

The significance of emotional intelligence to students' learning motivation and academic achievement: A study in Hong Kong with a Confucian heritage

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4 **Title:** The significance of emotional intelligence to students' learning motivation and academic  
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6 achievement: A study in Hong Kong with a Confucian heritage  
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10  
11 **Abstract**  
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15 Students in Hong Kong are facing tremendous stress due to the overly competitive atmosphere and  
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17 high expectations of academic success from their parents. Although Hong Kong was a British  
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19 colony for more than 150 years, some of the traditional Confucian values remained embedded in  
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21 Hong Kong citizens. Moreover, those values were highly influential for both parents and students  
22  
23 in building a framework of expectation regarding education. However, superior expectations could  
24  
25 lead to frustrations, causing stress and mental health problems for the students. This study aimed  
26  
27 to seek a way for students from a CHC background to succeed academically without enduring the  
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29 overwhelming stress that could potentially lead to emotional breakdowns. By examining the  
30  
31 intertwined relationship between EI and learning motivation, the two reputable factors for  
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33 academic achievement, in a sample of 737 primary students, the current study discovered the  
34  
35 significant role of EI in improving students' academic achievement. Results from this study  
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37 suggest that by enhancing students' level of EI, their learning motivation would increase  
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39 accordingly, and eventually, their academic achievement would improve. Several implications for  
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41 EI improvement were revealed.  
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52 **Keywords:** emotional intelligence; learning motivation; academic achievement; Confucian  
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Highlights

- Confucian Heritage Culture (CHC) values have academic merit for students, yet also enforce unnecessary stress.
- Stress engendered by CHC values and the competition nowadays could lead to students' mental and physical dysfunctions.
- Students' level of EI and learning motivation are proven to be predictive factors of their academic achievement.
- Enhanced EI could lead to spontaneous learning motivation and improved academic performance.
- Emotional coaching is recommended as a means to enhance students' level of Emotional Intelligence.

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## 10 11 **1. Introduction**

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17 For years, the high performance of Asian students’ scholastic attainment has earned its  
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19 remarkable reputation around the world. According to the Global Index of Cognitive Skills and  
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21 Educational Attainment in 2014, East Asian countries including South Korea, Japan, Singapore,  
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23 and Hong Kong ranked in the top four internationally in academic achievement (Pearson, 2014).  
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25 Simultaneously, Hong Kong, Singapore, and Paris were identified as the top three cities in the  
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27 world, with the highest cost of living (The Economist Intelligence Unit, 2019). Residing in one of  
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29 the most expensive cities in the world, parents not only have to work diligently to earn tuition, and  
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31 other expenses associated with child rearing, but they also have to ensure their children become  
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33 competitive candidates to succeed in society. To adequately prepare a child for such a highly  
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35 competitive society, parents have to ensure that their children are “winning at the starting line”  
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37 which is the paramount concern of most parents living under the competitive education system in  
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39 Hong Kong. As revealed in a survey conducted by The Chinese University of Hong Kong (2016),  
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41 approximately 90% of the respondents agreed that the mentality of “winning at the starting line”  
42  
43 is common in Hong Kong, even though majority of them expressed believing that mentality is  
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45 wrong. Hong Kong parents not only spend most of their time on pushing their children to succeed,  
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47 many of them also spend a great fortune doing so. As more than half of the respondents indicated,  
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49 they have enrolled their children into more than two extra-curricular activities after school time.  
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4 expectations of their children, often disregarding their children’s desires, which could potentially  
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6 bring harm to the parent-child relationship, and place enormous unnecessary stress on the child  
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9 (Chan et al., 2016).

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14 In addition, being a part of the Chinese culture, many of the Hong Kong parents are still  
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16 influenced by the Confucian heritage culture (CHC). Confucian beliefs place great emphasis on  
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18 filial piety, education, and proper behavior (Yang, 2019). Among the three concepts, Chinese  
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20 parents value filial piety (*Xiao*) the most. Filial piety in CHC refers to pure obedience, establishing  
21  
22 the expectation for children to obey their parents in spite of everything. As indicated in an old  
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24 Chinese saying, “If a father wants a son die, the son cannot disobey.” meaning that a son cannot  
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26 disagree with his parents, even regarding a life or death decision. Another key value for Chinese  
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28 parents is diligence and hard work, which they believe as the only way to achieve academic success  
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31 (Shek & Chan, 1999). In addition to filial piety and diligence, the old Confucian ideation reveres  
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33 proper behavior. People who adhere to Confucian beliefs expect a successful person to have good  
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35 interpersonal relationships with others. In order to do so, one should not over-express themselves  
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37 and should always remain subdued when interacting with others. Acting out of one’s emotions or  
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39 feelings would be considered improper behavior and should be avoided at all times (Fu, 2012).  
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41 This is why parents believe their children should be able to control their emotions and feelings to  
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43 reach harmony in society. Combining the external factor of living in a society full of competitions  
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45 with the underlying internal beliefs of Confucianism, it is foreseeable that a vicious cycle occurs  
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47 between parents’ expectations and children’s well-being where higher expectation from parents  
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49 could lead to poorer well-being for the children. Chinese parents are highly concerned with their  
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51 children’s academic performance that they put all their effort into pushing their children to reach  
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4 the best outcomes. Simultaneously, their children are so indoctrinated by the Confucian principle  
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6 of filial piety that they would comply with whatever their parents desire. Hence, many parents  
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8 unwittingly impose negative consequences upon their children (Tam et al., 2018), such as mental  
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10 illnesses and physical health problems that may lead to academic failure.  
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One of the examples of Hong Kong parents' overemphasis on children's academic success is the phenomenon of enrolling children in different extra-curricular classes and tutorial schools at a relatively young age. Lau and Cheng (2016) found that over half of the kindergarten-aged children in Hong Kong were enrolled in two or more extra-curricular activities. Parents expressed enrolling their children into multiple activities for reasons such as enhancing their learning and language proficiency, and acquiring new skillsets that could increase future competitiveness. Providing an opportunity for their children to develop self-esteem and a sense of accomplishment were also cited. It is undeniable that parents enroll their children into different extra-curricular activities with the best intentions. Yet, exposing their children to such a rigorous schedule may put children at risk of various mental problems. Comparing to the worldwide pooled prevalence of 13.4%, Hong Kong's children and adolescents rated a higher prevalence (16.4%) for mental disorders. It is suggested that academic failure was among the risk factors for developing mental disorders in children and adolescents (Food and Health Bureau, 2017).

