Associations among teacher-student interpersonal relationships and students' intrinsic and extrinsic motivation and academic achievement: A cross cultural study

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Abstract

This cross-cultural study explored associations among teacher-student relationship, students' intrinsic and extrinsic motivation, and students' academic achievement in grade 5 and 6 students from Vancouver, Canada (n = 102) and Hong Kong, China (n = 207). Hong Kong students perceived their teachers to be more dissatisfied, strict, admonishing, and uncertain, while Vancouver students perceived their teachers to be more helpful and friendly. Students' levels of intrinsic and extrinsic motivation did not differ across cultures. Students' intrinsic motivation positively correlated with positive teacher-student relationship subscales, and negatively correlated with teacher's perceived dissatisfaction in both Vancouver and Hong Kong. Vancouver students' extrinsic motivation was not significantly correlated with any teacher-student relationship subscales whereas Hong Kong students' extrinsic motivation was significantly and positively correlated with positive teacher-student relationship subscales. Students' academic achievement was positively correlated with positive teacher-student relationship subscales in both Vancouver and Hong Kong, negatively correlated with teacher's uncertainty in Hong Kong, and positively correlated with student's intrinsic motivation in both Vancouver and Hong Kong. Academic achievement was not significantly correlated with extrinsic motivation in either sample. Culture did not moderate the association between i) teacher-student relationships and academic achievement, ii) intrinsic motivation and academic achievement, iii) extrinsic motivation and academic achievement, iv) teacher-student relationships and extrinsic motivation, or v) teacher-student relationships and intrinsic motivation.

Keywords: Teacher-student relationships; intrinsic motivation; extrinsic motivation; academic achievement; cross-cultural; educational psychology

To mom and dad.

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List of Acronyms

TSR	Teacher-student relationship
IM	Intrinsic motivation
EX	Extrinsic motivation
QTI	Questionnaire on Teacher Interaction
MSLQ	Motivated Strategies for Learning Questionnaire

Chapter 1.

Introduction

A well-known distinction found in the motivation literature is that between intrinsic and extrinsic motivation. Intrinsic motivation is observed when an individual requires no external reward to engage in an activity. Extrinsic motivation is observed when rewards are required to sustain an individual's engagement. Early in life the motivation to learn appears to be primarily intrinsic (Deci, 1975), but as children reach school age, many no longer seem to possess this seemingly innate interest in learning (Stipek, 1988). Indeed, a steady decline in children's intrinsic motivation for learning over the elementary years is well documented (e.g., deCharms, 1981; Harter, 1981). An extensive amount of research has established that intrinsic motivation is positively associated with learning and academic achievement (deCharms, 1976). As a consequence, there has been considerable interest in how to effectively foster students' intrinsic motivation and enhance their engagement in their own learning processes (Ryan & Deci, 2000).

Social relationships within the learning environment also have been regarded as critical factors in students' motivation and engagement in school (e.g., Furrer & Skinner, 2003; Hamre & Pianta, 2001; Skinner & Belmont, 1993). Current findings provide evidence to support the claim that high quality teacher-student relationships are not only positively associated with students' affect towards learning (Pianta, Steinberg, & Rollins, 1995), attitudes and behaviours in class (Wentzel, 1997), and academic performance (Ladd, Birch, & Buhs, 1999), they are also positively associated with students' achievement motivation and engagement in learning (Ainley, 1995; Hamre & Pinata, 2001; Ladd et al., 1999; Little & Kobak, 2003). Students who form close and supportive relationships with their teachers participate more actively in class, show more persistence on difficult tasks and in help seeking, devote a higher effort to their school work, and are more likely to succeed academically (Anderman & Anderman, 1999,

Conell & Wellborn, 1991; Deci & Ryan, 1985; Montalvo et al., 2007; Phelan, Davidson, & Thanh Cao, 1992), all of which are consistent with characteristics of students who are intrinsically motivated. Thus, through forming positive relationships with students, teachers are capable of creating the motivational conditions that appear to foster and maintain students' intrinsic motivation to learn and achieve in the school context.

Most research on teacher-student relationships is limited to Western contexts. These studies generally show that teacher-student relationships characterized by warmth, friendliness, co-operation and support are associated with more positive student outcomes. However, such teacher-student relationships are in contrast to the style of teaching typical in East Asian cultures, and particularly in Hong Kong, China. This raises questions as to whether teacher-student relationships found to support students' motivation and academic achievement in the West also support motivation and academic achievement in the East. Moreover, previous research on teacher-student relationships has mainly focused on their associations with academic processes, attitudes, outcomes and general motivation. Only a limited amount of research specifically addresses the link between teacher-student relationships and students' intrinsic motivation for learning. The present study aimed to explore cultural differences in associations among teacher-student relationships, students' intrinsic and extrinsic motivation in learning, and students' academic performances in two cultural contexts – Vancouver and Hong Kong.

In the literature review that follows, I first examine the notion of motivation and the relation of intrinsic and extrinsic motivation to students' learning and academic achievement. This is followed by a discussion of interpersonal relationships in the learning context, the significance of relationships in achievement motivation theories, and the role of teacher-student relationship in supporting students' achievement motivation. Last but not least, the literature review addresses cultural influences on students' learning contexts and explores the education culture in East Asia.

Chapter 2.

Review of the Literature

2.1. Motivation in the Education Context

Motivation refers to processes or conditions that initiate, maintain, or terminate behaviours. It can be the result of physiological or psychological, innate or learned, intrinsic or extrinsic factors (Littman, 1985). As motivation is a theoretical process rather than an observable product, it cannot be directly observed and can only be inferred from behaviours (Schunk, Pintrich, & Meece, 2008). Early motivation research placed emphasis on innate biological causes of human behaviours. The roles of instincts and physiological and psychological needs were at the foundation of a number of motivation theories. Although biologically based theories capture some of what motivates human behaviour, there are many kinds of human behaviour that biological and physiological needs cannot account for. Thus, motivation theories expanded to include behavioral, cognitive, social, affective, and humanistic perspectives.

One of the most popular theories of motivation that is relevant to the current study is Maslow's six-level hierarchy of needs (1954). Clear distinctions are made between basic primary needs, secondary psychological needs, and higher level self-fulfillment needs. Basic needs, which include physiological and safety needs, form the first two foundational levels of human needs. Secondary needs, which comprise belongingness and love, and esteem needs, form the next two levels. Self-fulfillment needs, which culminate in achieving one's full potential or self-actualization, comprise the last level. According to Maslow, when a need arises, an individual engages in goal-directed behaviour to reduce and satisfy the associated arousal. Lower levels of needs are satisfied before an individual will satisfy a higher level of needs. If two needs of different levels surface at the same time, the lower level need will dominate and the

individual will satisfy that need first. Self-actualization at the highest level represents reaching personal potentials, thus, it is always intrinsically motivated as individuals do it out of enjoyment and the desire for personal achievement and growth. According to this model, in the educational context, students' primary and secondary needs must first be satisfied before they can be fully intrinsically motivated to learn. This includes the satisfaction of the social interpersonal need for a sense of belongingness within the learning environment.

2.1.1. Relation of Motivation to Learning and Academic Performance

The importance of students' achievement motivation – that is, the motive to achieve academic success, has been well documented in educational research. Achievement motivation plays a role in what, when, and how students learn (Schunk, 1995) and is related to student's academic success (Hidi & Harackiewicz, 2000). Students who are motivated to learn and achieve are more likely to engage in learning activities, attend to instructions, organize and rehearse the learning material, take notes to support subsequent learning, monitor their understanding of the material, and seek help when they do not understand the material (Zimmerman, 2000). Some motivation theories present motivation as a stable trait while others conceptualize it as a set of beliefs and values that direct behaviours based on past experiences and factors in the learning environment. Most theories view achievement motivation as fluid and changeable, which importantly implies that teachers have the opportunity for and are capable of influencing students' motivation to achieve in school.

2.1.2. Intrinsic and Extrinsic Motivation

Researchers studying motivation in educational contexts have made the distinction between intrinsic and extrinsic motivation. Intrinsic motivation (IM) is defined as the willingness to engage in an activity because it is inherently interesting, enjoyable, or important (Deci & Ryan, 1985). Individuals who are intrinsically motivated to engage in a task do not require extrinsic rewards for its continuation as task participation is its own reward. However, many aspects of academic learning are not particularly engaging

or rewarding; many students are not intrinsically motivated in these learning activities (Renninger, 2000). In classrooms, facilitating student engagement with academic materials or goals that are not compelling is often accomplished through extrinsic supports and controls (Deci, Koestner, & Ryan, 2001; Reeve, 2009). Extrinsic motivation (EM) is defined as the willingness to engage in an activity to gain desirable outcomes such as external rewards or avoiding punishment (Deci & Ryan, 1985). Some examples of extrinsic motivation include the desire for rewards, approvals, praise, and outperforming others (Deci & Ryan, 2000; Vansteenkiste, Lens, & Deci, 2006). In the learning context, students who are extrinsically motivated engage in a task for the purpose of receiving extrinsic rewards or avoiding other external negative consequences.

Whether one is intrinsically or extrinsically motivated is time and context dependent (Schunk, Pintrich, & Meece, 2008). A common misconception is that intrinsic and extrinsic motivation lie on the same continuum such that when an individual is high in intrinsic motivation, he or she is low in extrinsic motivation, and vice versa. However, it is more accurate to view these two concepts on independent continuums (Lepper, Corpus, & Iyengar, 2005). Thus, an individual can be high on both intrinsic and extrinsic motivation, low on both, or high in one and low on the other for any given task.

Reviews of motivation research in education have emphasized the importance of intrinsic motivation in individual learning and achievement (Ryan & Deci, 2000). Some characteristics of intrinsic motivation in the learning context include task involvement, the desire to achieve excellency in one's work, engaging in novel activities, taking initiative to understand learning materials, and wishing for improvements (Fredricks, Blumenfeld, & Paris, 2004; McInerney & McInerney, 2010; Reeve, Deci, & Ryan, 2004). Students who are intrinsically motivated view learning as useful, interesting and important. These students are more likely to persist in learning in the face of challenge and are willing to employ different strategies to achieve their learning goals (Pokay & Blumenfeld, 1990; Vansteenkiste, Lens, & Deci, 2006).

While intrinsic motivation is associated with positive academic achievement outcomes, extrinsic motivation is associated with less positive learning outcomes. For

instance, negative correlations have been observed between the reports of children who did their school work for extrinsic reasons and their achievement on the Stanford Achievement Test (Connell & Ryan, 1984). It was found that participants who were rewarded, and hence, were more extrinsically motivated, had a harder time focusing and solving problems compared to those who were not rewarded (McGraw & McCullers, 1979). McGraw and McCullers suggested that attempts to control or promote student's learning through extrinsic rewards made them more rigid in terms of mental activity and distracted them from the learning task. Students who were extrinsically motivated also were more likely to apply shallow learning strategies and less likely to persist in learning once the extrinsic rewards and prompts were removed (Biggs, 1991). Another issue with providing extrinsic rewards in the classroom is that it undermines intrinsic motivation. A large body of research documents that providing rewards to children for an activity that is intrinsically interesting to them reduces their intrinsic motivation for the activity and makes them less likely to engage in the activity in the future in the absence of the rewards (Cameron & Pierce, 1994). Thus, although extrinsic motivational strategies could potentially promote motivation in the short term, these methods have potentially negative consequences. As intrinsic motivation plays such an important role in students' learning, it is essential to address the issue of the gradual decline of students' intrinsic motivation and find factors that influence and foster this type of motivation.

