0.61	0.37		
ST119Q05	0.71	0.50		

Data Source: researchers collate

C. Peer relationship

Concerning goodness of fit for the model's internal structure, we can see in Figure 1 that the scale's measurement errors for the observed variables, a negative error

variance did not occur. Secondly, all factor loadings ranged from 0.53 to 0.78, which is higher than the 0.50 value proposed by Bentler and Wu (1993) and they have convergent validity as well (Figure 3.4).

The reliability of individual items for the measurement index (which is squared multiple correlation) mostly exceeded the 0.20 value proposed by Bentler and Wu (1993). the measurement index of this study's scale ranged from 0.28 to 0.61. Furthermore, CR values for latent variables was 0.77 exceeded the evaluation standard of 0.60. AVE figures were 0.41 the figures exceeded the 0.40 evaluation standard (Table 3.9). Although AVE is less than 0.5 while CR is greater than 0.6, it still has convergence validity (Fornell & Larcker, 1981).

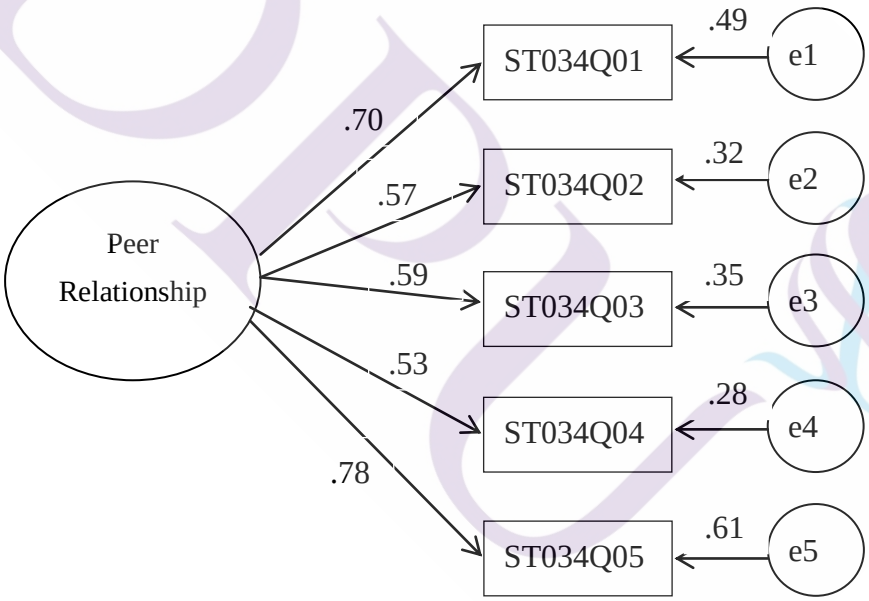

Figure 3.4 Peer Relationship

Sources: Marks (2000)

Table 3.9 Testing Results for Peer Relationship Model's Internal Quality

Items	Standardized factor loading	Reliability for individual items	CR	AVE
ST034Q01	0.70	0.49		
ST034Q02	0.57	0.33		
ST034Q04	0.59	0.35	0.77	0.41
ST034Q05	0.53	0.28		
ST034Q06	0.78	0.61		

Data Source: researchers collate

D. Teacher fairness

Concerning goodness of fit for the model's internal structure, we can see in Figure 1 that the scale's measurement errors for the observed variables, a negative error variance did not occur. Secondly, all factor loadings ranged from 0.55 to 0.80, which is higher than the 0.50 value proposed by Bentler and Wu (1993) and they have convergent validity as well (Figure 3.5).

The reliability of individual items for the measurement index (which is squared multiple correlation) mostly exceeded the 0.20 value proposed by Bentler and Wu (1993). the measurement index of this study's scale ranged from 0.30 to 0.64. Furthermore, CR values for latent variables was 0.83 exceeded the evaluation standard of 0.60. AVE figures were 0.50 the figures exceeded the 0.40 evaluation standard (please refer to Table 3.10).

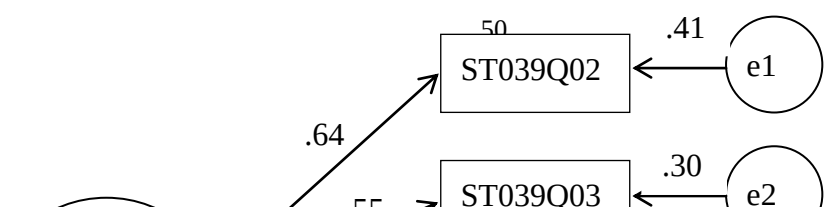

Figure 3.5 Teacher Fairness

Table 3.10 Testing Results for Teacher Fairness Model's Internal Quality

Items	Standardized factor loading	Reliability for individual items	CR	AVE
ST039Q02	0.64	0.41		
ST039Q03	0.55	0.30		
ST039Q04	0.80	0.64	0.83	0.50
ST039Q05	0.75	0.56		
ST039Q06	0.73	0.53		

Data Source: researchers collate

3.6.3 Descriptive statistics

Descriptive statistics consists of two parts: (1) the frequency distribution table of samples; and (2) the descriptive statistics of research variables.

A. Distribution of samples

The frequency distribution table is mainly used to understand the distribution of demographic variables of the research samples, including the number of people and its percentage. The demographic variables of samples in this research include the gender, grade, education level of mother and education level of father. The frequency distribution table is adopted to analyze each demographic variable, indicating the number, percentage and accumulative percentage of each variable, in order to understand the sample distribution of variables (table 3.11).

a. Gender: There were 2419 male (49.8%) and 2437 female (50.2%).
b. Grade: In the grade, the number of students in grade 7 was 52 people, grade 8 was 259 people, grade 9 was 1250 people, grade 10 was 3281 people, grade 11 was 12 people.
c. Mother's highest level of schooling: In the Mother's highest level of schooling, the number of students in “ISCED 3A, ISCED 4” was 3281 (25.4%), “None” was 243 (5%).
d. Father's highest level of schooling: In the Father's highest level of schooling, the number of students in “ISCED 3A, ISCED 4” was 1086 (22.4%), “None” was 191 (3.9%).

Table 3.11 Descriptive statistical analysis

Variables	Item	Frequency	%	Accumulation%
Gender	Female	2419	49.8	49.8
	Male	2437	50.2	100.0
	Total	4856	100.0	
Grade	Grade 7	52	1.1	1.1
	Grade 8	259	5.3	6.4
	Grade 9	1250	25.7	32.1
	Grade 10	3281	67.6	99.7
	Grade 11	14	.3	100.0
	Total	4856	100.0	
Mother's highest level of schooling	None	243	5.0	5.0
	ISCED 1	626	12.9	17.9
	ISCED 2	986	20.3	38.2
	ISCED 3B, C	988	20.3	58.5
	ISCED 3A, ISCED 4	1231	25.4	83.9
	ISCED 5B	274	5.6	89.5
	ISCED 5A, 6	508	10.5	100.0
	Total	4856	100.0	

Table 3.11 (Continued)

Variables	Item	Frequency	%	Accumulation%
Father's highest level of schooling	None	191	3.9	3.9
	ISCED 1	594	12.2	16.1
	ISCED 2	978	20.1	36.2
	ISCED 3B, C	968	19.9	56.1
	ISCED 3A, ISCED 4	1086	22.4	78.5
	ISCED 5B	269	5.5	84.0
	ISCED 5A, 6	770	15.9	100.0
	Total	4856	100.0	

Data Source: researchers collate

B. Descriptive statistics of the question for each variable

In this study, descriptive statistics method is used to analyze the mean, standard deviation, skewness and kurtosis of the variables in order to find out whether there are any problems existing in the questions for variables. According to Leech, Barrett, Morgan (2005) who raised the idea that the standard of univariate normality test is to check whether the Critical Ratio (skewness / standard error of skewness) of skewness and kurtosis is greater than 2.58, that is, whether the p value is less than 0.01. if the value of CR is greater than 2.58, then the data is skewed. However, this test is easily affected by the number of samples. Thus, Kline (2005) proposed the so-called empirical rule to judge whether the variables conform to the standard of normal distribution of univariate. The absolute value of skewness greater than 3 stands for an

extreme skewness. Kurtosis greater than 10 is considered problematic, and if this value is greater than 20, it is considered as extreme kurtosis.

According to the analysis results, the variables of interactive marketing, value co-creation, school effectiveness, human capital, organizational capital and social capital all meet the criterion proposed by Kline (2005). The descriptive statistics of each research variable question is shown as below:

a. Family support: the average value of "My parents support my educational efforts and achievements" is the highest among family support (M=3.23, SD=0.61), while the average value of "My parents are interested in my school activities" is lower (M=2.74, SD=0.69). It can be seen that parents are more concerned about their children's learning and educational outcomes than their school activities.

b. Learning Motivation: the average value of "I want to be able to select from among the best opportunities available when I graduate" is the highest among family support (M=3.41, SD=0.64), while the average value of " I see myself as an ambitious person" is lower (M=2.80, SD=0.76).

c. Peer Relationship: the average value of "I make friends easily at school" is the highest among peer relationship (M=2.96, SD=0.67), while the average value of "I feel like I belong at school" is lower (M=2.75, SD=0.72). While students think that it is easy to make friends at school, they may not think they belong to the school. The scores of peer relationship are less than an average score of 3, which means that students may be unsatisfied with their peer relationships.

d. Teacher Fairness: the average value of "Teachers said something insulting to me in front of others" is the highest among teacher fairness (M=3.68, SD=0.74), while the average value of "Teachers called on me less often than they called on other students" is lower (M=2.32, SD=1.151). It can be seen that students believe that teachers often insult students in front of others, which warrants a school's

attention.