Although it is inevitable that parents will be highly intense with their children's academic achievement, it is crucial to impart healthy philosophies to parents concerning how to enhance children's academic achievement in a wholesome and meaningful direction. This concern leads to an important research question, which is, "Is imposing exorbitant stress upon students who

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4 innocently follow the traditional Confucian dogmas the only way to improve their academic  
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6 attainment, or is there a better way? The primary objective of the present study is to answer the  
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8 question and hopefully discover a better option for enhancing Chinese students' scholastic  
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10 achievement.  
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## 12 13 14 15 16 1.1 Learning Motivation 17

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21 Confucian belief places a high emphasis on education and assumes that characteristic like  
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23 diligence is the only way toward academic success. Hence, parents often focus solely on how much  
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25 effort their children have exerted but ignore factors that could impel their children to learn harder  
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27 voluntarily. In the Western societies, abilities and effort are usually examined as not fully enough  
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29 to explain students' academic achievement (Graham & Hudley, 2005; Pintrich, 2003; Schunk &  
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31 Zimmerman, 2007). Therefore, to achieve learning success, researchers and educators have been  
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33 seeking non-cognitive factors that affect students' academic achievement. One of the most studied  
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35 factors is motivation for learning. Motivation is the desire to achieve a goal and the underlying  
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37 force that motivates our behaviours (Gopalan et al., 2017). It can be divided into three sub-types,  
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39 which are intrinsic motivation, extrinsic motivation, and amotivation. Among the three sub-types,  
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41 intrinsic motivation has been considered to have the greatest effect on academic performance.  
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43 According to Ryan and Deci (2000), intrinsic motivation is described as doing something for one's  
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45 own contentment without influence from external forces. People who are intrinsically motivated  
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47 to excel in academia study voluntarily out of their own curiosity, interest, or perceived challenges,  
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49 rather than from under any compulsion from their family, or for the external rewards they can  
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51 receive from studying, such as compliments from a teacher or a gift from their parents.  
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7 Intrinsic motivation, with the fulfillment of people’s psychological needs, has been shown  
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9 to be positively correlated to academic achievement in high school and college students (Badri et  
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11 al., 2014; Trevino & DeFreitas, 2014). Additionally, intrinsic motivation has been proven to be  
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13 the only consistent predictor of academic achievement among all other types of motivations  
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15 (Taylor et al., 2014), whereas individuals who are extrinsically motivated may study only out of  
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17 obligation to their parents, even if they hate it. Unsurprisingly, students with higher intrinsic  
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19 motivation and lower extrinsic motivation outperform students who are more extrinsically  
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21 motivated (Areepattamannil et al., 2011). Congruent with the theory for learning motivation, the  
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23 same situation appears to be true and prevalent in Hong Kong. By placing too much emphasis on  
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25 the results, parents in Hong Kong may imperceptibly reinforce their child to adopt extrinsic  
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27 motivation for learning. Simultaneously, these parental and societal pressures exacerbate the  
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29 phenomenon, causing the majority of students to become extrinsically motivated to excel  
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31 academically. Sadly, the effect of external motivation on learning does not last and it can even  
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33 temporarily replace internal motivation (List et al., 2018). Hence, once the external factors are  
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35 removed from a child who is only extrinsically motivated, the child will no longer feel the urge to  
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37 learn or study. Worse, the child’s academic performance will result in detrimental consequences.  
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39 Since learning motivation is the imperative momentum behind effort, and effort is the key to  
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41 academic success according to the Confucianism, it is vital to study students’ motivation for  
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43 learning in an attempt to improve their academic performance within the CHC society.  
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## 56 1.2. Emotional Intelligence and Its Relationship to Academic Achievement 57 58 59 60 61 62 63 64 65