The learning environment has often been perceived as an important factor in shaping students' motivational processes and achievement goals. Deci and Ryan (1985) pointed out that although intrinsic motivation is predominantly influenced by the efficacy one feels in mastering a task and the perceived autonomy in task selection, environmental factors such as interactions with teachers, parents, and peers are also critical in the development and maintenance of intrinsic motivation. Thus, researchers have explored interpersonal relationships as an influential factor in motivating students to become engaged in their own learning process.

2.2. Importance of Interpersonal Relationships in the Learning Context

Researchers in North America have explored the critical role of interpersonal relationships in students' learning and experiences at school. In particular, a number of studies conducted in the Western education context have demonstrated positive relationships between the quality of students' relationships with their teachers and a number of learning dimensions including affect towards learning (Pianta, Steinberg, & Rollins, 1995), attitudes and behaviours in class (Wentzel, 1997) and academic performances (Ladd, Birch, & Buhs, 1999). A high quality teacher-student relationship is associated with positive learning processes such as working harder in class, being more persistent on difficult tasks, being more accepted of criticisms, coping better with stress, and paying more attention to teachers (Little & Kobak, 2003).

Of particular importance to the current study, it has been found that students' sense of social relatedness and quality of teacher-student relationship is related to their achievement motivation and engagement in school (Ainley, 1995; Hamre & Pianta, 2001; Ladd et al., 1999; Little & Kobak, 2003). Social interactions with teachers provide information to students about what are considered appropriate behaviours and socially valued goals in the school context. Over time this information becomes internalized as part of the child's value system (Wentzel, 1999). Thus, social relationships are not only beneficial to students' health and adaptation in the school context; close relationships also support students' learning motivation and task engagement by providing the conditions and right frame of mind to do so. The role of teacher-student relationship has significant importance for student's achievement motivation and learning experiences, thus, it deserves more attention considering the nature and dynamic quality of these relationships and their positive outcomes.

2.3. The Significance of Relationships in Achievement Motivation Theories

The role and influence of relationship has been well documented in achievement theories. Attribution theory suggests individuals make sense of their experience and

determine how they should think, feel, and behave based on the information they infer from their environment (Weiner, 1974). From an attribution theory perspective, feedback from peers or teachers in the school context can potentially influence students' attributions for their own success or failure, as well as their emotional reactions and achievement expectancy, which in turn influence the individual's motive to succeed academically (Weiner, 1974). Self-determination theory (Deci & Ryan, 2000) posits three basic needs underlying human motivation: the needs for competence, relatedness and autonomy. The belongingness or relatedness need central to self-determination theory can be greatly influenced by an individual's social context and his or her interaction with those in his or her social environment. When students' social context and the individuals within that context fulfill this need, engagement and mastery are observed (Deci & Ryan, 2000). Furthermore, the self-worth theory of achievement motivation proposes that an essential part of achievement motivation is the need for students to protect their sense of self-worth or personal value (Covington & Beery, 1976). From a self-worth achievement motivation perspective, Martin and colleagues (2003) have illustrated that students' drive to protect their self-worth is affected by others as well as the socialization and transmission of the fear of failure (Elliot & Thrash, 2004). Thus, taken together, there are strong theoretical grounds for assigning an important role to interpersonal relationships in children's achievement motivation and their academic lives.

2.4. The Role of Teacher-Student Relationships in Fostering Students' Achievement Motivation and Academic Engagement

2.4.1. Conceptualizing Teacher-Student Relationship

Pianta (1999) defines teacher-student relationship as dyadic, involving both teachers' and students' social interactions, feelings and beliefs. High quality teacher-student relationships are characterized by the presence of emotional and academic support between teachers and students, open communication (Pianta, 1999), "mutual acceptance, understanding, warmth, closeness, trust, respect, care and cooperation" (Leitao & Waugh, 2007). Teacher-student relationships are also reciprocal and interactive (Howes & Richie, 2002); both teachers and students contribute to and are

influenced by their relationships with each other. All of these features and qualities of a teacher-student relationship are thought to have significant consequences for students' academic motivation and engagement in learning (Ainley, 1995; Hamre & Pianta, 2001; Ladd et al., 1999).

2.4.2. Current State of Research Findings

Current findings provide evidence to support the claim that high quality teacher-student relationships foster students' achievement motivation and engagement in their learning processes. As mentioned previously, students' feelings of social relatedness at school are important factors in theories of achievement motivation. Feelings of relatedness and support foster the adoption of socially valued goals and objectives (Conell & Wellborn, 1991). When students form a supportive relationship with their teacher and a sense of belonging is felt, they are motivated to succeed academically, participate more actively, and behave in more socially appropriate ways in the classroom (Anderman & Anderman, 1999). Students whose experiences with their teachers are characterized by sensitive and responsive interactions also perceive their teachers as more supportive and are more motivated within the context of schooling (Deci & Ryan, 1985). Thus, through forming close relationships with students, teachers are capable of creating the conditions for fostering and maintaining student motivation. This view has been supported by extensive research.

Martin et al., (2007) examined teacher and parent influence on students' achievement motivation and general self-esteem. They found that both teacher-student and parent-child relationships correlated positively with adaptive cognitions, adaptive behaviours, academic self-concept and general self-esteem; and negatively correlated with maladaptive cognitions and maladaptive behaviours. But more importantly, after controlling for gender, age and with both interpersonal relationships in the model, teacher effects were found to be much stronger than parents' effects in the academic domain, and were particularly strongly associated with achievement motivation. Relationships with parents were more strongly associated with general self-esteem.

Other studies have concentrated on exploring characteristics and qualities of teachers and how they contribute to students' perceptions of care and support, as well as their task engagement and learning motivation. Phelan, Davidson and Thanh Cao (1992) noted students' perceptions of their teacher as caring or uncaring correlated with students' level of engagement in school and their persistence in help seeking. In another study, researchers examined the dimensions of proximity (i.e., the degree of teachers' co-operative and friendly behaviours) and influence (i.e., the degree of teachers' control and dominance shown to students). Strong correlations were found between teacher-student proximity and students' reports of pleasure, relevance, confidence, and effort in English classrooms; teacher-student influence correlated less strongly with those outcomes (den Brok, 2001). Similarly, research by Montalvo and Roedel (1995) found that teachers who were liked by students were more likely to be characterized by their students as being willing to provide help and support, making sure students were not overwhelmed with learning materials, encouraging and providing students with positive feedback, and respecting and trusting students. Students' levels of motivation, classroom engagement, and academic achievement differ depending on whether they were with teachers who they liked or disliked (Montalvo et al., 2007). Consistent with other research on teacher-student relationships and student outcomes, when students liked their teachers, they reported higher levels of effort and persistence in learning. They also reported higher levels of learning goals and perceived their education as more important. The learning environments created by well-liked teachers are more encouraging, supportive, and emphasize learning and mastery than those created by less well-liked teachers (Montalvo & Roedel, 1995). Such an environment supports student interests, encourages students to set learning goals, to persist in their learning tasks, and to see education as valuable in achieving goals, which are all student qualities that have been found to be associated with academic achievement. Hence, the learning climate created by the teacher is also important in the sense that it supports a goal orientation that is in line with and promotes achievement motivation.

2.5. Cultural Influences on Students' Learning Contexts

Research on the role of teacher student-relationships and their association with student's learning and achievement has been mainly conducted in the Western context. There are, nevertheless, a variety of theories that point to the importance of culture on children's learning and development. Children's learning and development occurs in social and cultural contexts that include social agents, such as parents and teachers, who support and guide children, as well as social tools and traditions that shape mental processes and social goals. Thus, to understand children's learning and development in a given cultural context, it is important to consider both broader societal values and the nature of interpersonal relationships within that context. Two influential socio-cultural theories that guide contemporary research on these issues are Vygotsky's cultural-historical model of human development (Vygotsky, 1978) and Bronfenbrenner's ecological model (1979).

Vygotsky's approach to human development emphasized interpersonal and cultural-historical factors. He asserted that children acquire knowledge and ways of thinking and reasoning in the context of their culture, the social models around them, and the social interactions in which they engage. From this perspective, cultural and historical events that shaped the culture in which an individual lives are seen to shape the development of higher mental functions (Vygotsky, 1978). Cultural tools are created by the society and change over time (Vygotsky, 1978). Cultural tools and sign systems, such as a culture's language, writing, and counting system, provide a mean for individuals to communicate, interact, think, and reflect. Vygotsky viewed a child's cultural development as two ways – it first takes place on the social level (i.e., between people), and then on the individual level (i.e., within the child) (Vygotsky, 1978). As children internalize cultural tools and communicate with the social models in their learning context, they adopt important cultural values and ways of thinking. Individuals in a society modify their behaviours and beliefs to develop novel sets of behaviours, customs, and believes as the social and culture develops (Vygostky, 1931/1997). Thus, the development of a child can only be understood in the cultural and historical content of the child. Cultural values, such as the importance and motive to achieve, can be different in different cultures due to their distinct historical and cultural developments.

Similarly, Bronfenbrenner's ecological model (1979) of development also emphasized the environmental contexts that surround individuals. In this perspective, development is thought to occur through complex interactions between the child and his or her social ecologies. There are five layers in this ecological model: the microsystem, which consists of people with whom the child has immediate and frequent interactions; the mesosystem, which includes relationships among elements of the child's microsystem; the exosystem, which comprises social systems with which the child does not directly interact but that can indirectly influence the child via impact on his or her micro- or mesosystem; the macrosystem, which includes the culture and subculture the child lives in; and finally the chronosystem, which denotes the dimension of time. Bronfenbrenner's ecological model focuses on interactions among the child and these systems; both the child and the environment continually influence one another in a reciprocal manner. Both Vygotsky's and Bronfenbrenner's approaches highlight the importance of the contexts of learning, including the broader culture and the interpersonal exchanges that occur within cultures that are thought to have tremendous influence on children's learning and development.

2.6. Education Culture in East Asia

2.6.1. Education Under the Influence of Confucian Traditions

Confucian teachings and cultural values are prominent and influential in many East Asian countries. In China, teaching, learning, and the structure of the educational system has been, and remains to be, greatly influenced by Confucian teaching, traditions, and the society's collectivistic ideology (Hsuen & Tobin, 2003). These cultural traditions and social ideology reinforce and direct teachers' educational beliefs and instructional practices (Wang, 2007) and students' behaviours in the education setting. One of the most influential cultural values that shapes students' behaviours is the virtue of filial piety, which states that parents and elders are to be highly respected. The virtue of filial piety, together with the culture's social hierarchy structure, provides teachers with significant authority and power in the classroom where students are expected to be respectful and obedient. Secondly, Confucian teaching stresses the importance of bonds

and relationships among individuals in creating social harmony (Kang & Chang, 2016). Individuals are socialized to put an in-group or the community's interest before their own. One's sense of pride and purpose is acquired from one's family or social group (Kang & Chang, 2016). In the education context, these collectivistic values reinforce students' desire to put interests of the class before their own needs to avoid conflict and maintain harmony. Finally, examination as a means to select individuals for higher education and to provide qualified workers for the society (Watkins & Biggs, 1996) is also an important cultural educational practice that is influential in teachers' approaches to education and pedagogy, as well as students' learning strategies and attitudes.