Table 3.12 Descriptive statistical analysis of each variable

Variable	Item	Min	Max	M	SD	Skewness	Kurtosis
Family support	My parents are interested in my school activities.	1	4	2.74	.69	-0.58	0.46
	My parents support my educational efforts and achievements.	1	4	3.23	0.61	-0.57	1.36
	My parents support me when I am facing difficulties at school.	1	4	3.11	0.63	-0.55	1.22
	My parents encourage me to be confident.	1	4	3.14	0.64	-0.56	1.09
Learning Motivation	I want top grades in most or all of my courses.	1	4	3.34	0.73	-0.92	.49
	I want to be able to select from among the best opportunities available when I graduate.	1	4	3.41	0.64	-0.91	1.00
	I want to be the best, whatever I do.	1	4	3.14	0.73	-0.50	-0.17
	I see myself as an ambitious person.	1	4	2.80	0.80	-0.10	-0.62
	I want to be one of the best students in my class.	1	4	3.01	0.82	-0.52	-0.29
Peer Relationship	I feel like an outsider (or left out of things) at school.	1	4	2.85	0.72	-0.55	0.47
	I make friends easily at school.	1	4	2.96	0.66	-0.49	0.76
	I feel like I belong at school.	1	4	2.75	0.72	-0.62	0.42
	I feel awkward and out of place in my school.	1	4	2.94	0.69	-0.52	0.59
	Other students seem to like me.	1	4	2.83	0.63	-0.77	1.37
	I feel lonely at school.	1	4	2.98	0.73	-0.62	0.57

Table 3.12 Descriptive statistical analysis of each variable (Continued)

Variable	Item	MIN	MAX	M	SD	Skewness	Kurtosis
Teacher Fairness	Teachers called on me less often than they called on other students.	1	4	2.32	1.15	0.28	-1.36
	Teachers graded me harder than they graded other students.	1	4	3.16	1.04	-0.84	-0.68
	Teachers gave me the impression that they think I am less smart than I really am.	1	4	3.14	1.01	-0.82	-0.63
	Teachers disciplined me more harshly than other students.	1	4	3.52	0.86	-1.68	1.67
	Teachers ridiculed me in front of others.	1	4	3.49	0.88	-1.64	1.58
	Teachers said something insulting to me in front of others.	1	4	3.68	0.74	-2.42	5.05

Data Source: researchers collate

3.6.4 The t-test assesses

The t-test assesses whether the means of two groups, or conditions, are statistically different from one other. They are reasonably powerful tests used on data that is parametric and normally distributed. t-tests are useful for analysing simple experiments or when making simple comparisons between levels of your Independent Variable.

The independent t-test is used when you have two separate groups of individuals or cases in a between-participants design. Take a sample of males and a separate sample of females and apply the hypothesis testing steps to determine if there is a

significant difference in scores between the groups.

We are interested in a difference between 2 populations (females, μ1, and males, μ2) and we use 2 samples (females, x1, and males, x2) to estimate this difference.

3.6.5 Correlation Analysis between the Variables

Correlation is another way of assessing the relationship between variables. To be more precise, it measures the extent of correspondence between the ordering of two random variables.

We make use of the linear product-moment correlation coefficient, also known as Pearson's correlation coefficient, to express the strength of the relationship. This coefficient is generally used when variables are of quantitative nature, that is, ratio or interval scale variables. Pearson's correlation coefficient is denoted by r and is defined by

The value of r always lies between –1 and 1 inclusive, that is, $-1 \leq r \leq 1$. If Y increases when X increases, that there is positive or direct correlation between them. However, if Y decreases when X increases (or vice versa), then they are negatively or inversely correlated. The extreme values of r, that is, when $r = \pm 1$, indicate that there is perfect (positive or negative) correlation between X and Y. However, if r is 0, there is no or zero correlation.

Pearson's correlation analyses were conducted for peer relationships, teacher fairness, family support, learning motivation, and school bullying to determine the variable correlations; however, it did not show the causal relationships. This study used the results of the preliminary analysis as a basis for the follow-up analysis.

3.6.6 Structural equation modeling

We then performed an analysis using structural equation modeling (SEM), for

which the maximum likelihood estimation (ML) method was used as the variables were ordinal and did not satisfy the normality assumption Further, following the recommendations in Hu and Bentler (1999), a combination of several indices; chi-square statistic to compare degrees of freedom, the comparative fit index (CFI), the goodness of fit index, the Tucker-Lewis index, the root mean square error of approximation (RMSEA), and the root mean square residual index; was used to contrast the appropriateness of the proposed models. The standardized regression coefficients in the model were estimated based on the level of significance. The data were analyzed using SPSS version 20 statistical software, which allowed for the polyclonal correlations more suitable for variables of this type (Flora & Curran, 2004). To support the multivariate normality of the data, the AMOS bootstrap method (2,000 replicates with a 95% confidence interval) was used (Byrne, 2010), and the following acceptable adjustment indices applied: χ^2, p (chi-square and associated probability) >.001, SRMR (square root of standardized residual) ≤.05, AGFI (adjusted goodness index), CFI (comparative adjustment index) ≥.90, RMSEA IC 90 (square root mean error approximation with its confidence interval) ≤.05 (Brown, 2015).

Ⅳ Research Results

The purpose of this study is to explore the relationship between and influence of the family support, peer relationship, teacher fairness, learning motive and the bullied among high school students in Hong Kong. Firstly, t-test and analysis of variance are used to analyze whether the gender and grade of the students would cause differences for each variable; secondly, the effects of family support, peer relationship, teacher fairness, and learning motive on the bullied are analyzed, to find out whether the learning motive exerts a mediating effect between each variable and the bullied.

4.1 Answers to RQ1

In this study, t-test and analysis of variance are used to discuss whether the subjects with different genders and grades have different feelings about the family support, peer relationship, teacher fairness, learning motive and being bullied.

4.1.1 Analysis of the differences between students of different genders

Independent-Sample t-test, targeted at students with different genders, is used to test whether there are any differences existing in their family support, peer relationship, teacher fairness, learning motive and bullying. The independent sample t-test is also adopted to determine whether there are significant differences between the two values of population mean. If the p-value in the t-test statistics is less than 0.05 of the significant level, then the null hypothesis should be rejected, meaning there are significant differences between the two values of population mean. Otherwise, if the p-value is greater than 0.05 of the significant level, the null hypothesis should not be rejected, indicating there is no significant differences between the two values of population mean.

As can be seen from Table 4.1, there are significant differences between the gender and bullying (t= -13.64, p= 0.000). The value for females (0.43) is higher than

male (-0.04), indicating that girls are more likely to be bullied than males. Consistent with the findings of Crick et al. (2007) and Nishioka et al. (2011), Archer finds that girls are more likely to be socially bullied than boys by means of group exclusion or interpersonal opposition (Archer, 2004). Girls tend to form small groups and issues of confrontation are likely to happen between small groups, with individuals facing psychological issues stemming from verbal attacks and boycott, often to a degree more difficult to be observed and solved than physical bullying. Thus, H_1 was supported.

There are significant differences between the gender and family support (t=6.09, p=0.000). The value for males (3.10) is higher than females (3.01), indicating that boys feel more family support than females. Due to the patriarchal structure of traditional Chinese society, ethnic Chinese families tend to give more support and encouragement to boys than girls, causing boys to receive more family support than girls.

There are significant differences between the gender and learning motive (t=3.93, p=.000). The value for male students (3.17) is higher than female students (3.11), indicating that male students' learning motive is higher than female students. Achievement motivation encompasses competition and novelty while affiliation motivation encompasses performance and completion of teacher requirements. Learning motivation involves "I want top grades in most or all of my courses", "I want to be the best, whatever I do", "I want to be one of the best students in my class", etc. Because the achievement motivation and affiliation motivation in one's learning motivation are higher among boys than girls, learning motivation is higher among boys than girls as a result.

There are significant differences in teacher fairness (t=14.49, p=.000). The value for males (3.35) is higher than females (3.08), indicating that Male obviously feel the higher degree of teacher fairness than females of teachers is significantly higher than

females. Based on this outcome, we can see from the issue of teacher fairness that boys find instructors to be relatively unfair. They responded with "teachers gave me the impression that they think I am less smart than I really am", "teachers disciplined me more harshly than other students", and "teachers ridiculed me in front of others." Positive responses to these statements were above average among boys relative to girls, which may indicate that girls tend to be better behaved during class and that girls tend to be more psychologically affected due to preferential treatment of girls by instructors. But there are no significant differences between the gender and peer relationship (t=1.51, p=0.13), indicating there are no differences in the males' and females' feelings about the peer relationship.

Table 4.1 Analysis of variance of genders

Variables	genders	N	Mean	SD	t-test for Equality of Mean			
					t	df	p	Mean Difference
Victims of bullying	Male	2419	-0.04	1.05	-13.64	4558.56	0.000	-0.48
	Female	2437	0.43	1.37				
Family Support	Male	2419	3.10	0.49	6.09	4854	0.000	0.09
	Female	2437	3.01	0.53				
Learning Motivation	Male	2419	3.17	0.54	3.93	4788.20	0.000	0.06
	Female	2437	3.11	0.61				
Peer Relationship	Male	2419	2.89	0.45	1.51	4774.33	0.132	0.02
	Female	2437	2.87	0.51				
Teacher Fairness	Male	2419	3.35	0.55	14.49	4497.91	0.000	0.27
	Female	2437	3.08	0.74				

Data Source: researchers collate

4.1.2 Analysis of the differences between students of different grades

This study adopts the single factor analysis of variance, targeted at students with different grades, to explore whether there are significant differences existing in the family support, peer relationship, teacher fairness, learning motive and bullying. If there are significant differences in each variable, the Scheffe multiple comparison method will be used to further analyze the differences between each variable.

As can be seen from table 4.2, there are no significant differences between students at different grades and bullying (F=1.81, p=0.124), family support (F=0.11, p=0.978), learning motive (F= 2.17, p= 0.070), and peer relationship (F=1.71, p=0.145), meaning that students with different grades will show not significant differences in bullying, family support, peer relationship and learning motive. This result is different from Olweus's finding (1993) and Salmon et al.'s finding (2018). Although the research finding showed that higher average academic scores earned by students being bullied were associated with lower grades, results from analyses were not statistically significant. This also indicates that, in terms of the degree of feeling bullied, there was no significant difference among middle school students of different grades in Hong Kong. H_2 was not supported.

However, there are significant differences between the grade and teacher fairness (F= 3.85, p=0. 004), and it is found that the value for Grade 10 is higher than Grade 8, indicating that the degree of teacher fairness for Grade 10 is higher than Grade 8. It can be seen that the tenth grade students' perception of teacher unfairness is higher than eighth grade students, with tenth grade students responding that "teachers called on me less often than they called on other students", "teachers ridiculed me in front of others", and "teachers said something insulting to me in front of others."