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4 Another factor, which is emerging as a non-cognitive area influencing students' academic  
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6 achievement, is emotional intelligence (EI). Although conflicting results still exist, it has been  
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8 examined as a core competency not only positively predicting students' academic achievement  
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10 (Libbrecht et al., 2014; Parker et al., 2004b; Pozo-Rico & Sandoval, 2020), but also their success  
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12 in the workplace, personal and social well-being (Ahmed et al., 2019; Brackett et al., 2011; Zeidner  
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14 et al., 2009). EI, as a concept, can be traced early to Thorndike (1920) in his multifactor theory of  
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16 intelligence. At that time, it was named as 'social intelligence' and defined as "the ability to  
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18 understand and manage men and women, boys and girls – to act widely in human relations". Since  
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20 then, the definitions of intelligence were extended. Spearman (1927) predicted the correlation of  
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22 one's cognitive ability with their social and emotional abilities. Wechsler (1940) related  
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24 intelligence to both intellectual and non-intellectual components including personal, social and  
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26 emotional factors.  
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36 Until 1990s, the first formal definition on EI was published by Salovey & Mayer (1990)  
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38 defining the concept as "the ability to monitor one's own and others' feelings, to discriminate  
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40 among them, and to use this information to guide one's thinking and action" (p.189). In 1997,  
41  
42 Mayer and Salovey (1997) updated the original definition and focused the concept as four emotion-  
43  
44 related abilities including perceiving, appraising, and expressing emotions accurately; using  
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46 emotions to facilitate thoughts and decision making; understanding emotions; and managing  
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48 emotions of one's own and others. Petrides and Furnham (2001) categorized this version as "ability  
49  
50 EI" and further proposed their own version as "trait EI", which conceptualizes EI as a set of  
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52 emotion-related traits and dispositions that can be measured by self-report, such as empathy,  
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54 happiness, assertiveness. The concept of EI became popular when the science journalist Daniel  
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4 Goleman published his book '*Emotional Intelligence: Why It Can Matter More Than IQ*' in 1995.  
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6 His theory of EI broadened the previous definitions by encompassing theory of ability and  
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8 personality variables into one which is a mixed "competence model" of EI.  
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14 Goleman's (1995) theory captured and defined EI as five components including emotional  
15 self-awareness – individuals understand the emotions they are experiencing and how they might  
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17 affect people around them; self-regulation – individuals are able to control their emotions and  
18  
19 evaluate a given situation before acting emotionally; motivation – individuals driven by their own  
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21 passion to use emotional factors to achieve goals, and to remain determined when faced with  
22  
23 obstacles; empathy – individuals are capable of perceiving others' emotions; social skills –  
24  
25 individuals are able to manage relationships, influence and build rapport with others. Goleman  
26  
27 (1998) then updated the model as four components: self-awareness, self-management, social  
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29 awareness, and social skills, by categorizing motivation as an internal element of self-management.  
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31 By adding the fifth competency of responsible decision making – being able to make constructive  
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33 choices about personal behavior and social interactions to Goleman's (1998) four-competence  
34  
35 model, another competence model of EI was developed by the Collaborative for Academic, Social,  
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37 and Emotional Learning (CASEL, 2003; Durlak et al., 2011). Bar-on (2000, 2006) developed a  
38  
39 mixed social and emotional competence model of EI including five components: intrapersonal  
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41 competence – emotional self-awareness and expression; interpersonal competence – social  
42  
43 awareness and interpersonal relationships; stress management – emotional management and  
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45 regulation; adaptability – managing changes; and general mood – self-motivation. The Emotional  
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47 Quotient Inventory instrument is developed based on this social and emotional competence model.  
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4 The concept of EI, the ability to cope with emotional-laden information in self and others,  
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6 has been developed for three decades. Numerous studies have shown that EI has positive effects  
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8 on people's personal outcomes such as their stress management (Montes-Berges & Augusto, 2007)  
9  
10 or problem-solving abilities (Alumran & Punamaki, 2008). EI is also found to be important in a  
11  
12 student's academic achievement. Students with high EI can be more self-confident and capable in  
13  
14 handling their life and learning challenges, as a result, will lead to better academic performance  
15  
16 (Jan & Anwar, 2019). Kohaut (2010) found that students with higher EI reported fewer discipline  
17  
18 problems and better scholastic performance in middle school. Similar results could also be found  
19  
20 in previous studies which indicated EI as a predictive factor for academic achievement in pre-  
21  
22 adolescent (Billings et al., 2014b), high school (Parker et al., 2004a), and university students (Nasir  
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24 & Masrur, 2010; Pope et al., 2012). Consistently, Pozo-Rico and Sandoval's (2020) study  
25  
26 demonstrated that students' academic achievement could be improved by training teacher to  
27  
28 implement EI into their teaching which showed that higher level of EI could led to improved grade  
29  
30 in school. On the contrary, students with low level of EI were more likely to procrastinate which  
31  
32 is a characteristic that has been seen as a hindrance to academic success (Deniz et al., 2009; Howell  
33  
34 and Watson, 2007). Roy et al. (2013) suggested that students with high EI were academically more  
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36 motivated. If students improve their EI skills, they can perform better in their academic activities.  
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47 Although many studies have successfully shown EI as a predictor of students' academic  
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49 outcome, contradictory findings could also be observed. For instances, MacCann et al. (2020)  
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51 found that EI has small to moderate correlation with academic achievement, while Austin et al.  
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53 (2007) found no direct correlation. When Garg et al. (2016) examined the influences of EI,  
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55 adjustment to university, parenting styles and high school average on 299 first year university  
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4 students' grade point average (GPA) in Canada, EI was not directly associated with students' GPA.  
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7 However, the influence of EI on academic achievement was mediated by students' adjustment to  
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9 university. Parenting style had also a significant influence on students' adjustment to university,  
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11 in turns affected students' academic achievement. Based on the literature, EI is directly or  
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13 indirectly related with people's academic performance. Students who can manage and cope with  
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15 emotion-laden information wisely usually have better academic outcomes because they have  
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17 higher academic motivation, better stress management and problem-solving abilities, less  
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19 procrastination and discipline related problems.  
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### 22 23 24 25 26 1.3 Concerns of the Study