2.6.2. Teacher-Student Relationships in the Chinese Context

Under the influence of Confucianism, China practices a hierarchical social structure where superiors have complete authority and expect compliance, dedication, and loyalty from their subordinates (Watkins & Biggs, 2001). This hierarchical structure and its effect extend to the education context. In China, the occupation of an educator holds significant status and is greatly respected. In the classroom, teachers expect to have complete control over instructional methods, classroom, discipline and management (Cheung & Lau, 1985). Students are expected to be well-behaved and respectful, and never to question, challenge, or contradict their teachers (Yook & Albert, 1998).

The concept of filial piety further reinforces the authority of teachers. Parents and elders are to be respected in Chinese culture. Since the society views the teacher-student relationship as an extension of the parent-child relationship (Park & Kim, 1999), students are to respect and obey their teachers. Teachers play a tremendous role in the up-bringing of students (Park & Kim, 1999; Yao & Kierstead, 1984). They are expected to provide students the moral knowledge of what is considered acceptable behaviour in the society, and how to follow social norms and behave in socially accepted ways. Under the influence of these cultural values and expectations, students tend to be more cooperative and passive in the classroom. For instance, in Wong (2016)'s study, student participants noted in interviews that they were hesitant to express their feelings and

concerns if they were dissatisfied with their teacher or were unclear about their learning materials.

2.6.3. The Value of Collectivism in Chinese Culture

Collectivism stresses the importance of maintaining social harmony and bonds between individuals in a social group. In a collectivistic culture, conflicts between individuals are viewed as negative and are to be avoided (Chang, 2000; Chiu, 2009; Williams, Watkins, Daly, & Courtney, 2001). In the education context, this translates into conceding individual interests and learning needs to accommodate the class's interest and learning needs. In most cases, what is considered as important learning material for the class is decided by the teacher (Cheung & Lau, 1985; Watkins & Biggs, 2001). Students are accustomed to not asking many questions in class out of fear of disturbing the class's learning and progress. In Chen and Bennett's (2012) study, a student participant noted that even if questions were asked, teachers might not answer them because they feel it is more important to cover certain class material for the class at that moment. This further explains and supports Western observers' remarks that Chinese students are more passive in the classroom, ask fewer questions, and are more used to receiving information from teachers and actively seeking answers (Cortazzi & Lin, 1996; Jackson, 2002). Chinese students are also more at ease in a learning environment that is structured and controlled by their teacher (Chan & Bennett, 2012; Liu, Liu, Lee, & Magjuk, 2010)

2.6.4. Exam orientation of Chinese education

Confucius viewed education as a means to achieve self-perfection (Biggs, 1996). Learning and achievement are not attributed to an individual's innate abilities but the individual's willpower, concentration of the mind, and willingness to achieve (Biggs, 1996). Hence, every individual is seen as capable of learning and achieving. Education is also viewed as important for the development of the society. In ancient times, civil servant recruitment examinations were held to select the top and most qualified individuals for governing offices (Biggs, 1996). The assumption that everyone is capable of learning and achieving implies that everyone has a chance to be selected as part of

the governing body and enjoy the fame and wealth that comes with this social and power advancement. The importance of personal development and perfection serves as an intrinsic motivator while success, social advancement, and pride brought to the family serve as extrinsic motivation to engage in learning and achieving (Biggs, 1996). This culture of examination for selecting the most qualified and well-educated individual for social and societal development persists.

China's educational curriculum places heavy emphasis on examinations. The emphasis on examinations makes the learning environment highly competitive. Teachers and students must adapt their instructional methods and learning strategies to cope in such a competitive learning environment. Teachers focus on preparing students for examinations, resulting in text-book and exam oriented teaching, providing students with model answers in preparing them for the 'correct' exam answer, and encouraging memorization of material. Examination pressure may limit students' learning as they are socialized to follow and memorize model answers provided by teachers instead of critically evaluating what they are presented to learn (Wong, 2016). In Wong's (2016) study, a student participant noted in an interview that she would copy the teacher's model answer over the answer she came up with because she believed a teacher's answer must be better than her own.

Students consider textbook materials and assigned readings as the main focus of learning, anticipate teachers will provide learning criteria to measure their learning progress, and see examinations as a measurement of their learning performance and means for advancing social status (Chan & Bennett, 2012; Liu, Liu, Lee, & Magjuk, 2010).

2.6.5. The Chinese Achievement Paradox

Associations among supportive teacher-student relationships, learning motivation, and academic outcomes have been well documented in the Western education literature. Past research indicates a supportive teacher-student relationship is associated with higher learning motivation and positive learning outcomes (Anderman & Anderman, 1999, Conell & Wellborn, 1991; Deci & Ryan, 1985; Montalvo et al., 2007;

Phelan, Davidson, & Thanh Cao, 1992), whereas controlling teacher-student relationships and practices, such as demanding absolute obedience and submission (Chirkov & Ryan, 2001), having excessive examinations and evaluations (Reeve & Jang, 2006) and putting pressure on students (Deci & Ryan, 1987) are associated with lower learning motivation and poorer academic outcomes. However, research in the East Asian context seems to contradict these research findings from the Western educational context. Chinese classrooms are often described by Western scholars as highly authoritarian. Indeed, the degree of dominance or control of Chinese teachers was found to be higher while the degree of cooperation of teachers in China was found to be lower when compared to the results of other countries such as Singapore and Australia (den Brok et al., 2006; Wei, den Brok, & Zhou, 2009). Furthermore, the Chinese education system places heavy emphasis on examinations, which makes the learning environment highly competitive, thereby placing tremendous stress on students. Negative effects of teachers' high degree of control and amount of stress placed on students on students' learning outcomes have been well established in the Western literature. Based on findings concerning links between teacher-student relationships and students' motivation and academic outcomes found in the Western literature, it should follow that Chinese students would have lower learning motivation and poorer academic performance compared to Western students. Nonetheless, according to Trends in International Mathematics (2003) and the Program for International Student Assessment (2015), Chinese students have consistently outperformed their Western counterparts in various academic domains such as science and mathematics (Mullis, Martin, Gonzalez, & Chrostowski, 2004; Organization for Economic Cooperation and Development, 2015).

The present study explores cultural differences in the association between teacher-student relationships, students' motivation, and students' academic achievement. The research questions of interest are: 1) Do students' perceptions of their relationships with teachers differ across cultures? 2) Do students' levels of intrinsic and extrinsic motivation differ across cultures? 3) Are teacher-student relationships related to students' levels of intrinsic and extrinsic motivation within cultures? 4) Are teacher-student relationships related to students' academic achievement within cultures? 5) Are intrinsic and extrinsic motivation related to academic achievement within cultures? 6) Does culture moderate the association between a) teacher-student relationships and

achievement and b) motivation and achievement? 7) Does culture moderate the relationship between teacher-student relationships and students' motivation?

Chapter 3.

Methods

3.1. Participants

Participants were grade 5 and 6 public elementary school children and their classroom teachers from Hong Kong, China, and Greater Vancouver, Canada. A convenience sample was obtained – participants voluntarily participated based on their availability and interest.

Hong Kong Participants

Students. Three hundred and forty students attending one of seven public elementary schools in Hong Kong volunteered to participate in the current study. Participants with incomplete responses were excluded from analyses leaving a total of 207 (113 male; 94 female) Hong Kong student participants. Students from the Hong Kong sample had a mean age of 10 years (*SD* = 0.65). One hundred eighty-six (89.9%) of the Hong Kong students were fifth graders, and 21 (10.1%) were sixth graders. The students had a mean of 8 years (*SD* = 1.36) of education in Hong Kong. In terms of their ethnicity, 196 (94.7%) were Chinese, 4 (1.9%) were Southeast Asians, 4 (1.9%) were South Asian, 1 (0.5%) was Filipino, and 3 (1.4%) were other ethnicities. Six (2.9%) of the students reported having a learning or developmental disability and were included in the study. As concerns primary language spoken at home, 179 (86.5%) listed Cantonese as their first language, 4 (1.9%) listed Mandarin as their first language, 12 (5.8%) listed another Chinese dialect as their first language, 4 listed Urdu (1.9%) as their first language, 1 (.5%) listed English as their first language, 1 (.5%) listed both English and Cantonese as their first language, 1 (.5%) listed Pashto as their first language, 1 (.5%) listed Pakistani as their first language, and 4 (1.9%) did not respond to this question.

Teachers. A total of 23 classroom teachers (7 male; 16 female) in Hong Kong participated in the current study. Their mean age was 32 years (*SD* = 16.5) and they had a mean of 15.5 years (*SD* = 9.8) of teaching experience. In terms of ethnicity, all teachers were Chinese. Twenty-two (95.7%) teachers listed Cantonese as their first language while 1 (4.3%) listed a Chinese dialect as their first language. In terms of education, 7 (30.4%) teachers had a master's degree, 12 (52.2%) had a bachelor degree, and 4 (17.3%) had a college degree.

Vancouver Participants

Students. One hundred and fourteen students enrolled in one of 15 public elementary schools in Greater Vancouver participated in the current study. Participants with incomplete responses were excluded from the analyses leaving a total of 102 (52 male; 50 female) Canadian student participants. The mean age of the Vancouver sample was 10.5 years (*SD* = 0.67). Seventy-eight (76.5%) of the students were fifth graders, and 24 (23.5%) were sixth graders. The students had a mean of 6 (*SD* = 1.5) years of education in Vancouver. In terms of ethnicity, 35 (34.3%) were White/European, 2 (2%) were Latin American, 2 (2%) were African, 7 (6.9%) were Southeast Asians, 6 (5.9%) were South Asian, 2 (2%) were Filipino, 3 (2.9%) were Korean, 27 (26.5%) were Chinese, and 18 (17.3%) were other ethnicities. Four (3.9%) of the students reported having a learning or developmental disability.

Teachers. A total of 20 classroom teachers (8 male; 12 female) in Greater Vancouver participated in the current study. Their mean age was 42 years (*SD* = 9.9) and they had a mean of 14 years (*SD* = 8.4) of teaching experience. In terms of ethnicity, 18 (90%) were White/European, 1 (5%) was Chinese, and 1 (5%) was other ethnicity. Seventeen (85%) listed English as their first language, 1 (5%) listed Italian as their first language, 1 (5%) listed Croatian as their first language, and 1 (5%) listed Greek as their first language. In terms of education, 6 (30%) teachers had a master's degree, 10 (50%) had completed some graduate school, and 4 (20%) had a bachelor degree.