Table 4.2 Analysis of variance of grade

Variables		Sum of Squares	df	Mean Square	F	p
Victims of bullying	Between Groups	11.18	4	2.80	1.81	0.124
	Within Groups	7482.98	4851	1.54		
	Total	7494.16	4855			
Family Support	Between Groups	0.12	4	0.03	0.11	0.978
	Within Groups	1274.21	4851	0.26		
	Total	1274.33	4855			
Learning Motivation	Between Groups	2.87	4	0.72	2.17	0.070
	Within Groups	1606.93	4851	0.33		
	Total	1609.82	4855			
Peer Relationship	Between Groups	1.58	4	0.39	1.71	0.145
	Within Groups	1118.68	4851	0.23		
	Total	1120.26	4855			
Teacher Fairness	Between Groups	6.77	4	1.69	3.85	0.004**
	Within Groups	2130.75	4851	0.44		
	Total	2137.52	4855			

Data Source: researchers collate

Table 4.3 Scheffe's method of Teacher Fairness

Variable	(I) Student International Grade	(J) Student International Grade	Mean Difference (I-J)	Std. Error	p	95% Confidence Interval	
						Lower Bound	Upper Bound
Teacher Fairness	Grade 8	Grade 7	-.014	.100	1.000	-.324	.296
		Grade 9	-.082	.045	.504	-.222	.056
		Grade 10	-.135*	.042	.040	-.267	-.003
		Grade 11	-.014	.181	1.000	-.575	.545
	Grade 10	Grade 7	.121	.092	.789	-.164	.406
		Grade 8	.135*	.042	.040	.003	.267
		Grade 9	.052	.022	.216	-.014	.120
		Grade 11	.120	.177	.977	-.426	.667

Data Source: researchers collate

4.2 Answers to RQ2

4.2.1 Correlation Analysis between Variables

Pearson product-moment correlation coefficient is used to find the relationship between two continuous variables in statistical analysis. The higher the absolute value of correlation coefficient is, the closer the relationship between the two variables is. When the correlation coefficient is positive, it means that there is a positive correlation between the two variables; otherwise, there is a negative correlation between the two variables (Wu & Tu, 2006). In this study, Pearson product-moment correlation coefficient analysis is used to understand the degree of correlation among variables.

The family support, learning motivation, peer relationships, teachers' equity and

victims of bullying undergo Pearson correlation analysis. This method can merely understand the correlation of the variables but can't show the causal relationship of the variables. This study used the result of the preliminary analysis as the basis for follow-up analysis. It can be seen from Table 4.4 that there is a significant relationship between each variable. The correlation coefficient between family support and learning motivation is 0.21, the correlation coefficient between family support and peer relationships is 0.26, and the correlation coefficient between family support and teacher fairness is 0.09. The correlation coefficient between family support and victims of bullying was -0.11, the correlation coefficient between learning motivation and peer relationship was 0.13, the correlation coefficient between learning motivation and teacher fairness was -0.07, and the correlation coefficient between learning motivation and victims of bullying was 0.03. The correlation coefficient between peer relationships and teacher fairness is 0.09, the correlation coefficient between peer relationships and victims of bullying is -0.26, and the correlation coefficient between teacher fairness and victims of bullying is -0.32.

Based on this result, family support, peer relationships and teacher fairness are negatively correlated with victims of bullying. This result shows that when students think that family support, peer relationships and teacher fairness are higher, bullying will be less intense. The student's learning motivation has the lowest positive correlation with bullying, which means that the higher the student's learning motivation, the more serious the bullying will be. However, the results of this analysis can only prove the correlation between relevant variables but cannot explain causal relationships between variables. Thus, this study will use SEM to prove whether family support, peer relationships, teacher fairness, learning motivation have influence on victimization and bullying, as well as whether learning motivation has a mediating effect.

Table 4.4 Correlation Analysis of the Variables

Dimensions	family support	learning motivation	peer relationships	teacher fairness
learning motivation	0.21**			
peer relationships	0.26**	0.13**		
teacher fairness	0.09**	-0.07**	0.09**	
Victims of bullying	-0.11**	0.03*	-0.26**	-0.32**

Note: The italics in the table are the number of respondents and rest are the coefficient of correlation.

N=4856

** correlation is significant at the 0.01 level.

4.2.2 Analysis of structural equation modeling

This study adopts the Structural Equation Modeling to analyze the effects of family support, peer relationship, teacher equity and learning motive on being bullied, and takes the learning motive as an intermediary to find out whether the family support, peer relationship and teacher fairness can lead to the situation of being bullied through learning motive, so as to carry out direct effect test and intermediary effect test.

But Bagozzi and Yi (1988) held the idea that, before structural equation modeling, the measurement must be conducted in three aspects: Preliminary Fit

Criteria, Overall Model Fit, and Fit of Internal Structure of Model, which are described as follows:

A. Preliminary Fit Criteria

This criterion is used to detect whether there are problems existing in the error, identification or input of model, which can be measured by whether the measurement error of the measurement index shall not be negative, and the factor load shall not be too low (less than 0.5) or too high (above 0.95), and whether the significance level is reached.

B. Overall Model Fit

There are three measurement types of SEM overall model fit, namely the Absolute Fit Measures, Incremental Fit Measures, and Parsimonious Fit Measures, which will be described in detail as below.

(1) Absolute fit measure: absolute fit measure tests the fitness between the theoretical model and the observed data. In the aspect of absolute fit, χ^2 test is generally adopted, but χ^2 test under the large sample will easily cause the problem of rejection of research hypothesis due to over strong Statistic Power. Therefore, scholars suggested that the ratio of Chi-square/df should be used to test the fitness of model, (Jreskog and Srbom, 1993, Browne & Cudeck, 1993; Hair, 1998). The smaller the ratio, the better the result. For more rigorous studies, the ratio of less than 3 is suggested as the criterion. Other commonly used indicators are the Goodness-of-Fit Index (GFI), Adjusted goodness-of-Fit Index (AGFI), and Root Mean Square Residual (RMSR), and Root Mean Square Error of Approximation (RMSEA).

(2) Incremental Fit Measure: Incremental Fit Measure compares the theoretical model with benchmark model to measure the fit degree of its fit improved ratio. The

commonly used incremental fit indexes are: Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), Incremental Fit Index (IFI) and Relative Fit Index (RFI).

(3) Parsimonious Fit Measure: Parsimonious Fit Measure is to assess the Parsimonious degree of the theoretical model, with the purpose of finding out whether the theoretical model overfits (Overfitting) the data to reach the fit model due to its too many coefficients (Jreskog & Srbom, 1993, Hair, 1998).

The overall fit models are mainly used to assess the fitness of data in the overall model. Generally, the following nine measurement indicators are taken. The collected reference indicators are shown in Table 4.5.

A. Chi-Square value: it shows the difference between the model matrix and the sample covariance. The larger the chi-square value, the greater the difference. Because the size of the chi-square value is affected by the number of samples, even a tiny different will become significant if there are usually more than 200 samples. Thus, H0 can be rejected easily, making it only the consideration of measure of the size of difference, instead of test statistics (Joreskog & Sorbom, 1993).

B. Normed chi-square: it is the ratio of chi square to the degrees of freedom, which is used to indicate the degree of unfitness of the model. Schumacker and Lomax (2004) suggested that the ratio within 1 indicates overfitting, the ratio of 1 to 3 indicates the acceptable model, and the ratio larger than 3 or 5 (under the relatively loose rule) indicates the unfit model.

C. Goodness-of-fit index (GFI): GFI is between 0 and 1, but sometimes it can produce meaningless negative values. The larger the sample, the larger the GFI. Different from Chi-Square, GFI is independent of the sample size and is more stable to the deviant distribution. The criterion of GFI > 0. 9 is usually adopted.

D. Adjusted Goodness-of-Fit Index (AGFI): AGFI is similar to the adjusted R in the regression analysis. When GFI is calculated, AGFI is designed out of it after the degrees of freedom are taken into account. The criterion of AGFI > 0. 9 is usually adopted. The value of 0.9 or higher is regarded as the evidence of good fitness. As the estimated parameters of the model increase, however, it will at times be difficult to reach 0.9; Bollen (1990) and Hu and Bentler (1995) also mention that the AGFI will be underestimated when the sample size is small. MacCallum and Hong (1997) thus recommend that the parameters should be down to 0.8.

E. Comparative fit index (CFI): The value of CFI above 0. 9 indicates the good fitness. However, the value of 1 does not mean the perfect fitness, but only represents the model chi-square value is less than the degrees of freedom in the assumed model.

F. Root-Mean-Square Residual (RMR): RMR is the residual value left by the model estimation, with the value greater than 0. The smaller the value, the better the fitness. The value less than 0.05 indicates the ideal level.

G. Root Mean Square Error of Approximation (RMSEA): RMSEA is also one of the unfit indicators. The larger the value, the less fitness between the hypothetical model and data. If RMSEA is less than or equal to 0.5, the model shows the good fitness (Schumacker and Lomax, 2004). If the value is between 0.5 and 0.8, the model shows the relatively good fitness.

H. Non-normed fit index (NNFI, TLI): Marsh et al. (1996) found that TLI was almost unaffected by the sample size. If TLI is closed to 1, it means the good fitness. Hair et al. (2009) use the value of 0.8 as the criterion.

I. Incremental Fit Index (IFI): The model can be accepted if IFI is greater than or equal to 0.8 (Hair, Black, Babin, Anderson, & Tatham, 2009). The value of IFI may in some cases be greater than 1, and IFI is relatively not affected by the sample size.

This study performed an analysis using SEM overall model fit, following the recommendations in Hu and Bentler (1999). The model's χ^2 value was 4691.391, which reached the level of significance. GFI= 0.901, AGFI= 0.873, NFI= 0.886, TLI= 0.849, CFI= 0.870, IFI= 0.870, RFI= 0.884 and RMR= 0.052 were slightly smaller than the ideal threshold value. Hair et al. (2009) suggested incremental fit index: NFI, RFI, IFI, TLI, and CFI ≥ 0.8 RMR value≤0.05, is good enough for structural validity of the model. Although RMSEA= 0.075 did not reach the ideal threshold value, the quantitative value is between 0.05 and 0.08 which shows that the model has a reasonable fitness (Browne & Cudeck 1993; MacCallum, Browne, & Sugawara, 1996; Hair et al., 2009) (Table 4.5).

Table 4.5 Model fit indices for SEM

Measurement type	Measure	Cut-off for good fit	
Absolute fit measure	Chi-square/ df	< 3	28.606
index	GFI	> 0.9	0.90
	AGFI	> 0.8	0.87
	RMSEA	< 0.08	0.075
	RMR	<0.05	0.052
Incremental fit index	NFI	> 0.8	0.89
	TLI	> 0.8	0.85
	CFI	> 0.8	0.87
	IFI	> 0.8	0.87
	RFI	> 0.8	0.84

Sources: Hair et al. (2009)

4.2.3 The influence of peer relationships, teacher fairness, family support and learning motivation on student bullying victimization

In Table 4.6, it can be seen that the structural coefficients of peer relationships, teacher fairness, family support, and learning motivation on school bullying are all statistically significant ($p< 0.05$), meaning that there are direct effects between these factors and bullying. The standardized coefficients are -0.27, -0.35, -0.04, and, 0.05 indicating that family support, peer relationships, and teacher fairness have a negative influence on school bullying (Figure 2). In other words, the higher the level of family support, the quality of peer relationships, and the level of teacher fairness, the lower the number of school bullying incidents, which is consistent with the findings of Prinstein et al. (2005), Di Stasio et al. (2016) and Beran (2008). However, students' learning motivation is positively correlated with bullying, indicating that the higher the level of learning motivation of a student, the more likely the student will be bullied.