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31 In a CHC society, learning is believed as the act which should lead to behavioral reform  
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33 and practical improvement in life (Tweed and Lehman, 2002). That is a pragmatic belief embraced  
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35 in Confucianism. It means that the pursuit of education is not solely for possessing knowledge and  
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37 understanding, but to use such possessions to improve one's self and society. As said by the Master,  
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41 the Confucius,

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47 "If people can recite all of the three hundred Songs and yet when given official  
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49 responsibility, fail to perform effectively, or when sent to distant quarters, are unable to  
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51 act on their own initiative, then even though they have mastered so many of them, what  
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53 good are they to them?" (*The Analects of Confucius*, 1997)  
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4 In other words, the knowledge a person obtains should have practical use for the individual  
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6 or for society. Otherwise, it would be meaningless (Stephens, 2009). Even though Hong Kong had  
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8 been one of the former colonies of the British Empire for few decades, it is conceivable that even  
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10 after the colonization, people in Hong Kong still internalized some of the Confucian ideas. The  
11  
12 pragmatic view of Confucius has become a prevalent phenomenon in Hong Kong. Together with  
13  
14 the tremendous competitions in society, education has been viewed to be the one and only way to  
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16 societal success. In a city that emphasizes practicality, individual success and fulfillment, its  
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18 educational system focuses only on improving students intellectually, by advocating numerous  
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20 hours of homework, excruciating examinations, and rote-learning. Its exam-focused system leaves  
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22 parents with no choice but to challenge their children's limits if they want them to have a greater  
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24 opportunity to succeed in the competitive environment. As a result, many parents and educators  
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26 have given too much attention to attaining high grades, and have overlooked the other important  
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28 aspects of their children. Adolescents also expressed that their major sources of stress came from  
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30 studying and meeting their parents' expectations. In an effort to please their parents and avoid  
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32 experiencing disappointment from them, they typically overwork themselves to meet their parents'  
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34 unrealistically high expectations to fulfill their obligation as a child, which causes academic stress  
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36 and test anxiety (Salili et al., 2001; Wong et al., 2005). Intelligence, ability, and effort are indeed  
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38 not the only paths to personal achievement. In contrast, emotional intelligence has been empirically  
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40 examined as directly or indirectly contributory to determine individual fulfillment in real life.  
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53 EI has also been proven to be a buffer to stress by assisting individuals in adopting effective  
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55 coping styles (Harminder, 2013; Por et al., 2011). Cha and Nock (2009) discovered that EI could  
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57 moderate the relation between risk factors and suicidal behaviors where people with high  
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4 emotional intelligence showed no relation between risk factors and suicidal behaviors. Further to  
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7 Cha and Nock's study, Extremera and Frenandez-Berrocal (2006) found that university students'  
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9 emotional intelligence predicted their levels of depression and anxiety, which might explain its  
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11 protective role for suicidal behaviors. Hence, it is plausible that emotional intelligence would have  
12  
13 a beneficial impact on alleviating students' perceived pressure and ultimately lead to improved  
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15 mental well-being, as well as academic performance, especially in a CHC society. In Hong Kong,  
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18 impacts of non-cognitive factors, such as learning motivation and emotional intelligence, on  
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20 people's personal achievement are still understudied. Sometimes, both EI and learning motivation  
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22 are considered to be neglected or even misused by parents from the CHC background. It is  
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24 therefore important to see whether these variables could have positive effect on students'  
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26 performance, and could possibly change some of the mistaken ideas from the CHC background.  
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33 Given that academic achievement is a highly valued factor in CHC society to determine  
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35 the success of a student, the objective of the present study was to examine the direct and indirect  
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37 relationships of students' learning motivation, emotional intelligence, and academic achievement.  
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40 The hypotheses of this longitudinal design were the following:  
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45 1. Students' emotional intelligence would be positively correlated with their academic  
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47 achievement.
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49 2. Students' learning motivation would mediate the relationship between their emotional  
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51 intelligence and their academic achievement.
- 52  
53 3. Students' learning motivation would be positively correlated with their academic  
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55 achievement.  
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4 4. Student's emotional intelligence would mediate the relationship between their learning  
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6 motivation and academic achievement.  
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## 10 11 **2. Methods**

### 13 14 15 16 **2.1. Participants and Procedure**

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21 To test the hypotheses, a longitudinal study was conducted in two primary schools with  
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23 similar background in terms of students' socioeconomic status and academic performance. The  
24 principals of the two schools were contacted and agreed to join the survey. With formal and written  
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26 consents of both students and parents, students in grade 4 to 6 were requested to complete the  
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28 assessments twice. One assessment was completed in September 2016 (Time 1), and the other in  
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30 June 2017 (Time 2). Prior to the study, an ethical approval from the Research Ethics Committee  
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32 of the affiliated university was obtained. Participants were well notified that their participation was  
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34 voluntary, and no financial compensations would be awarded. Moreover, it was clarified that not  
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36 participating in the study would have no impact on students' performance or grades.  
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46 Eventually, 980 students in grade 4 to 6 (F = 441, 45%; M = 539, 55%) consented to join  
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48 the study and completed the first assessment. Out of the total number, 786 students (F = 358,  
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50 45.4%; M = 428, 54.5%) also completed the second assessment. The follow up rate was 80.2%  
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52 which was satisfactory. The sample comprised 258 (32.8%), 267 (34.0%) and 261 (33.2%) of  
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54 Grade 4, 5 and 6 students respectively. Their age range was between 8 and 13 years, with a mean  
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56 and standard deviation of 9.93 and 0.91. The details were listed in **Table 1**. A power analysis of  
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4 the sample size was calculated with 80% power and a 2-tailed  $\alpha$  error of 0.05. Results suggested  
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6 that number of cases required to detect small, medium, and large effect sizes of .02, .15, and .35  
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8 were 40, 85, and over 600 respectively (Cohen, 2013). Therefore, the sample size of this study  
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10 with 980 students satisfied even for a small effect detection.  
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## 12 2.2. Measures