3.2. Measures and Instruments

Student learning motivation. In the present study, a version of the *Motivated Strategies for Learning Questionnaire* (MSLQ: Pintrich, Smith, Garcia, & McKeachie, 1991, 1993) was used to measure students' self-reported learning motivation. The MSLQ was developed with the assumption that students' motivation and learning strategies are dynamic and are affected by the learning context (Duncan & McKeachie, 2005), making it well suited to the goals of the current study. The development of the MSLQ began in 1986 and since then several versions have been published. The full, 15-factor, 81-item, version intended for college students was published by Pintrich, Smith, Garcia, and McKeachie (1993). Later, a shorter, 5-factor, 44-item, version intended for junior high school students was developed (JHS MSLQ: Pintrich & DeGroot, 1990; Pintrich, Roeser, & De Groot, 1994). A number of researchers adopted this version for use with elementary school students as well. It includes three scales describing motivation: intrinsic value, self-efficacy, and test anxiety; and two scales for learning strategies: self-regulation and learning strategy. The MSLQ has been translated into multiple languages and found to be reliable in numerous countries including Greece, Hong Kong, Israel, Australia, Germany, Finland, Norway, and Iran (e.g., Andreou & Metallidou, 2004; Eshel & Kohavi, 2003; McKenzie & Gow, 2004; Rao & Saches, 1999; Neber & Heller, 2002; Niemi, Negi, & Virtanen, 2003; Ommundsen, 2003; Ostovar & Khayyer, 2004).

A Chinese version of the JHS MSLQ(MSLQ-CV) was developed by Rao and Saches (1999). In the MSLQ-CV, two factors from the original JHS MSLQ, self-regulation and strategy use, were combined into one factor. The 4 factor, 44 item, MSLQ-CV was shown to have good psychometric properties (Rao & Sachs, 1999). Lee, Zhang, and Ying (2010) developed a revised version of the MSLQ-CV (MSLQ-RCV). In this version, all items of the MSLQ-CV were retained. In addition, items comprising two factors, extrinsic value and peer learning, were added. The MSLQ-RCV consists of 55 items that load on 6 factors: self-efficacy, intrinsic value, extrinsic value, test anxiety, strategy use, and peer learning. All items are responded to on a 5-point Likert scale ranging from 1 (not at all true of me) to 5 (very true of me). The MSLQ-RCV has been deemed to be reliable and appropriate to be used in Hong Kong (Lee, Yin, & Zhang,

2010). In the current study the MSLQ-RCV as validated by Lee, Yin, & Zhang (2010) was used in both the Hong Kong and Vancouver sample. The scale for peer learning, was not used due to its lack of relevancy to the focus of this study. Language used in some items was simplified to accommodate the reading level of fifth and sixth grade students. Items not applicable to elementary students were also removed from the questionnaire. Information on the number of items and internal consistency for each subscale in each of Hong Kong and Vancouver can be found in Table 3.1.

Table 3.1. Cronbach's alphas of the MSLQ-RCV subscales in Hong Kong and Vancouver.

MSLQ-RCV Subscale	Number of items	Hong Kong n = 207 α	Vancouver n = 102 α
Self-Efficacy	9	0.864	0.906
Intrinsic Value	9	0.794	0.818
Extrinsic Value	4	0.703	0.719
Test Anxiety	4	0.743	0.772
Self-Regulation and Learning Strategy	10	0.858	0.819

Teacher-student interpersonal relationship. The *Questionnaire on Teacher Interaction* (QTI; Wubbles, Brekelmans, & Hooymayers, 1991) was used to measure students' perceptions of teacher-student interpersonal relationships. This questionnaire is based on the Model of Interpersonal Teacher Behaviour (MITB) framework (Wubbels & Brekelmans, 2005) in which teacher-student interpersonal behaviour is presented in a two-dimensional co-ordinate system. The two dimensions are proximity [i.e., Cooperation (C) – Opposition (O)], and influence [i.e., Dominance (D) – Submission (S)] (See Figure A1 in Appendix A). Proximity refers to the degree of a teacher's closeness, friendly, and co-operative behaviour, whereas influence refers to the degree of a teacher's control and dominance behaviour. The model consists of eight sectors with each sector consisting of two behavioural dimensions. Each sector is defined by a high degree of the first behaviour and a low degree of the second behaviour. For example, the DC sector indicates behaviours that are characterised by high dominance and low cooperativeness. The eight sectors of the MITB are: Leadership (DC), Helpful/Friendly (CD), Understanding (CS), Student Freedom (SC), Uncertain (SO), Dissatisfied (OS),

Admonishing (OD), and Strict (DO) (see Figure A2 in Appendix A). The QTI has been translated into more than 20 languages and used in multiple countries including Singapore, Brunei, the United States, the Netherlands, Slovakia and Australia (den Brok, Fisher, Brekelmans, Rickards, Wubbles, Levy, & Waldrip, 2003). The 48-item Australian version of the QTI (Wubbels & Levy, 1993) was used in this study as it is also available in Chinese (C-QTI: Sivan & Chan, 2013), and has been used in the Hong Kong context. The QTI and C-QTI consist of 8 subscales, each containing 6 items. Information on the internal consistency for each subscale in the Hong Kong and Vancouver samples can be found in Table 3.2.

Table 3.2. QTI reliability: Cronbach's alphas of the QTI subscales in Hong Kong and Vancouver.

QTI Subscale	Number of items	Hong Kong n = 207 α	Vancouver n = 102 α
Leadership	6	0.806	0.735
Helpful/ Friendly	6	0.800	0.773
Understanding	6	0.780	0.752
Student Freedom/ Responsibility	6	0.636	0.645
Uncertain	6	0.639	0.639
Dissatisfied	6	0.841	0.788
Admonishing	6	0.710	0.706
Strict	6	0.742	0.633

Academic Performance. Academic performance in the present study was measured by teacher judgments on a qualitative scale (i.e., excellent, very good, good, average, below average, poor, very poor. This method was selected to avoid differences in the meaning of letter grades in different cultural contexts and individual schools (See Appendix B for questionnaire).

3.3. Procedure

After ethics approval was received from Simon Fraser University, the Burnaby, Vancouver, and Coquitlam School Districts were contacted for district approvals. Once district approvals were received from the Burnaby, Vancouver, and Coquitlam School

Distracts, school principals were contacted to discuss their interest in participation. With permission from the principal, teachers received an invitation letter that contained information on the purpose, procedure, and importance of the current research. Teachers were given the option to have their students complete the questionnaires online on their own time or during class time. Teachers who opted for their students to complete the questionnaires online were provided information letters to send home. The letter of information invited students to participate in the study and provided information about the purpose of the study. Families that agreed to participate in the study visited a web-link provided in the letter of information. The web-link took the participants to a SFU webpage that, again, described the purpose and importance of the study. Parents were asked to explain the study to their child. A parental consent form then followed. Participants were only eligible to participate in the study with parental consent. Once parents indicated consent, a demographic questionnaire was presented for parents to complete. After completing both the child and parents' demographic information, the survey then led to a page that asked the parents to let their child take over. A child assent form that explained in age appropriate language the nature and purpose of the study, confidentiality, and the right to withdraw then followed (See Appendix C for child assent form). Children were required to indicate they had read the assent form before the survey continued. The entire online questionnaire contained 84 items and took approximately 20 to 30 minutes to complete.

If the teacher chose to have students complete the questionnaires during class time, the letter of information for parents, consent form, and demographic questionnaire were placed in an envelope for students to take home to their parents. Parents who agreed to participate with their child were asked to sign the consent from, fill out the demographic questionnaire, enclose them in the envelope provided, and return the sealed envelope to the teacher. Once teachers received all consent forms and demographic questionnaires from participating students, the principal investigator was informed. All parental consent forms and demographic questionnaires were collected from the teachers in person. A date was arranged for students who had permission and were willing to participate to complete the questionnaires during class time.

On the day of study participation, participating students were brought into another room arranged by the teacher where the principal investigator administered the research questionnaires.

Students were informed that the purpose of the questionnaires was to help the researcher understand students' relationship with their teacher and their feelings about learning. To encourage participants' truthful answers, it was emphasized that their responses were confidential, would only be used for research purposes, and would not affect their school grades. Students were also told there were no right or wrong answers to the questions and that their honesty was of great importance in the study. Participants were asked to indicate their assent before starting the questionnaire. All student questionnaires were collected by the principal investigator immediately upon completion.

Teachers also had the option of completing their set of questionnaires online or in hard copy. Those who chose to complete a hard copy version were given the research materials in an envelope that included a consent form, demographic questionnaire, teacher-student relationship questionnaire, and students' academic achievement questionnaire. The teachers were asked to enclose their completed consent and questionnaires in the envelope provided. The principal investigator then picked up the sealed envelope in person. Over all, six teachers in Vancouver choose for their student to complete the student questionnaires online at home, two teachers choose for their students to complete their questionnaires online in a computer lab during class time, and twelve teachers choose for their students to complete a hard copy of the questionnaire during class time.

The recruitment procedure in Hong Kong was the same as in Vancouver with the exception that school district approvals were not required in Hong Kong. Principals were contacted to discuss their interest in participation. As in Vancouver, with permission from the principal, teachers received an invitation letter that contained information on the purpose, procedure, and importance of the current research. Teachers were given the option to have their students complete the questionnaires online at home or during class time and to complete their own questionnaires either online or in hard copy. All contents of the research package, including the letter of research invitation, consent form, assent

form, demographic questionnaire and all the research questionnaires, were translated into Chinese for Hong Kong participants. Over all, thirteen teachers in Hong Kong choose for their student to complete the student questionnaires online at home, and ten teachers choose for their students to complete their questionnaires online in a computer lab during class time.

Chapter 4.

Results

Research Question 1: Do students' perceptions of their relationships with teachers differ across cultural contexts?

To assess cultural differences in students' perceptions of teacher-student relationships, a multivariate analysis of variance (MANOVA) was computed (see Table 4.1). The dependent variables were all subscales of the QTI, including leadership, helpful/friendly, understanding, student freedom and responsibility, uncertain, dissatisfied, admonishing, and strict. The independent variable was culture (i.e., Hong Kong and Vancouver). This analysis revealed a significant multivariate main effect for culture (Wilk's lambda = 0.71, $F(8, 297) = 14.93$, $p < .001$ partial eta squared = 0.29). Univariate tests revealed statistically detectable effects of culture on perceptions of teacher-student relationships as concerns: helpful/friendly ($F(1, 304) = 28.22$, $p < .001$), uncertain ($F(1, 304) = 5.93$, $p = .02$), dissatisfied ($F(1, 304) = 6.40$, $p = .01$); admonishing ($F(1, 304) = 21.01$, $p < .001$); and strict ($F(1, 304) = 7.68$, $p = .01$). Non-detectable effects were found for leadership ($F(1, 304) = 3.68$, $p = .06$); understanding ($F(1, 304) = .178$, $p = .67$); and student freedom and responsibility ($F(1, 304) = 1.54$, $p = .22$). Vancouver students perceived their teachers to be more helpful and friendly than Hong Kong students. Hong Kong students perceived their teachers to be more uncertain, dissatisfied, admonishing, and strict than did Vancouver students.

Table 4.1. Culture differences in student perceptions of teacher-student relationships.

QTI Subscale	*F*	*p*	Culture	*M*	*SD*
Leadership	3.68	.06	Vancouver (n = 102) Hong Kong (n = 204)	18.37 19.30	3.61 4.16
Helpful Friendly	28.22	.000	Vancouver (n = 102) Hong Kong (n = 204)	19.24 16.27	3.83 4.94
Understanding	.18	.67	Vancouver (n = 102) Hong Kong (n = 204)	17.89 18.11	4.01 4.02
Student Freedom and responsibility	1.54	.22	Vancouver (n = 102) Hong Kong (n = 204)	10.71 10.15	3.38 3.88
Uncertain	5.93	.02	Vancouver (n = 102) Hong Kong (n = 204)	4.45 5.56	3.24 3.98
Dissatisfied	6.40	.01	Vancouver (n = 102) Hong Kong (n = 204)	4.25 5.64	3.79 4.82
Admonishing	21.08	.000	Vancouver (n = 102) Hong Kong (n = 204)	6.01 8.33	4.05 4.22
Strict	7.68	.01	Vancouver (n = 102) Hong Kong (= 204)	9.72 11.18	3.57 4.71

Note. QTI = Questionnaire on Teacher Interaction.