A student's peer relationships have a negative influence on bullying, indicating that the better the student's peer relationships, the less likely they are to be bullied. Houston et al. (2009) also point out that peer support systems can reduce the occurrence of bullying behavior. If students are liked by other students at school, they are more likely to make friends and have a strong sense of belonging, etc. Students having more interactions with their classmates are more likely to be helped and cared for by their classmates when they encounter problems and difficulties, making them less susceptible to bullying behavior, such as boycott, threats or attacks.

Teacher fairness has a negative influence on student bullying, indicating that students are less likely to be bullied when they think the teacher is fair. Both Jan and Husain (2015) and Erdoğdu (2016) believe that teachers' positive attitudes and student relationships are important factors in reducing students' bullying behavior. Because teachers offer care and value to students in school, they can offer students facing difficulties immediate support and counseling, thereby reducing the likelihood that students will be bullied, and even reducing bullying behavior.

Family fairness has a negative impact on students being bullied, indicating that the stronger the family support, the lower the chances of the student being bullied; conversely, the weaker the family support, the higher the chances of bullying will be. Beran (2008) also demonstrates that when parents' participation in school decreases, students are more likely to be bullied. The survey in this study also confirmed that when students think that parents are interested in school activities and that they are given support and encouragement when facing difficulties in school, bullying behavior in school such as teasing, threatening, boycotting, and even pushing is less likely to occur. With family support, students show more confidence in their school activities. Parents' involvement and care also encourage teachers to pay closer attention to students and show care to them, reducing the desire of classmates to bully a student with strong family support.

A student's learning motivation has a positive relationship with bullying, indicating that the higher the student's learning motivation is the higher potential for bullying will be. This result is different from Nansel et al.'s finding (2003) and Swearer's finding (2011). However, Tutmann (2011) indicated that students who performed well and expressed themselves actively tended to be bullied because of peers' jealousy. Nevertheless, learning motivation in this study primarily referred to the students' motivation for scores and performance. Therefore, the main reason for this outcome is that learning motivation allows a student to achieve the highest score in the course and to become the best performing student in the class, making him or her ambitious when it comes to college entrance upon graduation. Learning motivation of this type, however, can result in behavioral or social conflicts with other students, making them subject to physical or verbal bullying by classmates. Therefore, hypotheses H_3, H_4, and H_5 were supported while H_6 was not supported.

Secondarily, the structural coefficients of family support, peer relationships, and teacher fairness on learning motivation are all statistically significant ($p< 0.05$),

meaning that these factors have direct effects on learning motivation. The standardized coefficients are 0.23, 0.83, and -0.88, indicating that the higher the level of family support and the quality of peer relationships, the higher the level of learning motivation of a student. Teacher fairness, on the other hand, has a negative impact on students' learning motivation. This indicates that students are less motivated to learn when they believe the teacher is fair.

4.3 Answers to RQ3

In order to test the multiple mediator model (the mediation effect of learning motivation on peer relationships, teacher fairness, family support, and the risk of being bullied), this study adopts the bootstrapping method proposed by Shrout and Bolger (2002), which is widely recommended in recent years for increasing the accuracy of testing mediation effects (Bollen & Stine, 1990). Bootstrapping is a method that uses the resampling procedure to obtain the average value of a mediation effect and a 95% confidence interval. This is a non-parametric method based on resampling with replacement which is done many times, e.g., 5000 times. From each of these samples the indirect effect is computed and a sampling distribution can be empirically generated. Because the mean of the bootstrapped distribution will not exactly equal the indirect effect a correction for bias can be made. With the distribution, a confidence interval, a p value, or a standard error can be determined. Very typically a confidence interval is computed and it is checked to determine if zero is in the interval.

Based on the recommendation by Shrout and Bolger (2002), if the 95% confidence interval for a mediation effect obtained by resampling does not contain 0, then the mediation effect is statistically significant ($p < 0.05$). Also a Z value can determined by dividing the bootstrapped estimate by its standard error, but bootstrapped standard errors suffer the same problem as the Sobel standard errors and

are not recommended (Bootstrapping does not require the assumption that a and b are uncorrelated).

Fritz, Taylor, and MacKinnon (2012) have raised concerns that bias-corrected bootstrapping test is too liberal with alpha being around 0.07. Actually not doing the bias correction seems to improve the Type I error rate. Hayes and Scharkow (2013) recommended using the bias corrected bootstrap if power is the major concern, but if Type I error rate is the major concern, then the percentile bootstrap should be used.

The indirect effect of learning motivation on family support and the risk of being bullied is 0.012 (0.233*0.050) and the confidence interval [0.005, 0.020] does not contain 0, meaning that the effect is statistically significant ($p<0.05$) and that learning motivation has a mediation effect. The direct effect is -0.043 and the confidence interval [-0.075, -0.012] does not contain 0 while the total effect is -.031 (-0.043+0.012) and the confidence interval [-0.062, -0.001] does not contain 0, meaning that the effect is statistically significant, and that learning motivation has a partial mediation effect on family support and the risk of being bullied (Table 4.6 & Figure 2). This indicates that family support affects one's risk of being bullied by influencing learning motivation. Moreover, the total effect is negative, meaning that the higher the level of family support and learning motivation, the lower the risk of being bullied. Therefore, H_7 was supported.

It can be seen from the above analysis that students with strong family support are less likely to be bullied while students with higher learning motivation are more likely to be bullied. By contrast, students with higher learning motivation and stronger family support are less likely to be bullied. Results from Lereya et al.'s research (2013) and Lester's study (2017) also found that parents' high participation and support along with effective communication in family can not only increase students' learning motivation and confidence but also prevent students from being bullied and encourage

children to seek appropriate assistance. This also means that parents' support, encouragement and participation in their children's lives can help them to achieve positive educational outcomes and become high-performing students, without being excluded, bullied or attacked by their classmates. This may be because parents that give their children appropriate assistance also ask their children to avoid causing other classmates trouble or jealousy when achieving their goals. Parents' participation in school activities can also allow instructors and classmates better understand a child's emotional state, reducing the potential for bullying.

The indirect effect of learning motivation on peer relationship and the risk of being bullied is 0.004 (0.083*0.050) and the confidence interval [0.001, 0.008] does not contain 0, meaning that the effect is statistically significant ($p<0.05$) and that learning motivation has a mediation effect. The direct effect is -0.268 and the confidence interval [-0.300, -0.234] does not contain 0 while the total effect is -.264 (-0.268+0.004) and the confidence interval [-0.296, -0.230] does not contain 0, meaning that the effect is statistically significant, and that learning motivation has a partial mediation effect on peer relationship and the risk of being bullied (Table 4.6 & Figure 4.1). This indicates that peer relationship affects one's risk of being bullied by influencing learning motivation. Moreover, the total effect is negative, meaning that the higher the level of peer relationship and learning motivation, the lower the risk of being bullied. Therefore, H_8 was supported.

While the mediation effect was found, the effect size was merely 0.004. Moreover, bootstrapping is used when the sample size is not very large. Therefore, this study adopted the Variance Accounted For (VAF) test, proposed by Bollen (1989), to verify the mediation effect. This method involves 2 steps. First, the significance of a direct effect is evaluated in absence of mediators. Second, mediators are added to evaluate the significance of an indirect effect. The VAF is calculated with the formula: indirect effect/total effect. VAF＜20% indicates the absence of

mediation effect; 20%≦VAF≦80% indicates a partial mediation effect; VAF＞80% indicates a complete mediation effect. The VAF for calculating the mediation effect of learning motivation on the relationship between peer relationship and being bullied was -1.5% (0.004/-0.264), which is lower than 20%, suggesting the absence of mediation effect. H8 was thus not supported.

It can be seen that students with good peer relationships are less bullied, while students with higher learning motivation are more likely to be bullied, but students with good peer relationships and high learning motivation are overall less likely to be bullied. This may be because these students may have many friends in school and are well-liked by their peers, making them feel a sense of belonging to the school and not isolated. Although these students want to become the highest-performing student in class and receive the highest grade, they still enjoy positive social interaction with their peers. The incidences of bullying are reduced due to their positive peer relationships.

The indirect effect of learning motivation on teacher fairness and the risk of being bullied is -0.004 (-0.088*0.050) and the confidence interval [-0.008, -0.002] does not contain 0, meaning that the effect is statistically significant ($p<0.05$) and that learning motivation has a mediation effect. The direct effect is -0.354 and the confidence interval [-0.389, -0.319] does not contain 0 while the total effect is -0.358 [-0.354, -0.004] and the confidence interval [-0.393, -0.324] does not contain 0, meaning that the effect is statistically significant, and that learning motivation has a partial mediation effect on Teacher fairness and the risk of being bullied (Table 1 & Figure 2). This indicates that Teacher fairness affects one's risk of being bullied by influencing learning motivation. Moreover, the total effect is negative, meaning that the higher the level of Teacher fairness and learning motivation, the lower the risk of being bullied. The mediation effect coefficient was too low; VAF test was thus adopted. The VAF was 1.1% (-0.004/-0.358), lower than the criterion of 20%,

indicating the absence of mediation effect. H9 was thus not supported.

Based on the above results, it can be seen that if a teacher is fair, students are less likely to be bullied. Students with high learning motivation, however, are more likely to be bullied. Finally, students who perceive their teachers to be fair and have high learning motivation are less likely to be bullied. This means that if the teacher shows care to the students in a timely manner, treats the students fairly, and refrains from ridicule or insults towards the students in front of their peers, students can attain high academic achievement and motivation for learning, and strive for excellence in their endeavors. Additionally, when students achieve top scores, teachers should treat the student fairly without causing other students to bully them or leave negative impressions on the student. Therefore, teacher fairness is a very important factor in preventing students from being bullied.