### 13 2.2.1. Academic Achievement

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Students' academic achievement was measured by the positive affect items included in the Quality of School Life Scale (Ainley et al., 1990; Pang, 1999). The Chinese version of the scale has been proven to have good reliability and validity and has been widely used by the Hong Kong Education Bureau for primary school students (Education Bureau HKSAR, 2016; Wu & Mok, 2017). The scale included 6 items on a 4-point Likert scale ranging from 1 (totally disagree) to 4 (totally agree), such as, "I always enjoy successful experiences at school." Cronbach's alphas for the present study was 0.93.

### 50 2.2.2. Learning Motivation

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The Chinese version of the Motivation Scale (McInerney & Ali, 2006) was used in this study to measure students' learning motivation. The Chinese version was validated for use by the



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4 Hong Kong Education Bureau among primary school students with good reliability (Education  
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6 Bureau HKSAR, 2016; Wu & Mok, 2017). There are 11 items in the scale, containing two  
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8 subscales for both Motivation Effort and Motivation Task, with a score ranging from 1 (strongly  
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10 disagree) to 4 (strongly agree). An example item from the scale is “I try hard to make sure I am  
11  
12 good at schoolwork.” This scale has demonstrated good reliability and cross cultural validity  
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14 (Nelson et al., 2006). Cronbach’s alphas in the current study were 0.87 and 0.90 respectively.  
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### 17 18 19 20 21 *2.2.3. Emotional Intelligence*

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26 Considering there are multiple definitions for EI, the current study was designed,  
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28 considering EI as a set of interrelated skills. The present study used Wong and Law’s Emotional  
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30 Intelligence Scale (Wong & Law, 2002). The scale contains 16 items for 4 different domains of EI  
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32 with a 7-point Likert-type response format. The first subscale concerning self-emotion appraisal  
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34 includes items like “I really understand what I feel.” The second subscale focuses on the use of  
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36 emotion to facilitate performance, and includes items like “I would always encourage myself to  
37  
38 try my best.” The third subscale measures the regulation of emotion, and includes items such as “I  
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40 can always calm down quickly when I am very angry.” The last subscale on other’s emotional  
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42 appraisal includes items like “I have good understanding of the emotions of people around me.”  
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44 This scale has demonstrated good test-retest reliability and convergent validity among Hong Kong  
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46 and mainland China (Wong et al., 2007). The reliability of the subscales in the current study was  
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48 0.87, 0.86, 0.86, and 0.90 respectively.  
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### 58 *2.3. Data Analysis*

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7 Less than 5% of the reports included missing responses due to participants omitting some  
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9 of the items from the questionnaire. Those missing data were replaced using multiple imputation  
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11 (Acock, 2005), a procedure that could preserve the current sample size and reflect the complete  
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13 responses of the participants (Rubin, 1996; Schafer & Olsen, 1998). To ensure the constructs of  
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15 the study did not correlate to each other, multi-collinearity diagnostic analyses were conducted.  
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18 Also, for each variable, the mean standard deviation, Cronbach's alphas coefficients, and  
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20 correlation matrix were computed on two time points.  
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26 The present study used IBM SPSS version 25 for all data analyses. First, correlation  
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28 coefficients were used to identify any possible correlation between demographics and the  
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30 constructs. Next, a bias-corrected bootstrapping procedure was used to generate confidence  
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32 intervals in order to detect any problem that might result from the asymmetric and non-normal  
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34 sampling distributions of an indirect effect (MacKinnon et al., 2004). Third, using the Hayes (2016)  
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36 Process dialog, mediation analyses between EI, learning motivation, and academic achievement  
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38 were conducted. Simultaneously, prior EI, learning motivation, and academic achievement of the  
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40 students were entered as covariates for the outcome of each analysis. Statistical significance was  
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42 assessed using point estimates and a 95% confidence interval.  
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### 51 **3. Results**

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55 For the follow up assessment, the attrition rate was 24.8%. The correlation matrix, means,  
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57 and standard deviations of all the variables for both time points were included in **Table 2**. All the  
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4 variables revealed positive and significant correlation with each other. Multi-collinearity  
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6 diagnostic analyses (Variance inflation factors, VIF <5 and tolerances, Tol > 0.20) and Durbin-  
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8 Watson test (1.97) were used to test the Collinearity and autocorrelation, results indicated that the  
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10 three measures of the current study including EI, learning motivation, and academic achievement  
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12 were not redundant.  
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19 <insert Table 2>  
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24 As illustrated in **Figure 1** and **Table 3**, the correlation test revealed that Time 1 EI was  
25 significantly and positively correlated with Time 2 academic achievement ( $r = 0.37, p < 0.01$ ).  
26 Yet, mediation showed a more comprehensive story. Time 2 learning motivation mediated the  
27 association between Time 1 EI and Time 2 academic achievement (0.05, 95% CI = [0.02, 0.08]).  
28 The direct effect of Time 1 EI on Time 2 academic achievement was not significant (0.01, 95% CI  
29 = [-0.02, 0.05]). Alternatively, **Figure 2** and **Table 4** illustrates the result, Time 1 learning  
30 motivation was used as a predictor for Time 2 academic achievement and Time 2 EI as a mediator  
31 between the two variables. Although Time 1 learning motivation was significantly positively  
32 correlated with Time 2 academic achievement ( $r = 0.42, p < 0.01$ ), results from mediation revealed  
33 that the indirect (0.02, 95% CI = [-0.01, 0.07]) and direct effect (0.03, 95% CI = [0.01, 0.07]) of  
34 Time 1 learning motivation on Time 2 academic achievement were not significant. Hence, Time  
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<insert Figure 1, Table 3> ; then <insert Figure 2, Table 4>