Research Question 2: Do students' levels of intrinsic and extrinsic motivation differ across cultural contexts?

To assess cultural differences in students' intrinsic and extrinsic motivation, a MANCOVA was computed (see Table 4.2). The dependent variables were the intrinsic and extrinsic motivation scales from the MLSQ-RCV. The independent variable was culture (i.e., Hong Kong and Vancouver). Self-efficacy and test anxiety from the MSLQ-RCV scales were entered as covariates. The multivariate main effect for the covariates self-efficacy and test anxiety were statistically detectable. The multivariate main effect for culture was not statistically detectable.

Table 4.2. Multivariate effect for culture with self-efficacy and test anxiety as covariates.

Effect	Wilk's lambda	F	Hypothesis df	Error df	*p*	*Partial Eta Squared*
Culture	.996	.63	2	301	.53	.00
Self-Efficacy	.504	148.00	2	301	.000	.50
Test Anxiety	.966	5.25	2	301	.01	.03

Table 4.3. A comparison of means between culture on intrinsic and extrinsic motivation.

Variable	*F*	*p*	Culture	*M*	*SD*
Intrinsic Motivation	3.91	.05	Vancouver (n = 102)	43.32	6.47
			Hong Kong (n = 204)	41.69	6.98
Extrinsic Motivation	2.57	.11	Vancouver (n = 102)	20.45	3.49
			Hong Kong (n = 204)	19.74	3.78

Research Question 3: Are teacher-student relationships related to students' levels of intrinsic and extrinsic motivation within cultures?

Within each culture, correlations were computed among the teacher-student relationship and motivation variables. Using Fisher's r-to-z transformation, differences in these associations between cultures were tested (see Table 4.4).

Vancouver. As seen in Table 4.4, within the Vancouver sample, students' intrinsic motivation was statistically significantly and positively correlated with their perceptions of teacher's leadership, helpful and friendliness, and understanding, and significantly and negatively correlated with perceived teacher dissatisfaction. Students' intrinsic motivation was not statistically significantly correlated with student freedom and responsibility, or teacher's uncertainty, admonishing behaviours, and strictness. Students' extrinsic motivation was not statistically significantly correlated with any teacher-student relationship subscale.

Hong Kong. As seen in Table 4.4, within the Hong Kong sample, students' intrinsic motivation was statistically significantly and positively correlated with their perceptions of teacher's leadership, helpful and friendliness, understanding, and student

freedom and responsibility, and negatively correlated with teacher's perceived dissatisfaction. Students' intrinsic motivation was not statistically significantly correlated with teacher's uncertainty, admonishing behaviours, or strictness. Students' extrinsic motivation in Hong Kong was significantly and positively correlated with teacher's leadership, helpful and friendliness, understanding, and student freedom and responsibility. Students' extrinsic motivation was not statistically significantly correlated with teacher's uncertainty, dissatisfaction, admonishing behaviours, or strictness.

Statistically detectable differences in the magnitude of corresponding correlations in the Vancouver and Hong Kong samples were found for the following scales: extrinsic motivation and teacher leadership (p = .04); extrinsic motivation and teacher understanding (p = .05); and extrinsic motivation and student freedom and responsibility (p = .03). In all cases correlations were statistically significantly stronger in the Hong Kong sample than the Vancouver sample.

Research Question 4: Are teacher-student relationships related to students' academic achievement within cultures?

Prior to examining the correlation between teacher-student relationship and academic achievement within each culture, differences in academic achievement between cultures were examined. An independent samples t-test revealed a non-significant difference between the Hong Kong sample (M = 5.27, SD = 1.30) and the Vancouver sample (M = 5.40, SD = 1.28) on teachers' ratings of academic achievement.

Within each culture, correlations were computed between the teacher-student relationship variables and academic achievement. Using Fisher's r-to-z transformation, differences in these associations between cultures were tested (see Table 4.3).

Vancouver. As seen in Table 4.3, within the Vancouver sample, students' academic achievement was statistically significantly and positively correlated with students' perceptions of teacher's leadership, helpful and friendliness, and understanding. Students' academic achievement was not statistically significantly correlated with student freedom and responsibility, and teacher's uncertainty, dissatisfaction, admonishing behaviours, and strictness.

Hong Kong. As seen in Table 4.3, within the Hong Kong sample, students' academic achievement was statistically significantly and positively correlated with students' perceptions of teacher's helpful and friendliness, and negatively correlated with teacher's uncertainty. Students' academic achievement was not statistically significantly correlated with student freedom and responsibility and teachers' leadership, understanding, dissatisfaction, admonishing behaviours, and strictness.

Despite apparent cultural differences in the magnitude of association between students' academic achievement and teachers' leadership, understanding and uncertainty (i.e., in one culture the correlations were statistically significant and in the other they were not), tests of the differences between these correlations across cultures yielded statistically non-significant results.

Table 4.4. Pearson correlations between teacher-student relationship variables and intrinsic motivation, extrinsic motivation, and academic achievement.

QTI Subscale	Culture	Intrinsic Motivation	Extrinsic Motivation	Academic Achievement
Leadership	Vancouver (n = 102)	.41**	.13	.24*
	Hong Kong (n = 207)	.39**	.36**	.13
	Significance of difference (2-tailed p)	.85	.04	.35
Helpful Friendly	Vancouver (n = 102)	.41**	.13	.21*
	Hong Kong (n = 207)	.32**	.26**	.16*
	Significance of difference (2-tailed p)	.40	.27	.67
Understanding	Vancouver (n = 102)	.51**	.15	.26**
	Hong Kong (n = 207)	.43**	.37**	.13
	Significance of difference (2-tailed p)	.40	.05	.27
Student Freedom and Responsibility	Vancouver (n = 102)	.18	-.06	-.06
	Hong Kong (n = 207)	.27**	.20**	.08
	Significance of difference (2-tailed p)	.44	.03	.25
Uncertain	Vancouver (n = 102)	-.05	-.05	-.07
	Hong Kong (n = 207)	.02	.04	-.19**
	Significance of difference (2-tailed p)	.57	.46	.32
Dissatisfied	Vancouver (n = 102)	-.27**	.00	-.04
	Hong Kong (n = 207)	-.18**	-.11	-.07
	Significance of difference (2-tailed p)	.44	.37	.80
Admonishing	Vancouver (n = 102)	-.13	-.09	-.03
	Hong Kong (n = 207)	-.10	.06	.01
	Significance of difference (2-tailed p)	.80	.22	.74
Strict	Vancouver (n = 102)	-.11	.01	.01
	Hong Kong (n = 207)	.07	.10	.02
	Significance of difference (2-tailed p)	.14	.46	.94

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).
Note. QTI = Questionnaire on Teacher Interaction.

Research Question 5: Are intrinsic and extrinsic motivation related to achievement within cultures?

Within each culture, correlations were computed between the motivation variables and academic achievement. Using Fisher's r-to-z transformation, differences in these associations between cultures were tested (see Table 4.5).

Vancouver. As seen in Table 4.5, within the Vancouver sample, students' academic achievement was statistically significantly and positively correlated with student's intrinsic motivation. However, students' academic achievement was not statistically significantly correlated with students' extrinsic motivation.

Hong Kong. As seen in Table 4.5, within the Hong Kong sample, students' academic achievement was statistically significantly and positively correlated with students' intrinsic motivation. However, students' academic achievement was not statistically significantly correlated with students' extrinsic motivation.

The difference in correlation coefficients for intrinsic motivation and academic achievement between Vancouver and Hong Kong yielded statistically non-significant results.

Table 4.5. Pearson correlation between intrinsic motivation and academic achievement and extrinsic motivation and academic achievement.

	Culture	Academic Achievement
Intrinsic Motivation	Vancouver (n = 102)	.39**
	Hong Kong (n = 207)	.19**
	Significance of difference (2-tailed p)	.07
Extrinsic Motivation	Vancouver (n = 102)	-.06
	Hong Kong (n = 207)	.12
	Significance of difference (2-tailed p)	.14

**. Correlation is significant at the 0.01 level (2-tailed).

Research Question 6: Does culture moderate the association between a) teacher-student relationships and academic achievement, and b) motivation and academic achievement?

Moderated multiple regressions (MMR) were used to determine whether the relationships between a) teacher-student relationship and achievement, and b) motivation and achievement, depended on and are moderated by culture. Prior to conducting these analyses, the data were checked to determine if they met the eight assumptions of MMR (Assumption #1: dependent variables should be measured on a

continuous scale; Assumption #2: should contain one independent variable that is continuous, and one moderator variable that is dichotomous; Assumption #3: should have independence of observations (i.e., independence of residuals); Assumption #4: there needs to be a linear relationship between the dependent variable and the independent variable for each group of the dichotomous moderator variable; Assumption #5: data needs to show homoscedasticity; Assumption #6: data must not show multicollinearity; Assumption #7: there should be no significant outliers, high leverage points, or highly influential points; Assumption #8: residuals (errors) should be approximately normally distributed).

Culture was recoded as a dummy variable with Hong Kong as 0 and Vancouver as 1. Furthermore, the teacher-student relationship variables were reduced into two scores by summing the positive teacher-student relationship subscales (leadership, helpful and friendliness, understanding, and student freedom and responsibility) to create Teacher-student relationship positive (TSR_Pos) and summing the negative teacher-student relationship subscales (uncertain, dissatisfied, admonishing, and strict) to create Teacher student relationship negative (TSR_Neg). This was justified on the basis of statistically significant correlations among the four positive subscales (leadership, helpful and friendliness, understanding, and student freedom and responsibility) and, separately, among the four negative subscales (uncertain, dissatisfied, admonishing, and strict) in both the Vancouver and Hong Kong samples (see Tables 4.6 and 4.7) as well as acceptable alpha coefficients for the composite scores (see Table 4.8). All predictors were centered prior to computing each interaction term.

Table 4.6. Pearson correlations among positive teacher-student relationship subscales (Hong Kong above diagonal, Vancouver below diagonal).

QTI Subscale	Leadership	Helpful / Friendly	Understanding	Student Freedom and Responsibility
Leadership	1	.72**	.81**	.38**
Helpful / Friendly	.66**	1	.71**	.64**
Understanding	.70**	.67**	1	.48**
Student Freedom and Responsibility	.25*	.36**	36**	1

** Correlation is significant at the 0.01 level (2-tailed).
Note. QTI = Questionnaire on Teacher Interaction.

Table 4.7. Pearson correlations among negative teacher-student relationship subscales (Hong Kong above diagonal, Vancouver below diagonal).