Table 4.6 Bootstrap SEM analysis of total, direct, and indirect effects

Effect	Estimate	*p* value	Confidence Interval
Direct effect			
FS - VB	-0.043	0.009	[-0.075, -0.012]
LM - VB	0.050	0.001	[0.019, 0.081]
PR- VB	-0.268	0.000	[-0.300, -0.234]
TF- VB	-0.354	0.000	[-0.389, -0.319]
FS-LM	0.233	0.000	[0.196, 0.275]
PR-LM	0.083	0.000	[0.042, 0.12]
TF-LM	-0.088	0.000	[-0.125, -0.051]
Indirect effect			
FS-LM-VB	0.012	0.001	[0.005, 0.020]
PR-LM-VB	0.004	0.001	[0.001, 0.008]
TF-LM-VB	-0.004	0.001	[-0.008, -0.002]
Total effect			
FS- VB	-0.031	0.043	[-0.062, -0.001]
PR- VB	-0.264	0.000	[-0.296, -0.230]
TF- VB	-0.358	0.000	[-0.393, -0.324]

Note: Victims of bullying, VB; Family support, FS; Peer relationship, PR; Learning motivation, LM; Teacher fairness, TF

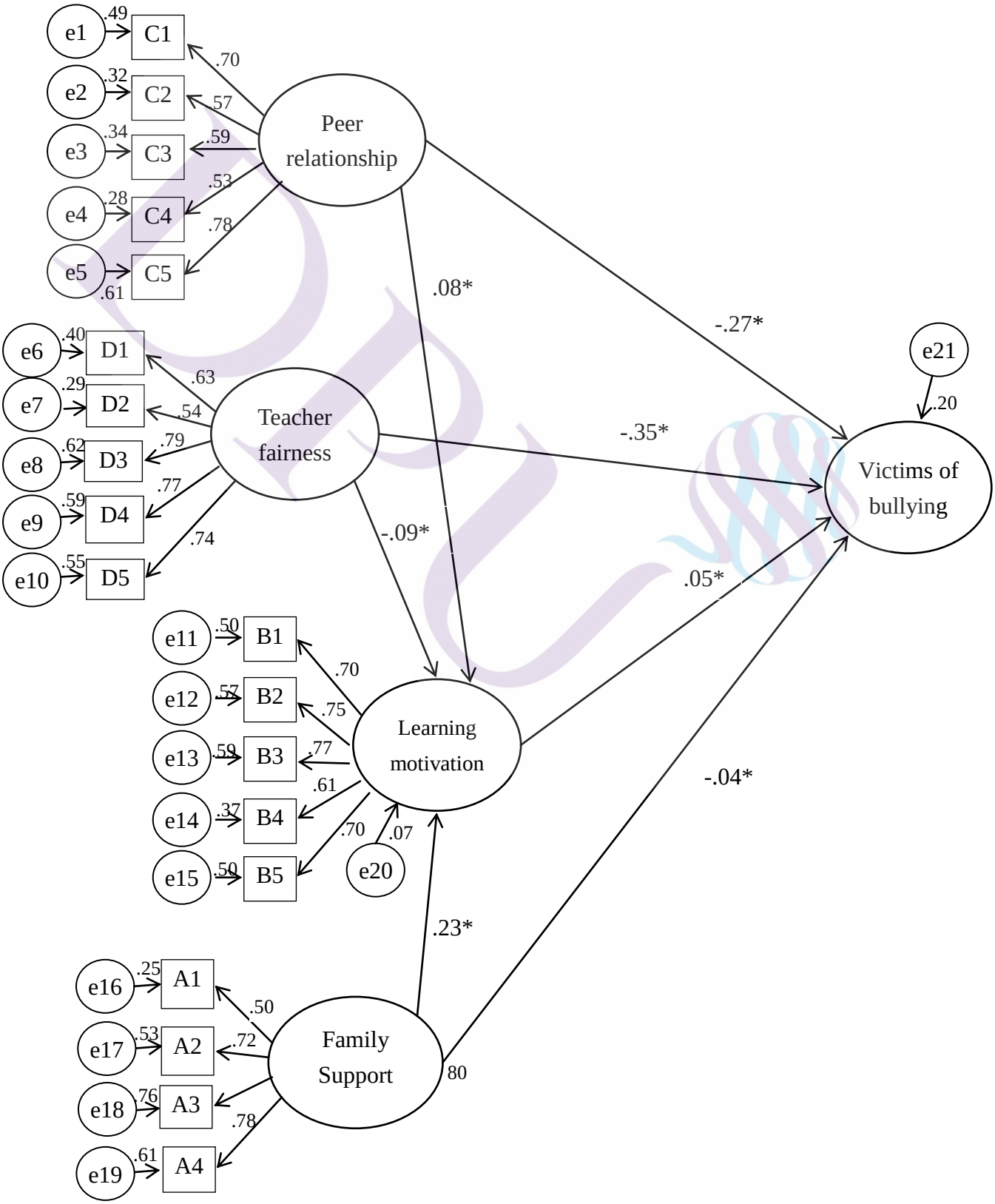
e1
.49
C1
.70
e2
.32
C2
.57
e3
.34
C3
.59
e4
.28
C4
.53
.78
e5
C5
.61
Peer relationship
.08*
-.27*
e21
.20
e6
.40
D1
.63
e7
.29
D2
.54
e8
.62
D3
.79
e9
.59
D4
.77
e10
.55
D5
.74
Teacher fairness
-.35*
Victims of bullying
-.09*
.05*
e11
.50
B1
.70
e12
.57
B2
.75
e13
.59
B3
.77
e14
.37
B4
.61
e15
.50
B5
.70
.07
e20
Learning motivation
-.04*
.23*
e16
.25
A1
.50
e17
.53
A2
.72
e18
.76
A3
.78
e19
.61
A4
Family Support
.80

Figure 4.1 Graphical representation of the model

Sources: Bronfenbrenner (1979); Card et al. (2008); Haynes et al. (1997); Hoy & Weinstein (2006); Lereya et al. (2013); Li et al. (2015); & Seo et al. (2017)

Ⅴ Conclusion and Suggestions

This study mainly explores the influence of family support, peer relationships, learning motivation and teacher fairness on the bullying of students in Hong Kong with learning motivation as the mediating variable. Sources are Hong Kong secondary school students surveyed by the 2015 Program for International Student Assessment, using SEM for data analysis to obtain its findings. This chapter discusses those findings and concludes with recommendations.

5.1 Conclusion and Discussion

Discussions are designed with research purposes, research questions, and research hypotheses to identify and explain congruences with or differences from the study's initial hypotheses and inferences. The findings are as follows.

A. Hong Kong secondary school girls are more likely to be bullied than boys

The results of the study found that female students in Hong Kong experienced more bullying than male students. Both Archer (2004) and Speiker et al. (2012) indicated that, when being bullied, girls mostly experienced the bullying in terms of the social relationship, that girls were the most vulnerable to bullying by social means such as exclusion, rumormongering and verbal taunting, and clique behavior. Female students may be excluded from joining these cliques and even verbally attacked through rumors and other speech. This type of behavior, however, is less common among boys, leading to a higher rate of girls being bullied (relative to boys). It is thus necessary to pay attention to bullying behavior among girls.

B. Family support, peer relationships and teacher fairness can reduce student bullying

The research findings suggest that family support (Beran, 2008; Brendgen, 2012) received by Hong Kong secondary school students, their peer relationships (Turner et al., 2010; Prinstein et al., 2005), and perceived teacher fairness (Erdoğdu, 2016; Rodkin & Hodges, 2003) have a negative correlation with one being bullied. This indicates that if students receive adequate family support, have healthy peer relationships, or feel that the teachers at school are fair, the prevalence of school bullying tends to decrease.

This result may stem from greater family support, peer relationships, and teacher fairness whereby students can share and discuss bullying with their families, peers, and teachers. Lereya, et al. (2013) indicated that parents' intimacy with their offspring, parents' high participation and support, and effective communication in family may facilitate parents' understanding of the situation of their offspring at school and prevent their offspring from being bullied.

Pellegrini (2002) proposed that teachers should pay attention to students' interpersonal aggressive behaviors. Moreover, Di Stasio et al. (2016) also indicated that, when students experience teachers' fairness and protection and teachers talk

about students' concerns in their conversation, students may feel secure and confident, which may further lower the likelihood of being victimized.

Although research results found that peer relationship may lower students' likelihood of being bullied, Swearer and Hymel (2015) indicated that bystanders dare not resist bullying behaviors because of their fear of being the next victim being bullied. However, Swearer and Hymel (2015) also indicated that people who defend victims showed higher empathy, higher social self-efficacy and higher popularity. In addition, Cowie (2014) advanced that a peer support system makes bystanders challenge offensive behaviors and makes bystanders who have intention to express their resistance to bullying behaviors support victims in a specific way, which efficiently lowers the situation of being bullied and forms a companion relationship system.

This may also encourage family members, teachers, and friends to take initiative in caring for students, allowing them to seek help and thus reducing the potential for bullying.

C. Students with high motivation for learning are more likely to be bullied

The learning motivation among Hong Kong secondary school students has a positive influence on their risk of being bullied, meaning the higher the level of learning motivation of a student, the higher the risk of him/her being bulled. This indicates that well-performed or motivated students may be more susceptible to verbal or physical bullying.

Tutmann (2011) and Focus (2009) indicated that students who score higher and those who perform better may be more prone to being bullied because of others' jealousy and ostracization. Therefore, students may be disliked and excluded, and even experience verbal and physical bullying from their peers, if they are a high achiever academically, become the top performing student in class,

or show active involvement in class. Moreover, this type of students mentioned above, when being bullied, are the most likely to be ignored because their active performance deprives them of the characteristics of the students being bullied. Thus, schools should pay attention to students with higher learning motivation and whether they are becoming victims of bullying.

D. Family support, peer relationships, and teacher fairness indirectly affect school bullying victimization through learning motivation

The mediation effect of learning motivation is concerned, family support, peer relationships, teacher fairness, and other factors all have an impact on school bullying through influencing one's learning motivation, the total effects of which are negative. This result has two significant implications. First, secondary school students ought to cultivate a certain level of learning motivation while studying at school. Variables including family support (Lereya, et al., 2013; Lester, 2017), peer relationships (Kaltiala-Heino & Fröjd, 2011; Houlston et al., 2011; Cowie, 2014), and teacher fairness (Di Stasio et al., 2016; McNeely & Falci，2004) all have an impact on the prevalence of school bullying due to their influence on learning motivation. As can be seen, student motivation to learn is a crucial factor in school bullying. Furthermore, learning motivation has a positive correlation with the risk of being bullied. This conclusion has a significant implication. Secondly, family support, peer relationships, teacher fairness, and other variables have a negative impact on school bullying, indicating that the higher the level of family support, the quality of peer relationships, and the perception of teacher fairness which lead to higher student motivation, the lower the prevalence of school bullying.

When family support, peer relationships, or fair teachers are present, family, classmates, and teachers will care for each other; students will share and discuss their own life or learning; when they encounter difficulties or problems, they can seek out mutual support networks quickly. Students with higher learning

motivation will explain their thoughts and learning with family, peers and teachers in order to receive one's understanding and support. When students receive support and approval, the incidences of bullying will also decrease.

As a result, family support, healthy peer relationships, and teacher fairness are solutions to preventing highly motivated students from being bullied, thus reducing the prevalence of school bullying.