#### 4. Discussion

Based on the results, the present study showed that there was a correlation between EI and academic achievement, confirming that students' level of emotional intelligence was positively correlated with their academic outcome, which was consistent with previous literature on EI and academic achievement (Billings et al., 2014a; Lanciano & Curci, 2014; Mohzan et al., 2013). However, there was no direct effect between EI and academic achievement. The findings not only supported the Hypothesis 1 of the present study, but also explained why some of the previous studies found no direct association between EI and academic achievement. Although it is true that EI could be a predictor for students' academic outcomes, the findings from the present study supported Hypothesis 2 and revealed that EI has no direct effect on academic achievement. The effect occurs only when learning motivation acts as a mediator. It means that students' level of EI does not directly influence their academic outcome. In contrast, it influences their learning motivation. When students' learning motivations increase, their academic outcomes improve. As for Hypotheses 3 and 4, students' learning motivations displayed a positive correlation with their scholastic achievement. However, the indirect effect for the alternative model, which hypothesized EI as a mediator for Time 1 learning motivation and Time 2 academic achievement, showed no significance. Results for the latter hypothesis suggested that EI did not mediate the relationship between students' learning motivation and academic achievement, meaning there was only a unidirectional relationship between the three factors, and learning motivation could not influence students' level of EI. Thus, there was no influence on students' academic performance.

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4 Simultaneously, the present study provided new enlightenment for parents and educators  
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6 from a CHC background, since the findings had overturned CHC parents' core assumptions over  
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8 learning. Although diligence is a vital quality for improved academic scores, it is only a portion of  
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10 the equation. The findings of the latter two hypotheses prove it is crucial parents in Hong Kong  
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12 who hold a caring desire for their children to achieve academic success to understand this. The  
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14 methods many of them are endorsing may lead to a divergent path. Not only have many parents in  
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16 Hong Kong adopted Confucius's view on pragmatism for education, resulting in a loss of focus  
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18 on the true meaning of learning, but also, by unintentionally placing undue stress on their children,  
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20 parents reinforce students' applications of extrinsic motivation, overlooking other important facets  
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22 of their children's interests and abilities. As indicated by the findings, contrary to what Hong Kong  
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24 parents might expect, learning motivation alone, cannot influence students' academic outcome. In  
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26 fact, the results are in agreement with Goleman (1995)'s theory of emotional intelligence, proving  
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28 the vital role of EI in personal success. Most importantly, the current findings demonstrated that  
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30 students' scholastic performance improves, only if their level of EI is sufficient enough to  
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32 influence their learning motivation.  
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#### 43 4.1. Conceptual Implications – Between the East and the West

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47 The insights obtained from the present study may have implications for both parents and  
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49 the educational systems of CHC societies. Considering how crucial EI is in the role of improving  
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51 students' academic achievement, it is imperative to ensure parents and educators in Hong Kong  
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53 recognize the significant role of EI in academia. Furthermore, parents and educators must realize  
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55 how crucial their roles are in enhancing students' EI. Since emotional intelligence is considered to  
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4 be a type of intelligence, it is possibly to be improved or enhanced. In fact, multiple studies have  
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6 shown that under specific interventions such as EI training programs for teachers, technology-  
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8 based multimedia training tool, or cognitive behavioral group therapy, emotional intelligence can  
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10 be improved in children, adolescents, university students, and adults (D' Amico, 2018; Gilar-Corbi  
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12 et al., 2018; Hodzic et al., 2018; Masjedi et al., 2015; Pool & Qualter, 2012). Due to the fact that  
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14 more research on EI is conducted in Western societies compared to Eastern, it is expectable that  
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16 parents and educators from the West are more sensitive to students' emotional intelligence and are  
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18 placing more emphasis on developing students' EI. Hence, educational systems in the West should  
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24 be referable to individuals from CHC societies.

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Despite students from CHC backgrounds have been found to be high achievers in academic performance, they are also known to sacrifice many aspects of their lives to succeed academically. It is plausible that people with a stereotypical view often overlook the actual potential of Western students. In a literacy test conducted by OCED, test results revealed that 9 of the top 10 highest performing graduates attended Western universities (2019). The literacy test results revealed that people who are not influenced by CHC are as competent as people who have adopted the Confucian value academically, suggesting that the Confucian way is not the only way towards academic success. In addition, when comparing academic stress levels between Chinese and American students, both groups faced similar academic stress. However, it is shown that Chinese students' stress derives primarily from their parents' expectations, and their expectation of attaining high academic scores, whereas the stress for American students arises from their personal expectations. Further, students from China devote more time to schoolwork and less time to resting and playing compared to their Western counterparts (Hu & Zhang, 2017). Unlike people from a