QTI Subscale	Uncertain	Dissatisfied	Admonishing	Strict
Uncertain	1	.53**	.46**	.30**
Dissatisfied	.39**	1	.67**	.54**
Admonishing	.40**	.63**	1	.56**
Strict	.14	.68**	.67**	1

** Correlation is significant at the 0.01 level (2-tailed).
Note. QTI = Questionnaire on Teacher Interaction.

Table 4.8. QTI reliability: Cronbach's alphas of the positive and negative subscales in Hong Kong and Vancouver.

QTI Subscale	Hong Kong (n = 207)	Vancouver (n = 102)
	α	α
Positive subscales (4 items)	0.87	0.81
Negative subscales (4 items)	0.81 (n = 204)	0.80

Note. QTI = Questionnaire on Teacher Interaction.

Teacher-Student Relationships and Academic Achievement.

Using MMR, culture (i.e., Hong Kong vs. Vancouver) was examined as a moderator of the relation between teacher-student relationships and academic achievement. Academic achievement was the outcome variable. Positive teacher-student relationship and a dummy variable representing culture were entered in the first step of the regression analysis as main effects. In the second step of the regression

analysis, the interaction term between positive teacher-student relationship and culture was entered to represent a moderated relation between culture and academic achievement. Results (see Table 4.9) revealed the full model 1 (F = 4.60, p =.01) including only main effects and the full model 2 (F = 3.28, p = .02) that added the moderator effect (interaction) accounted for statistically detectable proportions of variance in academic achievement. In model 1 positive teacher-student relationship was a statistically detectable predictor but culture was not. In model 2, the increment to R^2 associated with the moderator effect was not statistically detectable ($R^2\Delta$ = 0.2%, $F\Delta$ = .65, p = .42). Only positive teacher-student relationship was a statistically detectable predictor.

Table 4.9. Moderator analysis: Hong Kong, positive teacher-student relationship, academic achievement.

	Model					Predictors			
	R^2	R^2 *adj*	*F*	*p*	*Predictors*	*b*	β	*t*	*p*
1	.029	.023	4.599	.011	*Positive TSR*	.015	.165	2.911	.004
					Hong Kong	.094	.034	.604	.546
2	.031	.022	3.280	.021	Positive TSR	.013	.139	2.152	.032
					Hong Kong	.083	.030	.533	.595
					Hong Kong x Positive TSR	.010	.052	.807	.421

Predictors: Hong Kong, Positive TSR, Hong Kong x Positive TSR
Output Variable: Academic Achievement

Next, keeping academic achievement as the outcome variable, negative teacher-student relationship and culture were entered as a first model. In model 2, the interaction term between negative teacher-student relationship and culture was entered to represent the moderated relationship between culture and academic achievement. Results (see Table 4.10) revealed neither model 1 (F = .84, p = .43) nor model 2 (F = .56, p = .64) accounted for a statistically detectable proportion of variance in academic achievement. None of the predictors were statistically detectable in either model.

Table 4.10. Moderator analysis: Hong Kong, negative teacher-student relationship, academic achievement.

	Model				Predictors				
	R^2	R^2 *adj*	*F*	*p*	*Predictors*	*b*	β	t	p
1	.006	-.001	.839	.433	*Negative TSR*	-.006	-.059	-1.006	.315
					Hong Kong	.093	.034	.578	.564
2	.006	-.004	.563	.640	Negative TSR	-.006	-.063	-.935	.351
					Hong Kong	.097	.035	.591	.555
					Hong Kong x Negative TSR	.002	.009	.130	.897

Predictors: Hong Kong, Negative TSR, Hong Kong x Negative TSR
Output Variable: Academic Achievement

Motivation and Academic Achievement.

Using MMR, culture (i.e., Hong Kong and Vancouver) was also examined as a moderator of the relation between motivation (i.e., intrinsic motivation, extrinsic motivation) and academic achievement. Academic achievement was the outcome variable. Intrinsic motivation and a dummy variable representing culture were entered in a first regression model as main effects. In model 2, the interaction term between intrinsic motivation and culture was entered to represent the moderated effect. Results (see Table 4.11) revealed the full model 1 (F = 10.39, p < 0.001) including only main effects and the full model 2 (F = 8.05, p < 0.001) that added the moderator effect (interaction) both accounted for statistically detectable proportions of variance in academic achievement. In model 1, intrinsic motivation was a statistically detectable predictor, but culture was not. In model 2, the increment to R^2 associated with the moderator term was not statistically detectable ($R^2\Delta$ = 1.0%, $F\Delta$ = 3.20, p = .07). Intrinsic motivation remained a statistically detectable predictor but neither culture nor the interaction of culture with intrinsic motivation were statistically detectable predictors.

Table 4.11. Moderator analysis: Hong Kong, intrinsic motivation, academic achievement.

	Model				Predictors				
	R^2	R^2 *adj*	*F*	*p*	*Predictors*	*b*	β	*t*	*p*
1	.064	.057	10.394	.000	Intrinsic Motivation	.047	.249	4.476	.000
					Hong Kong	.055	.020	.362	.718
2	.073	.064	8.047	.000	Intrinsic Motivation	.035	.185	2.793	.006
					Hong Kong	.030	.011	.199	.842
					Hong Kong x Intrinsic Motivation	.041	.119	1.790	.074

Predictors: Hong Kong, Intrinsic Motivation, Hong Kong x Intrinsic Motivation
Output Variable: Academic Achievement

Next, keeping academic achievement as the outcome variable, extrinsic motivation and culture were entered in a first regression model. In the second model the interaction term between extrinsic motivation and culture was entered. Results (see Table 4.12) revealed neither model 1 (F = .96, p = .38) nor model 2 (F = 1.33, p = .26) accounted for a statistically detectable proportion of variance in academic achievement. None of the predictors were statistically detectable in either model.

Table 4.12. Moderator analysis: Hong Kong, extrinsic motivation, academic achievement.

	Model				Predictors				
	R^2	R^2 *adj*	*F*	*p*	*Predictors*	*b*	β	*t*	*p*
1	.006	.000	.964	.382	Extrinsic Motivation	.022	.063	1.106	.270
					Hong Kong	.115	.042	.733	.464
2	.013	.003	1.334	.263	Extrinsic Motivation	.041	.116	1.710	.088
					Hong Kong	.132	.048	.842	.400
					Hong Kong x Intrinsic Motivation	-.063	-.098	-1.437	.152

Predictors: Hong Kong, Extrinsic Motivation, Hong Kong x Extrinsic Motivation
Output Variable: Academic Achievement

Research Question 7: Does culture moderate the relationship between teacher-student relationships and student motivation?

Teacher-Student Relationships and Intrinsic Motivation.

Using the MMR, culture (i.e., Hong Kong vs. Vancouver) was examined as a moderator of the relation between teacher-student relationship and intrinsic motivation. Intrinsic motivation was the outcome variable. Positive teacher-student relationship and a dummy variable representing culture were entered in a first regression model as main effects. In the second model, the interaction term between positive teacher-student relationship and culture was entered. Results (see Table 4.13) revealed the full model 1(F = 37.93, p<.001) including only main effects and the full model 2 (F = 25.76, p<.001) that added the moderator effect (interaction) accounted for statistically detectable proportions of variance in intrinsic motivation. In model 1, positive teacher-student relationship was a statistically detectable predictor but culture was not. In model 2, the increment to R^2 associated with the moderator effect was not statistically detectable ($R^2\Delta$ = 0.4%, $F\Delta$ = 1.34, p = .25). Positive teacher-student relationship remained a statistically detectable predictor but neither culture nor the interaction of culture with positive teacher-student relationship were statistically detectable predictors.

Table 4.13. Moderator analysis: Hong Kong, positive teacher-student relationship, intrinsic motivation.

	Model				Predictors				
	R^2	R^2 *adj*	*F*	*p*	*Predictors*	*b*	β	*t*	*p*
1	.199	.193	37.931	.000	Positive TSR	.212	.433	8.433	.000
					Hong Kong	1.093	.075	1.465	.144
2	.202	.194	25.762	.000	Positive TSR	.196	.400	6.815	.000
					Hong Kong	1.019	.070	1.361	.174
					Hong Kong x Positive TSR	.068	.068	1.158	.248

Predictors: Hong Kong, Positive TSR, Hong Kong x Positive TSR
Outcome Variable: Intrinsic Motivation

Next, keeping intrinsic motivation as the outcome variable, negative teacher-student relationship and culture were entered in the first step of a regression analysis. In the second step the interaction term between negative teacher-student relationship and culture was entered. Results (see Table 4.14) revealed model 1 (F = 3.34, p = .04) accounted for a statistically detectable proportion of variance in intrinsic motivation but the full model 2 (F = 2.57, p = .06) did not. In model 1, neither negative teacher-student relationships nor culture was a statistically detectable predictor. In model 2, the increment to R^2 associated with model 2 was not statistically detectable ($R^2\Delta$ = 0.3%, $F\Delta$ = 1.03, p = .31) and none of negative teacher-student relationship, culture, or the interaction of culture with negative teacher-student relationship) were statistically detectable.

Table 4.14. Moderator analysis: Hong Kong, negative teacher-student relationship, intrinsic motivation.

	Model					Predictors			
	R^2	R^2 *adj*	F	p	*Predictors*	b	β	t	p
1	.022	.015	3.336	.037	Negative TSR	-.048	-.096	-1.656	.099
					Hong Kong	1.329	.092	1.576	.116
2	.025	.015	2.568	.055	Negative TSR	-.031	-.062	-.926	.355
					Hong Kong	1.151	.079	1.336	.183
					Hong Kong x Negative TSR	-.068	-.070	-1.016	.311

Predictors: Hong Kong, Negative TSR, Hong Kong x Negative TSR
Outcome Variable: Intrinsic Motivation

Teacher-Student Relationships and Extrinsic Motivation.

Using MMR, culture (i.e., Hong Kong and Vancouver) was also examined as a moderator of the relation between teacher-student relationship and extrinsic motivation. Extrinsic motivation was the output variable. Positive teacher-student relationship and culture were entered in the first regression model as main effects. In the second regression model, the interaction term involving positive teacher-student relationship and culture was entered. Results (see Table 4.15) revealed the full model 1 (F = 15.08, p < .001) including only main effects and the full model 2 (F = 10.97, p < .001) that added

the moderator effect (interaction) accounted for statistically detectable proportions of variance in extrinsic motivation. In model 1, positive teacher-student relationship was a statistically detectable predictor but culture was not. In model 2, the increment to R^2 associated with the moderator effect was not statistically detectable ($R^2\Delta$ = 0.8%, $F\Delta$ = 2.60, p = .11). Positive teacher-student relationship remained a statistically detectable predictor but neither culture nor the interaction of culture with positive teacher-student relationship was statistically detectable.

Table 4.15. Moderator analysis: Hong Kong, positive teacher-student relationship, extrinsic motivation.

	Model				Predictors				
	R^2	R^2 *adj*	*F*	*p*	*Predictors*	*b*	β	*t*	*p*
1	.090	.084	15.083	.000	Positive TSR	.076	.286	5.217	.000
					Hong Kong	.548	.070	1.275	.203
2	.097	.089	10.974	.000	Positive TSR	.089	.334	5.356	.000
					Hong Kong	.608	.077	1.411	.159
					Hong Kong x Positive TSR	-.055	-.101	-1.612	.108

Predictors: Hong Kong, Positive TSR, Hong Kong x Positive TSR
Dependent Variable: Extrinsic Motivation

Next, keeping extrinsic motivation as the output variable, negative teacher-student relationship and culture were entered in a first regression model. In the second model, the interaction term between negative teacher-student relationship and culture was entered. Results (see Table 4.16) revealed neither model 1 (F = 1.29, p = .28) nor model 2 (F = 94, p = .42) accounted for a statistically detectable proportion of variance in extrinsic motivation. In both models, none of the predictors were statistically detectable.