5.2 Suggestions and Implications

Based on the above conclusion, this study proposed the following suggestions and implications.

5.2.1 Suggestions

A. Schools and parents should take the initiative to care for female students.

The study found that girls are more likely to be bullied than boys, and girls are more susceptible to psychological bullying. In addition, it is difficult to know from the outside whether a girl is being bullied; girls who are bullied also find it difficult to express that they are bullied. This study also found girls have lower average scores for family support and teacher fairness than boys, implying that families and teachers are less concerned with girls. Thus, schools and parents should take the initiative to care for female students in an attempt to reduce bullying behavior directed towards them.

B. Schools should pay more attention to students' learning motivation as highly motivated students may become the major targets of bullying.

Schools should take the initiative to understand the interpersonal relationship of students with high learning motivation in school, as students with high learning motivation may wish to perform well in class and thereby come into classroom with conflicting ideas with other students. Teachers should coach students on how to get along with others to reduce the likelihood that students may be bullied.

C. Should place more emphasis on the level of family support given to students, their peer relationships, as well as whether or not the teachers are fair as these three variables can reduce the prevalence of school bullying and the risk of high learning motivated students being bullied.

D. When the school bullying related research is conducted, student motivation should be taken into consideration. Since the research found students' motivation for learning is the factor that causes students to be bullied, and that learning motivation is an important factor that encourages students to learn, it is recommended that in future research on school bullying, researchers discuss learning motivation.

E. Research goals should be extended to other Chinese speaking regions. Although this study only examines Hong Kong secondary school students as the research subjects, it is shown that Hong Kong families and teachers do pay closer attention to boys, which arose from the generally patriarchal conditions in Chinese societies, causing female students to become more vulnerable to bullying.

F. The issue of bullying is worthy of further exploration. In the past, most of the research was to explore bullying behavior among students, but from the results of this research the reasons for student bullying can now be understood. Based on this research, improvements can be implemented to reduce bullying among students.

Thus, while understanding bullying behavior students is important, understanding why students are bullied is also an extremely important topic for consideration.

5.2.2 Implications

A. Compared to their male peers, female high school students in Hong Kong showed a more serious pattern of being bullied, especially social bullying. Moreover, it is difficult to explicitly discover the social bullying. Therefore, more attention should be paid to female victims being bullied, which deserves our attention.

B. While previous research primarily focused on the subjects of bullying, this study focused on the objects of bullying to discuss factors for lowering students' likelihood of being bullied. Moreover, research results showed that factors including family support, peer relationship, and teachers' fairness may lower the occurrence of bullying among students. Therefore, schools and students' parents may focus on these three dimensions if they have intention to lower the occurrence of bullying among students.

C. Research results found that students' learning motivation may put students at risk for being bullied; however, better family support may lower the likelihood of being bullied for students with high learning motivation, suggesting that family support is an important way for ameliorating the situation of bullying among high school students in Hong Kong.

D. This study not only analyzed the situation of bullying among high school students in Hong Kong, but it also found, in the process of conducting research, that victims of bullying are important for research on bullying. Understanding why students become victims of bullying and how this can be ameliorated is a direction that deserves further exploration in future research.

REFERENCES

Alampay, L. P., & Macapagal, M. E. (2011). *An exploratory study of bullying and school climate in urban and rural high schools*. Quezon City: Institute of Philippine Culture/Ateneo de Manila University.

Al-Raqqad, H. K., Al-Bourini, E. S., Mohammad, F., Talahin, A., Michael, R., & Aranki, E. (2017). The impact of school bullying on students' academic achievement from teachers point of view. *International Education Studies, 10*(6), 44-50. https://doi.org/10.5539/ies. v10n6p44

Andreou, E., Didaskalou, E., & Vlachou, A. (2015). Bully/victim problems among Greek pupils with special educational needs: associations with loneliness and self-efficacy for peer interactions. *Journal of Research in Special Educational Needs, 15*(4), 235-246.

Archer, J. (2004). Sex differences in aggression in real world settings: A meta-analytic review. *Review of General Psychology, 8*, 291–322. http://dx.doi.org/10.1037/1089-2680.8.4.291

Awang, Z. (2012). *Structural Equation Modeling Using Amos graphic.* Shah Alam: UiTM Press.

Bagozzi, R. & Yi, Y. (1988) . On the evaluation of structural equation models. *Journal of the academy of marketing science, 16*(1), 74-94.

Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development, 67*, 3296–3319.

Beran, T. (2008). Consequences of being bullied at school. In D. Pepler & W. Craig (Eds.), *Understanding and addressing bullying: An international perspective (pp. 44-66)*. Bloomington, IN: Authorhouse.

Bentler, P. M., & Wu, E. J. C. (1993). *EQS/Windows user's guide.* Los Angeles: BMDP Statistical Software.

Blake, J. J., Lund, E. M., Zhou, Q., Kwok, O. M., & Benz, M. R. (2012). National prevalence rates of bully victimization among students with disabilities in the United States. *School Psychology Quarterly, 27*(4), 210-222.

Browne, M. W. & Cudeck, R. (1993). *Alternative Ways of Assessing Model Fit.* In Bollen, K.A. and Long, J.S. (Eds.). Newbury Park: Sage, 136-162.

Bourke, S. & Burgman, I. (2010). Coping with bullying in Australian schools: how children with disabilities experience support from friends, parents and teachers. *Disability & Society, 25*(3), 359-371.

Bollen, K. A., & Stine, R. (1990). Direct and indirect effects: Classical and bootstrap estimates of variability. *Sociological Methodology, 20*, 115-40.

Bollen, K. A. (1989). *Structural equations with latent variables (1st ed.)*. Wiley series in probability and mathematical statistics. Applied probability and statistics section. Hoboken, NJ: Wiley-Interscience.

Brendgen, M. (2012). Development of indirect aggression before school entry. In R. E. Tremblay, M. Boivin, & R. DeV. Peters (Eds.), *Encyclopedia on early childhood development* [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development. Retrieved from http://www.child-encyclopedia.com/documents/BrendgenANGxp1.pdf

Brendgen, M., Girard, A., Vitaro, F., Dionne, G., & Boivin, M. (2016). Personal and familial predictors of peer victimization trajectories from primary to secondary school. *Developmental Psychology, 52,* 1103-1114. https://doi.org/10.1037/dev0000107

Brito, C. C., & Oliveira, M. T. (2013). Bullying and self-esteem in adolescents from public schools. *Jornal De Pediatria, 89*(6), 601-607.

Bronfenbrenner, U. (1979). The Ecology of Human Development: Experiments By Nature and Design, Harvard University Press, Cambridge, Mass, USA.

Buhs, E., Ladd, G., & Herald, S. (2006). Peer exclusion and victimization: Processes that mediate the relation between peer group rejection and children's classroom engagement and achievement. *Journal of Educational Psychology, 98*(1), 1-13.

Byrne, B. (2010). *Structural equation modeling with AMOS. Basic concepts, applications, and programming* (2nd ed.). NY: Routledge.

CCTV. (2017). *Five teenage girls in Beijing were sentenced to school bullying*. Retrieved from http://m.news.cctv.com/2017/11/07/ARTICN8jIiWiayDVx2od0Kk9171107.shtml

Caputo, A. (2014). Psychological Correlates of School Bullying Victimization: Academic Self-Concept, Learning, Motivation and Test Anxiety. *International Journal of Educational Psychology, 3*(1), 69-99. doi: 10.4471/ijep.2014.04

Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development, 79*(5), 1185-1229.

Carney, A. G. & Merrell, K. W. (2001). Perspectives on understanding and preventing an international problem. *School Psychology International, 22,* 364-82.

Center., N. B. P. (2015). Bullying information and facts. Retrieved from http://www.pacer.org/bullying/resources/?gclid=CNru0frdmc0CFQiqa

Chen, C. H. (2017). Improving education to eliminate bullying on school. *Journal of The Chinese Society of Education, 5,* 105-105.

Chow, C., & Ma, C. L. (2017). School bullying intervention under the path of peer attachment. *Journal of Teaching and Management, 10,* 29-32.

Chow, Y. C. (2017). Prevention of school bullying should strengthen the ecological construction of Education. *Journal of The Chinese Society of Education, 10,* 1-8.

Cowie, H. (2014). Understanding the Role of Bystanders and Peer Support in School Bullying. *The International Journal of Emotional Education, 6*(1), 26-32.

Crick, N. R., Casas, J. F., & Nelson, D. A. (2002). Toward a more comprehensive understanding of peer maltreatment: Studies of relational victimization. *Current Directions in Psychological Science, 11,* 98–101.

Crick, N. R., Ostrov, J. M., & Kawabata, Y. (2007). Relational aggression and gender: An overview. In D. J. Flannery & A. Vazsonyi (Eds.), *The Cambridge handbook of violent behavior and aggression* (pp. 243-260). New York: Cambridge University Press.

Crick, N. R., Werner, N. E., Casas, J. F., O'Brien, K. M., Nelson, D. A., Grotpeter, J. K., et al. (1999). Childhood aggression and gender: A new look at an old problem.

In D. Bernstein (Ed.), *The Nebraska symposium on motivation: Vol. 45. Gender and motivation* (pp. 75-141). Omaha, NE: University of Nebraska Press.

Cuieford, J. P. (1965). *Fundamental Statistics in Psychology and Education.* New York: McGraw-Hill.

Di Stasio, M. R., Savage, R., & Burgos, G. (2016). Social comparison, competition and teacher-student relationships in junior high school classrooms predicts bullying and victimization. *J Adolesc, 53*, 207-216. https://doi.org/10.1016/j.adolescence.2016.10.002

Dittrick, C. J. (2010). *Does appearance matter? : school bullying and body-esteem in early adolescence* (Master of Arts thesis. University of British Columbia, Vacouver).

Dong, H. Q., & Zhang, W. X. (2013). The peer victimization of preschool children and its relation to social competence and adjustment. *Chinese Journal of Special Education, 5*, 77-82.

Dong, H. Q. (2015). Peer victimization and children's problem behaviors: The moderating effect of self-esteem. *Chinese Journal of Clinical Psychology*, *13*(2), 281-284.

Erdoğdu, M. Y. (2016). Parental Attitude and Teacher Behaviours in Predicting School Bullying. *Journal of Education and Training Studies, 4*(6), 35-43.

Espelage, D. L., Rose, C. A., & Polanin, J. R. (2015). Social-Emotional Learning Program to Reduce Bullying, Fighting, and Victimization Among Middle School Students With Disabilities. *Remedial and Special Education, 36*(5), 299-311.

Farrington, D. P., & Ttofi, M. M. (2009). How to reduce school bullying. *Victims and Offenders, 4*(4), 321–326.