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4 Confucian background, where the act of learning is primarily motivated by a combination of  
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6 parental and societal expectations, Western students mostly act out of their own will, embracing  
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8 their intrinsic motivation. Although Western students face the same levels of academic stress as  
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10 Chinese students, they typically choose to endure the stress voluntarily, without any external force  
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12 that might deprive students to have the option to make choices along the way. Indeed, the choice  
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14 that the American students were able to make regarding whether or not to study diligently provided  
15  
16 them with a sense of control that was proven to be a protective factor when coping with academic  
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18 and health stressors for college students (Hall et al., 2006).  
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#### 27 4.2. Implications for Parents 28 29 30 31

32 The example from the West showed that instead of acting as a controlling force and  
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34 creating unnecessary stress for children, parents are better to withdraw from their children's  
35  
36 academic lives and allow them to gain a sense of control for themselves. Alternatively, parents can  
37  
38 behave as an emotional coach, assisting their child in the pursuit of success. In Gottman (2014)'s  
39  
40 research on how to raise an emotionally intelligence child, he noticed there are two types of  
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42 approaches that parents often adopt when dealing with their children's emotions. Parents using the  
43  
44 emotion-dismissing approach tend to overlook their child's emotions, even when they observe  
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46 emotions in their children, viewing those emotions as unimportant or urging them to eliminate the  
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48 emotion as soon as possible. Alternatively, parents adopting the emotion-coaching approach view  
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50 emotions as an opportunity for teaching and bonding. In addition, they will listen and validate their  
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52 child's feelings, make sure their child develops awareness for their emotional expression, and  
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54 eventually assist them to cope with their emotions. Since parents play a significant role in the  
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4 development of their children, it is unsurprising that their ways of practice might impact their  
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6 child’s ability to regulate emotion. Loop and Roskam (2016) discovered that children whose  
7  
8 parents have coached and stimulated their emotions, displayed higher capacity to dealing with  
9  
10 emotionally challenging situations compared to those whose parents had not employed such  
11  
12 practices. Thus, suggesting that parents from the CHC society could focus more on their children’s  
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14 emotional development than on their effort and performance at school, could lead to a healthier  
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16 EI, spontaneous motivation, and in turn, a greater academic outcome.  
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#### 24 4.3. Implications for the Educational System

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29 From a broader perspective, it is crucial for the government to re-examine the current  
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31 educational system. By implementing the pragmatism that Confucius endorses, the educational  
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33 system in Hong Kong focuses on “teaching to test” causing the curriculum to center on teaching  
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35 skills and knowledge that could increase students’ standardized test scores, thus improving  
36  
37 students’ chances of gaining acceptance to exceptional universities. This particular practice  
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39 neglected students’ development in other academic aspects. In a public opinion survey conducted  
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41 by three legislative members, nearly all participants believe it is necessary for the government to  
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43 review the current educational system, claiming it places too much emphasis on academic  
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45 achievement, “teaching to test”, and creating an overly competitive atmosphere (Chan, 2019). The  
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47 same system that overextends students, could lead to their emotional breakdowns. Instead of  
48  
49 creating a stressful and monotonous system that is solely focused on students’ grades, the  
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51 government and educators in Hong Kong or societies with CHC backgrounds could view the  
52  
53 Western education system as a reference for potential improvements. For instance, to ensure  
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4 students achieve growth in aspects other than academics, the Ministry of Education in Canada  
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6 requests a minimum of 40 hours of community involvement for high school graduation. This  
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8 allows students to develop awareness and understanding about civic responsibility (Ontario's  
9  
10 Ministry of Education, n.d.), which provides students with an opportunity to make connections  
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12 and develop relationships with people other than their classmates within the community. When  
13  
14 students become involved in society, this can possibly increase students' EI during the process.  
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18 Also, by including community involvement as a requirement for graduation, students are no longer  
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20 judged solely by their grades, but are evaluated more comprehensively, reducing the pressure that  
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22 is imposed on students in a solely grade-orientated system.  
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#### 27 28 4.4. Limitations 29

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33 There are limitations to the current study. First, utilizing a questionnaire as a research tool  
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35 for primary school students, some of them may have misinterpretation or difficulty understanding  
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37 questions included in the questionnaire. Also, since the questionnaire is based on self-reporting,  
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39 students might exhibit social desirability bias to impress the researchers, which could lead to untrue  
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41 responses. Second, due to the age range of the subjects, the questionnaires for the study could only  
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43 include measures that were intelligible for younger participants, which were brief, and included  
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45 words that were more accessible to children or teenagers. Therefore, the intricacy of the tested  
46  
47 variables including EI and learning motivation could not be tested more comprehensively, such as  
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49 measuring students' learning motivations specifically as internal and external, and differentiating  
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51 EI as different components in the measurement. Future studies may test the variables in a broader  
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53 spectrum to gain a more complete view of the effect. Third, the subjects involved in the current  
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4 study could lack representativeness since the participants were recruited conveniently from two  
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6 primary schools. Therefore, the sample could be considered as a non-probability sample and could  
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8 not be representative of all primary students in Hong Kong. The sampling method for future studies  
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10 may be altered by using a randomized sample to increase the generalizability of the results. Finally,  
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13 PROCESS is an observed-variable modeling tool that relies on ordinary least square (OLS)  
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15 regression. One of the weaknesses of regression analysis is its susceptibility to bias in the  
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17 estimation of effects due to random measurement error (Darlington & Hayes, 2017). This  
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19 weakness generalizes to regression-based mediation analysis that can be solved by structural  
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21 equational modeling (SEM). Fortunately, with a relatively large sample size and a simple  
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23 mediation model in present study, the discrepancies in standard errors between PROCESS and  
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25 SEM would be trivial (Hayes et al., 2017). SEM is suggested to analyze more complex models in  
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27 future studies.  
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## 36 **5. Conclusion**