Table 4.16. Moderator analysis: Hong Kong, negative teacher-student relationship, extrinsic motivation.

	Model				Predictors				
	R^2	R^2 *adj*	*F*	*p*	*Predictors*	*b*	β	*t*	*p*
1	.008	.002	1.285	.278	Negative TSR	.002	.007	.112	.911
					Hong Kong	.727	.093	1.585	.114
2	.009	-.001	.938	.422	Negative TSR	.006	.024	.348	.728
					Hong Kong	.679	.087	1.448	.149
					Hong Kong x Negative TSR	-.018	-.035	-.501	.616

Predictors: Hong Kong, Negative TSR, Hong Kong x Negative TSR
Dependent Variable: Extrinsic Motivation

Chapter 5.

Discussion

Positive associations among supportive teacher-student relationships, learning motivation, and academic outcomes have been well documented in the education literature. However, most of the research in this area has been conducted in North America. Little research has been conducted in the East Asian context, where cultural and educational practices differ vastly from North America, which questions the generalizability of previous findings in the North America to the East Asian context. The present study aimed to explore cultural differences in associations among teacher-student relationships, students' intrinsic and extrinsic motivation in learning, and students' academic performances in two cultures – Vancouver and Hong Kong. In particular, this study is interested in: 1) Do students' perceptions of their relationships with their teachers differ across cultures? 2) Do students' levels of intrinsic and extrinsic motivation differ across culture? 3) Are teacher-student relationships related to student levels of intrinsic and extrinsic motivation within cultures? 4) Are teacher-student relationships related to students' academic achievement within cultures? 5) Are intrinsic and extrinsic motivation related to achievement within cultures? 6) Does culture moderate the association between a) teacher-student relationships and academic achievement and b) motivation and achievement? 7) Does culture moderate the relationship between teacher-student relationships and students' motivation?

5.1. Cross-Cultural Analysis

5.1.1. Cultural Differences in Teacher-Student Relationship

Students in Hong Kong perceived similar levels of positive characteristics in their teacher-student relationship as students in Vancouver. However, Hong Kong students

were found to perceive their teachers to be more dissatisfied, strict, admonishing, and uncertain than did Vancouver students, while Vancouver students perceived their teachers to be more helpful and friendly than did Hong Kong students. These findings are consistent with previous research showing that the degree of dominance or control of teachers in China was higher compared to other countries such as Australia and Singapore, and the degree of cooperation of teachers in China was lower than those of other countries, such as Australia, Singapore, and Brunei (e.g., den Brok et al., 2006; Wei, den Brok, & Zhou, 2009). These cultural differences in students' perceptions of their teachers may be explained by Chinese traditions and societal ideology of respect for teachers and authorities. These traditions reinforce teachers' dominance behaviors in the classroom and students' unconditional submission and obedience.

5.1.2. Cultural Differences in Student Motivation

In the current study, no statistically detectable cultural differences in levels of students' intrinsic and extrinsic motivation were found. This finding is particularly interesting in light of the significant differences found between the two cultural groups in how students viewed their relationships with their teachers. According to Western research, when teacher-student relationships are more positive, students' intrinsic motivation is higher. Yet, in the current study, despite viewing their teachers as more dissatisfied, strict, admonishing and uncertain, Hong Kong students did not report lower intrinsic motivation than Vancouver students. This raises questions regarding the association between teacher-student relationship and motivation within each cultural context.

5.2. Within Culture Analyses

5.2.1. Teacher-Student Relationships and Student Motivation

Within the Vancouver sample, students' intrinsic motivation was statistically significantly and positively correlated with teachers' leadership, helpful and friendliness, and understanding. Similarly, within the Hong Kong sample, students' intrinsic motivation was statistically significantly and positively correlated with teachers' leadership, helpful

and friendliness, understanding, and student freedom and responsibility. Intrinsic motivation was negatively correlated with teachers' perceived dissatisfaction in both Hong Kong and Vancouver. The present study is one of the first studies to explore teacher-student relationships in relation to students' intrinsic and extrinsic motivation. Nevertheless, these results are consistent with findings from past research that a positive and supportive teacher-student relationship is statistically detectably positively correlated to students' general learning motivation (Anderman & Anderman, 1999; Martin et al., 2007; Phelan, Davidson & Thanh Cao, 1992;)

As concerns extrinsic motivation, patterns of correlates were different across the Vancouver and Hong Kong samples. In the Vancouver sample, students' extrinsic motivation was not statistically significantly correlated with any teacher-student relationship subscales. In contrast, students' extrinsic motivation in Hong Kong was significantly and positively correlated with teachers' leadership, helpful and friendliness, understanding, and student freedom and responsibility. A positive teacher-student relationship fosters both intrinsic and extrinsic motivation for students in Hong Kong, but only intrinsic motivation for students in Vancouver. These findings suggest students' intrinsic and extrinsic motivation in different cultural contexts are differently affected by teacher-student relationships that are interpreted by students in ways that are unique to their cultural group.

As mentioned previously, in Chinese culture, the role of teachers is seen as an extension of the parent-child relationship (Park & Kim, 1999). In many East Asian cultures, teachers' responsibilities go far beyond that of academic instruction in the classroom (Yao & Kierstead, 1984). Teachers in East Asian cultures often show support and concern outside the classroom context and are influential in students' private lives including their relationships with their friends, peers, siblings and parents. Parents respect and trust teachers' guidance and counseling for their children. Thus, although teachers' behaviours, interactions, and involvement with their students can be perceived as controlling, they are interpreted as indicative of their strong concern to care for and providing what is the appropriable guidance to their students. Students' extrinsic motivation in Hong Kong may be positively correlated with positive teacher-student relationship because students treasure this affectionate parent-child like bond between

teachers and themselves, and thus, are more motivated to achieve well academically to receive praise form teachers and make them proud. This reasoning is plausible since individuals in Asian cultures are socialized to achieve and bring a sense of pride to their family through their achievements. East Asian students motivated by cultural traditions (Park & Kim, 1999) are extrinsically motivated (Chong & Michael, 2000).

In addition, although Chinese teachers assert dominance and control in the classroom, when social relatedness was high, the denial of personal choice and freedom did not make a difference in Chinese students' motivation (Bao & Lam, 2008). Similarly, the lack of personal choice did not undermine Asian American student's motivation when decisions were made by in-group members. In fact, their motivation was even higher than their counterparts who had personal choice (Iyengar & Lepper, 1999). This illustrates that Chinese students might not perceive decision-making by an in-group member, such as a teacher, to be controlling behaviours that would otherwise decrease motivation in the Western learning context.

Last but not least, the education literature shows that in the Western context, teachers who are considered to adopt an authoritarian approach to teaching tend to control students by restricting their freedom of choice. Ho (2001) has argued that in the Chinese context, teachers who adopt an authoritarian approach use authority and strictness in creating a structured and controlled classroom as means to care for, support, and nurture their students in order to provide them what is considered to be the best and most suitable learning environment. In the Western classroom, strictness is viewed as negative and hostile, but in the Chinese context, it is considered to reflect teachers' parental-like nurturing and genuine concern that enhances motivation in students (Ho, 2001). Hence, in both cultural contexts, the care expressed by teachers may be important for students' motivation. What differs across cultures appears to be how care is expressed by teachers and understood by students. Although the current findings suggest that students' intrinsic and extrinsic motivation is differently associated with different teacher-student relationship characteristics across culture, it is important to note that the teacher-student relationship subscales used in the current study are all inter-correlated, and therefore, does not solely contribute to or predict the outcome of students' intrinsic and extrinsic motivation.

5.2.2. Teacher-Student Relationships and Student Academic Achievement

Within the Vancouver sample, students' academic achievement was statistically significantly and positively correlated with teachers' leadership, helpful and friendliness, and understanding. Within the Hong Kong sample, students' academic achievement was statistically significantly and positively correlated with teacher's helpful and friendliness, and negatively correlated with teachers' uncertainty. These findings are in-line with previous research. In previous studies, positive teacher interpersonal behaviours such as leadership, helpful and friendliness, and understanding were positively related to students' academic outcomes (Wubbels & Brekelmans, 1998; Wubbels et al., 2006). In a similar study conducted in China, Wei, den Brok, and Zhou (2009) also found that teacher's uncertainty was negatively correlated with students' academic outcomes. This could be because students in East Asia expect teachers to be calm and in control, and thus, are more likely to be anxious if they detect teachers' uncertainty, which has been shown to be negatively correlate with students' academic outcomes (Brook & Willoughby, 2015; Ó Muircheartaigh & Hickey, 2008).

5.2.3. Intrinsic and Extrinsic Motivation and Student Academic Achievement

Within the Vancouver sample, students' academic achievement was statistically significantly and positively correlated with students' intrinsic motivation. Within the Hong Kong sample, students' academic achievement was also statistically significantly and positively correlated with students' intrinsic motivation. Achievement was not statistically significantly correlated with extrinsic motivation in neither the Vancouver or Hong Kong sample. These findings are consistent with previous research. As can be seen, the relationship between motivation and achievement is the same in both cultures. Research findings of the relationship between intrinsic motivation and extrinsic motivation in the Western context on students' academic achievement holds up in the Eastern context. This may have the implications that the learning strategies resulting from intrinsic and extrinsic motivation work similarly on student's learning outcome regardless of cultural differences. Motivation research shows that students who are intrinsically motivated take initiative in learning, persist in learning in the face of challenge, are willing to trying

different learning strategies to achieve their academic goals, and strive to improve themselves (Fredricks, Blumenfeld, & Paris, 2004; McInerney & McInerney, 2010; Pokay & Blumenfeld, 1990; Reeve, Deci, & Ryan, 2004; Vansteenkiste, Lens, & Deci, 2006). Thus, intrinsic motivation is found to be associated with positive academic outcomes. In contrast, students who are extrinsically motivated had a harder time staying focus and persisting in problem solving tasks (McGraw & McCullers, 1979). They are also more likely to apply shallow learning strategies (Biggs, 1991). Hence, extrinsic motivation is found to be associated with less positive learning outcomes.

5.3. Culture as a Moderator

In the current study, culture did not statistically detectably moderate the associations between i) teacher-student relationships and academic achievement, ii) intrinsic motivation and academic achievement, iii) extrinsic motivation and academic achievement, iv) teacher-student relationship and extrinsic motivation, or v) teacher-student relationship and intrinsic motivation. Given the current globalization and exchange of educational knowledge and practices in the education field, education curricula, objectives, and policies are constantly being updated. For instance, China is currently under an education reform to move towards a more student-based education system and to integrate Western values, such as the importance of allowing students to think flexibly, critically, and creatively, into the educational process (Hughes & Yuan, 2005) to improve student learning. Through these processes of integration and acceptance of different culture's values, education from different cultures might be becoming more alike than different in achieving similar objections in education.