Finney, S. J. & DiStefano, C. (2006). Non-normal and Categorical data in structural equation modeling. *In G. r. Hancock & R. O. Mueller (Hrsg.)*. Structural equation modeling: a second course (S. 269-314). Greenwich, Connecticut: Information Age Publishing.

Flora, D. B., & Curran, P. J. (2004). An empirical evaluation of alternative methods of estimation for confirmatory factor analysis with ordinal data. *Psychological Methods, 9*(4), 466. doi:10.1037/1082-989X.9.4.466

Focus (2009). *Der Feind in meiner Schule*. FOCUS Magazin Nr. 20 Deutschland. Retrieved from https://www.focus.de/familie/psychologie/psychoterror/der-feind-in-meiner-schule-mobbing_id_1720385.html

Fornell, C. & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research 18*(1), 39-50.

Fritz, M. S., Taylor, A. B., & MacKinnon, D. P. (2012). Explanation of two anomalous results in statistical mediation analysis. *Multivariate Behavioral Research, 47*, 61-87.

Glew, G. M., Fan, M. Y, Katon, W., Rivara, F. P., Kernic, M. A. (2005). Bullying, psychosocial adjustment, and academic performance in elementary school. *Archives of Pediatrics & Adolescent Medicine, 159*(11), 1026-1031.

Gini, G., & Pozzoli, T. (2009). Association between bullying and psychosomatic problems: A meta-analysis. *Pediatrics, 123*, 1059-1065.

Goldstein, S., Young, A., & Boyd, C. (2008). Relational aggression at school: Associations with school safety and social climate. *Journal of Youth and Adolescence, 37*, 6, 641–654.

Hair, J. F. Jr, Black, W. B., Babin, B. J., Anderson, R. E., and Tatham, R. L., (2009). *Multivariate Data Analysis*, Pearson Eduction Inc. New Delhi, India.

Haynes, N. M., Emmons, C., & Ben-Avie, M. (1997). School Climate as a Factor in Student Adjustment and Achievement. *Journal of Educational & Psychological Consultation, 8*(3), 321-329.

Hayes, A. F., & Scharkow, M. (2013). The relative trustworthiness of inferential tests of the indirect effect in statistical mediation analysis: Does method really matter? *Psychological Science, 24*, 1918-1927.

Houbre, B., Traquinio, C., & Thuillier, I. (2006). Bullying among students and its consequences on health. *European Journal of Psychology of Education, 21*(2), 183-208. DOI: 10.1007/BF03173576

Houlston, C., Smith, P.K. & Jessel, J. (2011). The Relationship between use of School-Based Peer Support Initiatives and the Social and Emotional Well-Being of Bullied and Non-Bullied Students. *Children & Society, 25*(4), 293-305.

Hoy, A. W., & Weinstein, C. S. (2006). Student and teacher perspectives on classroom management. *Handbook of classroom management: Research, practice and contemporary issues, 181*, 222.

Hu, C. G. (2017). School bullying behavior: meaning, cause and prevention strategy. *Educational Research and Experiment, 1*, 73-79.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55.

Huang, X. T., Wu, F. W., & Song, Y. Q. (2017). The impact of peer victimization on internalized behavior in rural boarding schools: A moderated mediation model. *Journal of East China Normal University Educational Sciences, 1*, 93-101+124.

Hussong, A. M . (2000). Perceived peer context and adolescent adjustment. *Journal of Research on Adolescence, 10*, 391–415. doi:10.1207/SJRA1004_02

Hwang, L. (2017). The situation and influencing factors of SCHOOL bullying at 15 year old students in China -- Analysis of data from four provinces and cities in China based on PISA2015. *Educational Science Research, 11*, 36-42.

Jan, A. & Husain, S. (2015). Bullying in Elementary Schools: Its Causes and Effects on Students. *Journal of Education and Practice, 6*(19), 43-56.

Jeong, S., Kwak, D., Moon, B., & Miguel, C. (2013). Predicting school bullying victimization: Focusing on individual and school environmental/security factors. *Journal of Criminology, 2013*, 1-13.

Jöreskog, K.G., & Sörbom, D. (1993). *LISREL 8: Structural Equation Modeling with the SIMPLIS Command Language*. Scientific Software International.

Juvonen, J., Wang, Y., & Espinoza, G. (*2011*). *Bullying experiences and compromised academic performance across middle school grades. The Journal of Early Adolescence. 31*(1), 152-173.

Kaltiala-Heino R., & Fröjd S. (2011). Correlation between bullying and clinical depression in adolescent patients. *Adolesc Health Med Ther. 2*, 37–44.

Kartal, H. & Bilgin, A. (2009*). Bullying and school climate from the aspects of the*

students and teachers. *Eurasian Journal of Educational Research. 36*, 209-226.
Kawabata, Y., Alink, L. R. A., Tseng, W. L., van Ijzendoorn, M. H., & Crick, N. R. (2011). Maternal and paternal parenting styles associated with relational aggression in children and adolescents: A conceptual analysis and meta-analytic review. *Developmental Review, 31*(4), 240–278.
Kline, R. B. (2005). Methodology in the social sciences. *Principles and practice of structural equation modeling* (2nd ed.). New York, NY, US: Guilford Press.
Skrzypiec, G. (2008). *Living and Learning at School, document presented at the Annual Conference of the Australian Association for Research in Education* [online]. www.aare.edu.au/08pap/skr081125.pdf.
Ladd, G., & Troop-Gordon, W. (2003). The role of chronic peer difficulties in the development of children's psychological adjustment problems. *Child Development, 74*, 1344-1367. doi: 10.1111/1467-8624.00611.
Ladd, G. W., Ettekal, I., & Kochenderfer-Ladd, B. (2017). Peer victimization trajectories from kindergarten through high school: Differential pathways for children's school engagement and achievement? *Journal of Educational Psychology, 109*(6), 826-841. http://dx.doi.org/10.1037/edu0000177
Leech, N. L., Barrett, K. C. & Morgan, G. A. (2005). *SPSS for Intermediate Statistics, Use and Interpretation* (2nd ed.). Lawrence Erlbaum Associates Inc., Mahwah.
Lei, L., & Wang, Y. (2017). An empirical study of special education teachers' current occupational adaptation and its relationship with their psychological resilience-Based on the investigation into special education schools in S city. *Chinese Journal of Special Education, 3*, 21-27.
Lereya, S. T., Samara, M., & Wolke, D. (2013). Parenting behavior and the risk of becoming a victim and a bully/victim: A meta-analysis study. *Child Abuse & Neglect, 37*(12), 1091-1108. .doi:10.1016/j.chiabu.2013.03.001.
Lewin, K. (1976). Field theory in social science. *American Catholic Sociological Review, 12*(2), 103.
Lester, L., Pearce, N., Waters, S., Barnes, A., Beatty, S., Cross, D. (2017). Family Involvement in a Whole-School Bullying Intervention: Mothers' and Fathers' Communication and Influence with Children. *Journal of Child and Family Studies, 26*(10), 2716-2727.
Li, X. D., & Li, H. (2010). Network bullying -- the school violence that has quietly sprung up. *Educational Science Research, 7*, 61-64.
Lin, C. T. (2017). An analysis of the types，formation of the bullying on campus and the coping strategies. *Journal of Educational Science of Hunan Normal University, 16*(1), 1-6.
Lowenstein, L. F. (1977). Who is the bully? *Home & School, 31*, 147-149.
Ma, H. L., & Yang, J. (2016).American campus anti-bullying legislation：Concepts，approach and contents. *International and Comparative Education, 11*, 21-27.
Macklem, G. L. (2003). *Bullying and teasing: social power in children's groups.* New York: Kluwer Academic/Plenum Publishers. doi:10.1007/978-1-4757- 3797-4.
Marks, H. M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal, 37*, 153-184. doi:10.3102/00028312037001153

Ma, X. (2001). Bullying and being bullied: To what extent are bullies also victims? *American Educational Research Journal, 38*, 351-370.

Mehta, S. B., Cornell, D., Fan, X., & Gregory, A. (2013). Bullying Climate and School Engagement in Ninth-Grade Students. *Journal of School Health, 83*(1), 45-52.

Monks, C. P., Smith, P. K., & Swettenham, J. (2003). Aggressors, victims, and defenders in preschool: Peer, self, and teacher reports. *Merrill–Palmer Quarterly, 49*, 453-469.

Möble, T., Kleimann, M., & Rehbein, F. (2008). *Violent behavior at school –Interplay or violent media use, acceptance of violence, personality traits and peer group– a structural equation analysis*. Lisboa: Facultad de Psicomotricidad Humana-Universidad Técnica de Lisboa.

Nakamoto, J., & Schwartz, D. (2010). Is Peer Victimization Associated with Academic Achievement? A Meta-analytic Review. *Social Development, 19*(2), 221-242.

Nansel, T. R., Haynie, D. L., & Simons-Morton, B. G. (2003). The association of bullying and victimization with middle school adjustment. *Journal of Applied School Psychology, 19*, 45-61.

Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W. J., Simons-Morton, B., & Scheidt, P. (2001). Bullying Behaviors Among US Youth: Prevalence and Association With Psychosocial Adjustment. *JAMA : the journal of the American Medical Association, 285*(16), 2094-2100.

Ndibalema, P. (2013). Perceptions about Bullying Behaviour in Secondary schools in Tanzania: The case of Dodoma Municipality. *International Journal of Education and Research, 1*(5), 1-16.

Neiman, S. (2011). *Crime, violence, discipline, and safety in U.S. public schools: Findings from the School Survey on Crime and Safety: 2009-10* (NCES 2011-320). Washington, DC: National Center for Education Statistics, U.S. Department of Education.

Nishioka, V., Coe, M., Burke, A., Hanita, M., & Sprague, J. (2011). *Student-reported overt and relational aggression and victimization in Grades 3-8* (Issues & Answers Report, REL 2011-No. 114). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Northwest. Retrieved from http://ies.ed.gov/ncee/edlabs/regions/northwest/pdf/REL_2011114_sum.pdf

OECD (2017). *PISA 2015 Assessment and Analytical Framework: Science, Reading, Mathematic, Financial Literacy and Collaborative Problem Solving (revised edition)*. PISA, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264255425-en

OECD (2018). *Hong Kong (China)-Student performance (PISA 2015)*. Retrieved from http://gpseducation.oecd.org/CountryProfile?primaryCountry=HKG&treshold=10&topic=PI.

Olweus, D. (1993). Bullying at School: What We Know and What We Can Do. *British Journal of Educational Studies, 42*(4), 403.

Pellegrini, A. (2002). Bullying, victimization, and sexual harassment during the transition to middle school. *Educational Psychologist, 37*, 151-163.