5.4. Limitations and Future Directions

Differences in school culture and practices in Hong Kong and Vancouver definitely impacted levels of student participants in this study. In Hong Kong, when a school has accepted the research invitation, the director of the school will have a meeting with the teachers to inform them about the study and its purpose, and almost all teachers that were invited choose to participate in the research study. Parents and

students were also very willing to provide parental consent and child assent. This resulted in the high percentage of students participating from each participating school. In Vancouver, once a school has accepted the research invitations, it was solely up to the teacher to read about the research and decide whether or not to participate in the research study. Parents and students were also more hesitant to provide parental consent and child assent, resulting in a lower percentage of class and student participation from each participating school. This difference may be attributed to the Chinese collectivistic value of social harmony, being helpful and supportive, and the avoidance of conflicts. This leads to a sample size difference between the two cultural groups. The fact that the Hong Kong sample was nearly double in size compared to the Vancouver sample implies there is greater power to detect significant findings in the Hong Kong sample than the Vancouver sample.

In addition, students in this study participated on a voluntary basis. Students who volunteered to participate may be more interested in this topic, are more motivated in learning, and share similar qualities, view point, and interest in education, thus limiting their variance in responses. It would be advantageous to have a larger sample size to include more students from difference cities and regions, as well as different types of schools such as both public and private schools and schools with different religious background in order to obtain a sample size that is more generalizable.

Another limitation is the class size difference between the Vancouver and the Hong Kong samples. Vancouver class sizes are smaller in general than Hong Kong class sizes. Larger class size means that there are fewer individual opportunities for students to bond with the teacher. It should also be noted that the school systems are quite different in Vancouver and Kong Hong. In Vancouver, the same homeroom teacher teaches most subjects to the same class of students. In Hong Kong, teachers are specialized in one subject and students rotate between classes. Thus, this study asked Hong Kong students to answer their QTI questionnaires based on their interactions with their homeroom teachers and their MSLQ questionnaires based on the subjects that were taught by their homeroom teachers because that is the teacher they spend most time with. Homeroom teachers in Hong Kong were also asked to judge students' academic performances based on the subject they teach their class. However,

compared to students in Vancouver, Hong Kong students still spends less time with their homeroom teacher due to how the school structure is set up.

While this study's analysis has shown that most of the scales are reliable, it should be pointed out some scales in the QTI, such as the student freedom scale and uncertainty scale, seem to have a lower reliability for both the Hong Kong and Vancouver samples. While the QTI has some weakness in psychometrics, it was the best measure available due to the language requirement of the measures. Future efforts can be used to develop psychometrically sound measures for cross-cultural studies. In addition, research in this topic may benefit from a mixture of both quantitative and qualitative measures of teacher-student relationship. Last but not least, future studies in this area may consider the usage of in-depth interviews with both students and teachers as a qualitative measure of teacher-student relationship from both parties' perspective.

5.5. Study Implications and Significance

The current study contributes to the existing literature as the first cross-cultural study to explore associations among teacher-student relationship, intrinsic motivation, extrinsic motivation, and student achievement. Previous studies mostly examined one cultural group or mainly focused on the association between teacher-student relationship and student's cognitive, emotional, academic, or general motivational outcomes. It adds to the literature as it addresses whether practices found to support student learning and motivation in Western contexts are also applicable in East Asian contexts. Moreover, given the large number of East Asian immigrants in the student population of Metro Vancouver, findings of the present study help enhance teachers' understandings of their Chinese students and their families, which in turn, should help them support those students' adjustment to school in Canada. Findings from this study point to the importance of creating a nurturing learning environment for students and can be used for teachers to compare and reflect upon their own practices and their interpersonal relationships with their students. In proposing and conducting this study, the author truly hopes to bring awareness to educators in both the West and the East the importance of teacher-student relationship and the effects it has on students' intrinsic motivational

outcomes as well as academic outcomes. This topic should be addressed in both pre-service and in-service teaching training.

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Appendix A.

Models for Interpersonal Teacher Behavior

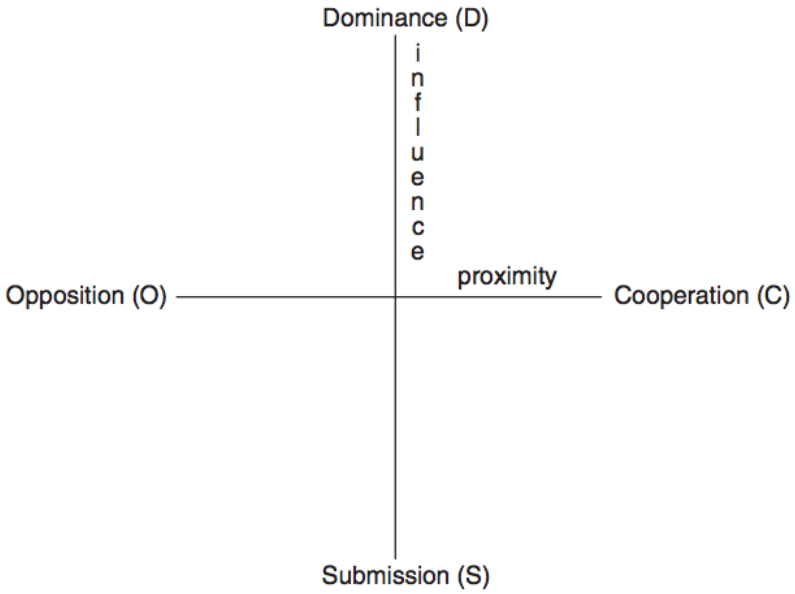

Figure A1. **Two-dimensional coordinate system of the model for interpersonal teacher behavior (Wubbls & Brekelmas, 2005). Used with permission.**

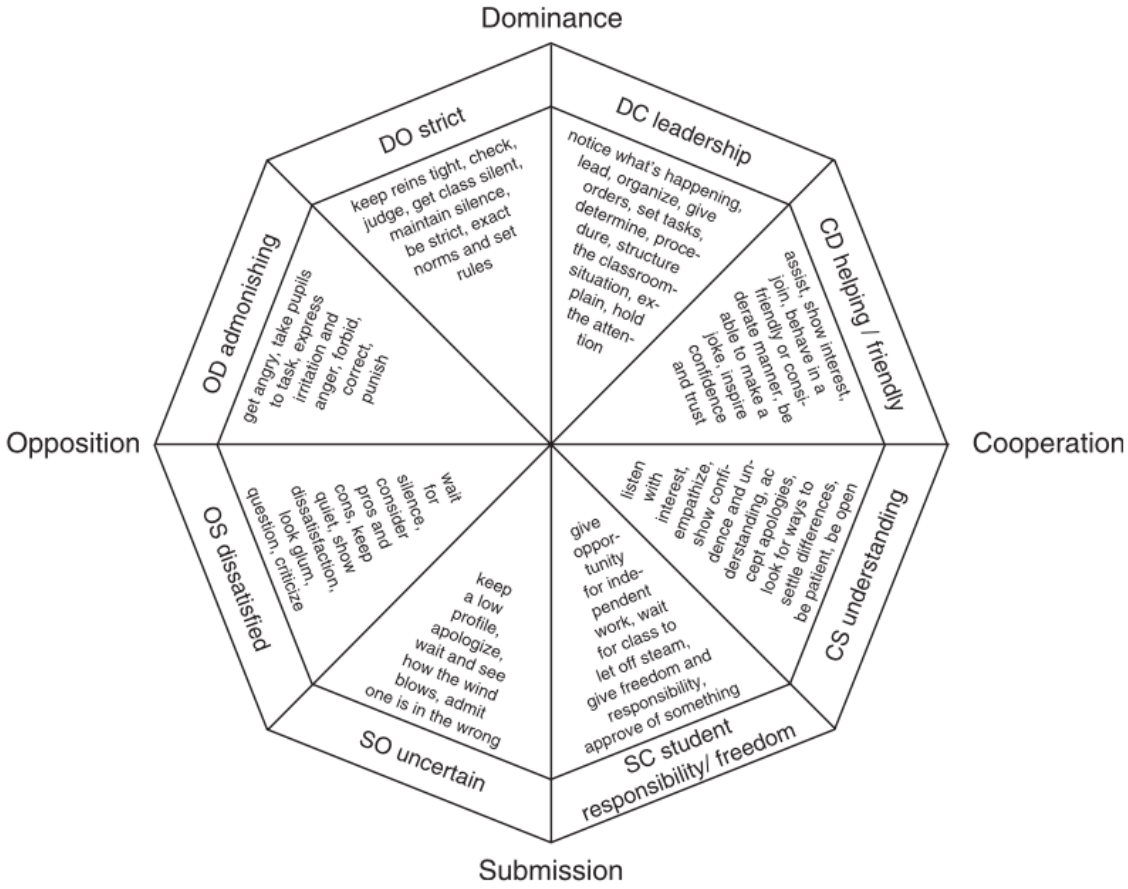

Figure A2. The Model for Interpersonal Teacher Behavior (Wubbels & Brekelmas, 2005). Used with permission.

Appendix B.

Student Academic Achievement Questionnaire

Student Academic Achievement Questionnaire for Vancouver Teachers

Based on your knowledge of your students' performance across the curriculum, please assign each participating student a rating that is reflective of their academic achievement in general.

Participant Number: _____

Name of school: _____

Class/ division: _____

Name of Student	Excellent	Very Good	Good	Average	Below average	Poor	Very Poor
E.g., Dawn Chan				√			
1.							
2.							
3.							
4.							
5.							

Student Academic Achievement Questionnaire for Hong Kong Teachers (English version)

Based on your knowledge of your students' performance **on the subject(s) you teach,** please assign each participating student a rating that is reflective of their academic achievement.

Participant Number: _____

Name of school: _____

Class/ division: _____

Name of Student	Excellent	Very Good	Good	Average	Below average	Poor	Very Poor
E.g., Dawn Chan				√			
1.							
2.							
3.							
4.							
5.							

Appendix C.

Assent Form for Child Particiapant

Child Assent Form for Vancouver Participants.

Hello!

My name is Dawn. I am doing a research study to learn about your relationship with your teacher and how your relationship with your teacher relates to your learning. Your parents have given you permission to participate in this study. If you decide that you want to be part of this study, you will be asked to answer some questions online about your relationship with your teacher and how you feel about school. The questions I will ask are only about what you think. There are no right or wrong answers. This is not a test. Your honesty is most important. None of your answers will be shared with anyone or affect your grades at school. You do not have to be in this study if you do not want to. If you decide you want to be in this study, please click on the “I agree” box. If you want to stop after you begin, that’s alright too.

_____ I have read the above statement and want to be in this research study.

Child Assent Form for Hong Kong Participants (English version).

Hello!

My name is Dawn. I am doing a research study to learn about your relationship with your **homeroom teacher** and how your relationship with your **homeroom teacher** relates to your learning. Your parents have given you permission to participate in this study. If you decide that you want to be part of this study, you will be asked to answer some questions online about your relationship with your **homeroom teacher** and how you feel about school. The questions I will ask are only about what you think. There are no right or wrong answers. This is not a test. Your honesty is most important. None of your answers will be shared with anyone or affect your grades at school. You do not have to be in this study if you do not want to. If you decide you want to be in this study, please click on the “I agree” box. If you want to stop after you begin, that’s alright too.

_____ I have read the above statement and want to be in this research study.