Pepler, D., Jiang, D., Craig, W., & Connolly, J. (2008) Developmental trajectories of bullying and associated factors. *Child Development, 79*, 325-338.

Pernice-Duca, F., Taiariol, J., & Yoon, J. (2010). Perceptions of school and family climates and experiences of relational aggression. *Journal of School Violence, 9*(3), 303-319.

Prinstein, M. J., Cheah, C. S., Guyer, A. E. (2005). Peer victimization, cue interpretation, and internalizing symptoms: preliminary concurrent and longitudinal findings for children and adolescents. *J Clin Child Adolesc Psychol. 34(1)*, 11-24.

Raskauskas, J., & Modell, S. (2011). Modifying anti-bullying programs to include students with disabilities. *Teaching Exceptional Children, 44*(1), 60-67. https://doi.org/10.1177/004005991104400107

Ren, H. T. (2017). The definition of school bullying and its legal liability. *Journal of East China Normal University (Eductional Sciences), 2*, 43-50+118.

Rigby, K. (2014). How teacher address cases of bullying in schools: a comparison of five reactive approaches. *Educational Psychology in Practice, 30*, 409-419. https://doi.org/10.1080/02667363.2014.949629

Rodkin, P., & Hodges, E. (2003). Bullies and victims in the peer ecology: Four questions for psychologists and school professionals. *School Psychology Review, 32*, 384-400.

Rodkin, P. C., & Gest, S. D. (2011). Teaching practices, classroom peer ecologies, and bullying behaviors among schoolchildren. *Bullying in north American schools*, 75-90.

Rose, C. A., Monda-Amaya, L. E., & Espelage, D. L. (2011). Bullying perpetration and victimization in special education: A review of the literature. *Remedial and Special Education, 32*(2), 114-130.

Salmivalli, C., Voeten, M., & Poskiparta, E. (2011). Bystander's matters: associations between reinforcing, defending, and the frequency of bullying behavior in classrooms. *Journal of Clinical Child & Adolescent Psychology, 40*, 668-676. https://doi.org/10.1080/15374416.2011.597090

Salmon, S., Turner S., Taillieu T., Fortier J., & Afifi T. O. (2018). Bullying victimization experiences among middle and high school adolescents: Traditional bullying, discriminatory harassment, and cybervictimization. *Journal of Adolescence. 63*, 29-40.

Saylor, C. F., & Leach, J. B. (2009). Perceived Bullying and Social Support in Students Accessing Special Inclusion Programming. *Journal of Developmental and Physical Disabilities, 21*(1), 69-80. doi:10.1007/s10882-008-9126-4

Schumacker, R. E. & Richard G. L. (2004). *A beginner's guide to structural equation modeling* (2th ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Sekol, I., & Farrington, D. P. (2016). Personal characteristics of bullying victims in residential care for youth. *Journal of Aggression, Conflict and Peace Research, 8*(2), 99-113. https://doi.org/10.1108/JACPR-11-2015-0198

Seo, H. J., Jung Y. E., Kim M. D., & Bahk W. M. (2017). Factors associated with bullying victimization among Korean adolescents. *Neuropsychiatric Disease*

and Treatment, 13, 2429-2435.

Swearer, S. M., & Hymel, S. (2015). Understanding the Psychology of Bullying: Moving toward a Social-Ecological Diathesis-Stress Model. *American Psychologist, 70*, 344-353. https://doi.org/10.1037/a0038929

Sheng, H., Herbert, J., Kang, J., & Yu, H. (2009). The effects of individual characteristics, teacher practice, and school organizational factors on students' bullying: A multilevel analysis of public middle schools in Taiwan. *Children and Youth Services Review, 32,* 137-143.

Smiith, P. K., & Shu, S. (2000). What Good Schools can Do About Bullying:Findings from a Survey in English Schools After a Decade of Research and Action. *Childhood, 7*(2), 193-212.

Solberg, M. E., & Olweus, D. (2003). Prevalence estimation of school bullying with the Olweus Bully/Victim Questionnaire. *Aggressive Behavior, 29*(3), 239-268.

Sourander, A., Jensen, P., Rönning J. A., Niemelä, S., Helenius, H., Sillanmäki, L., Almqvist, F. (2007). What is the early adulthood outcome of boys who bully or are bullied in childhood? The Finnish "From a Boy to a Man" study. *Pediatrics, 120*, 397–404.

Son, E., Parish, S. L., & Peterson, N. A. (2012). National prevalence of peer victimization among young children with disabilities in the United States. *Children and Youth Services Review, 34*(8), 1540-1545.

Stuart-Cassel, V., Bell, A., & Springer, J. F. (2011). *Analysis of State Bullying Laws and Policies.* Washington, DC: Office of Planning, Evaluationand Policy Development, US Department of Education.

Sun, F. (2017). An analysis of bullying on school from the perspective of sociological theory. *Course Education Research, 8*, 1-4.

Sun, H. (2017).Some thoughts on the legal regulation of school bullying. *Legal System and Society, 1*, 7-12.

Sun, S., & Shi, Z. (2017).The psychological factors and treatment of school bullying. *Journal of East China Normal University Educational Sciences, 35*(2), 51-56.

Swearer, S. M. and Doll, B. (2001). Bullying in schools: an ecological framework. *Journal of Emotional Abuse, 2*(2-3), 7–23.

Swearer, S. M. (2011). *Risk Factors for and Outcomes of Bullying and Victimization* (white*paper*; *Educational Psychology Papers* and Publications, Paper 132). Retrieved from http://digitalcommons.unl.edu/edpsychpapers/132

Tam, F. W., & Taki, M. (2007) Bullying among girls in Japan and Hong Kong: an examination of the frustration-aggression model. Educational Research and Evaluation, 13(4), 373-399.

Tian, J. L. (2017).The motivation and Countermeasures of school bullying in the perspective of Sociology. *Journal of Teaching and Management, 22*, 23-25.

Tutmann, L. (2011). *Das G8 hat Schwarzmalerei verdient.* Retrieved from www.focus.de/schule/schule/bildungspolitik/turbo-abi/ g8-das-g8-hat-schwarzmalerei-verdient_aid_638923.html.

Turner, H. A., Finkelhor, D., & Ormrod, R. (2010). The effects of adolescent victimization on self-concept and depressive symptoms. *Child Maltreat. 15(1),* 76-90.

Veenstra, R., Lindenberg, S., Huitsing, G., Sainio, M., & Salmivalli, C. (2014). The role of teachers in bullying: the relation between anti bullying attitudes, efficacy, and efforts to reduce bullying. *Journal of Educational Psychology, 106,* 1135-1143. https://doi.org/10.1037/a0036110

Wang, H., Zhou, X., Lu, C., Wu, J., Deng, X., Hong, L., & He, Y. (2012). Adolescent bullying involvement and psychosocial aspects of family and school life: a cross-sectional study from Guangdong Province in China. *PLOS ONE, 7*(7), e38619. https://doi.org/10.1371/journal.pone.0038619

Wang, J., Iannotti, R. J., & Luk, J. W. (2010). Bullying victimization among underweight and overweight U.S. youth: Differential associations for boys and girls. *Journal of Adolescent Health, 47*(1), 99-101.

Wang, J. (2016). Legal governance against school bullying and violence. *Journal of Hebei University of Technology (Social Sciences Edition), 4*, 41-47.

Wang, Y. X. (2016). A qualitative study on the problem of bullying on the youth left behind in rural areas. *China Youth Study*, *12,* 63-68.

Wei, Y. M., & Fan, G. R. (2016).Analysis of school bullying in the perspective of sociological theory. *Educational Science Research, 2,* 20-23, 46.

Wolke, D., Copeland, W. E., Angold, A., & Costello, E. J. (2013). Impact of bullying in childhood on adult health, wealth, crime, and social outcomes. *Psychological Science, 24,* 1958–1970.

World Health Organization (2002). World report on violence and health: summary. Geneva : World Health Organization. http://www.who.int/iris/handle/10665/42512

Wright, T. D., Richardson, J. W., American Public Health Association., & ebrary, I. (2012). *School-based health care: Advancing educational success and public health*. Washington, D.C.: APHA Press.

Wu, F. W., Song, Y. C., & Hwang, X. T. (2016). School bullying: Making rural boarding students more "injured" -- An empirical study based on 17841 rural boarding school students. *Management of Primary and Secondary Schools, 8,* 8-11.

Wu, M. L. & Tu, J. T. (2006). *SPSS & the application and analysis of statistics.* Taipei: Wu nan.

Wynne, S. L., & Joo, H. (2011). Predictors of school victimization: Individual, familial and school factors. *Crime & Delinquency, 57*, 458–488.

Xia, G. D. (2017). School bullying emphasizes prevention. *Chinese Journal of Special Education, 5*, 105-105.

Yang, L., & Bi, X. S. (2016).The social prevention strategy of bullying in primary and secondary schools. *Journal of The Chinese Society of Education*, *11*, 7-12.

Yoon, J. S., Barton, E., & Taiariol, J. (2004). Relational aggression in middle school: Educational implications of developmental research. *The Journal of Early Adolescence, 24*(3), 303–318.

Yurtal, F., & Cenkseven, F. (2007). İlköğretim okullarında zorbalığın yaygınlığı ve doğası. *Türk Psikolojik Danışma ve Rehberlik Dergisi, 3*(28), 1-13.

Zablotsky, B., Bradshaw, C. P., Anderson, C., & Law, P. (2012). Bullying among children with Autism Spectrum Disorders: Parents' perspectives on the influence of school factors. *Behavioral Disorders, 37*(3), 179–191.

Zhang, E. K. (2017). Psychological analysis of school bullying. *Journal of Puyang Vocational and Technical College*, *30*(3), 145-148.

Zhang, E. Y., & Chen, S. (2016). Psychological reflection on bullying in primary and secondary schools. *Journal of The Chinese Society of Education*, *11*, 13-17.

Zhao, J. I., Yang, P., Zhao, X. J., & Zhang, W. X. (2016). Early Adolescents' Peer Victimization and Depression: the Moderating Effects of Self-Esteem and Gender. *Chinese Journal of Special Education*, *1*, 70-75.

Zhu, L., Qi, H. D., & Mei, Y. Y. (2017). Study on the intervention strategy of prevention of school bullying from the perspective of social ecosystem. *Modern Primary and Secondary Education*, *33*(7), 1-5.

Zych, I., Ortega-Ruiz, R., & Del Rey, R. (2015). Scientific research on bullying and cyber bullying: Where have we been and where are we going. *Aggression and Violent Behavior*, *24*, 188–198. doi:10.1016/j.avb.2015.05.015.

ไม่มีเอกสารจากต้นฉบับ

หน้า Profile