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41 The present study overturns some of the traditional CHC parents' views on academic  
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43 achievement, instead of aimlessly pushing their children to study hard, findings from the current  
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45 study suggests that focusing more on students' level of EI would lead to students' motivation to  
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47 learning and thus better academic performance. In contrast, learning motivation alone could not  
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49 influence students' academic performance. Placing too much emphasis on children's ability and  
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51 effort to learn will lead to unnecessary stress only. Of course, based on the complicated nature of  
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53 EI and learning motivation, these results can further be examined with more comprehensive and  
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55 detailed measures for participants with a higher maturity level. However, when EI plays such an  
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4 important role to students' academic performance even in a society with CHC backgrounds, it is  
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6 worth sensitizing parents and educators of their emotional coaching role to validate children's  
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8 emotions, and nurture them with emotional traits, abilities, and competences to manage and cope  
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10 with their emotions, in turn, contribute to their academic performance. EI, as a type of intelligence,  
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12 is possibly to be enhanced. Moreover, various intervention approaches, EI training programs for  
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14 parents or teachers, or multimedia training tools are empirically ready to be used. Diligence and  
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16 hard work are not the only ways for children's scholastic achievement. EI has been examined as  
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18 equally important. It is time for parents and educators with CHC backgrounds to move away from  
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20 grade orientation to measure their children's academic performance.  
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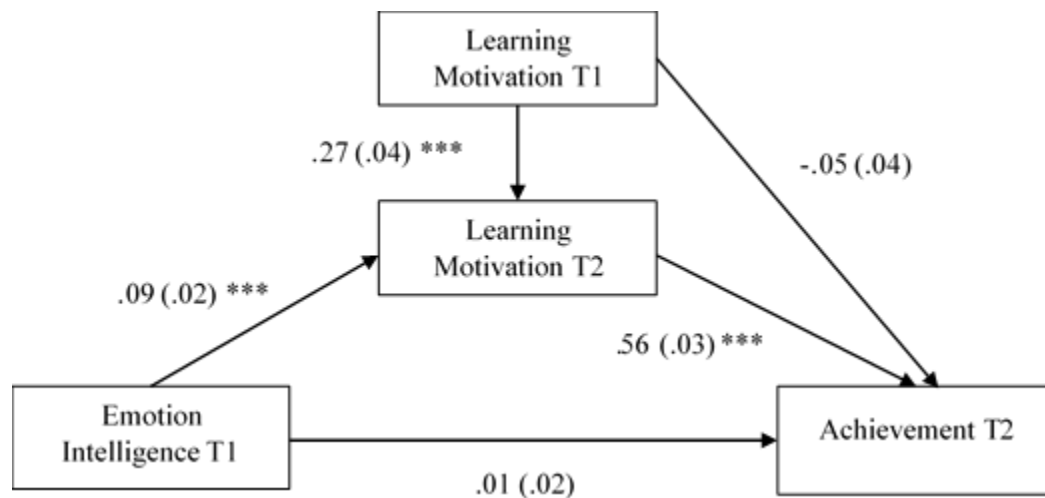


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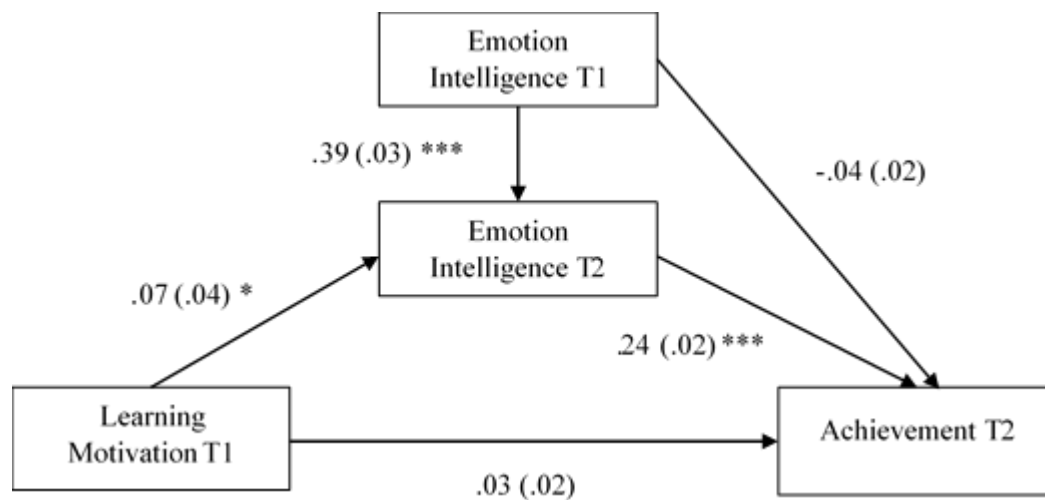
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**Figure 1.** Theoretical model: learning motivation T2 as a mediator in the relationship between emotional intelligence T1 and academic achievement T2.



**Figure 2.** Alternative model: emotional intelligence T2 as a mediator in the relationship between learning motivation T1 and academic achievement T2.



**Table 1: Demographics of the Participants**

	Number (N)	Age				Gender (%)	
		Minimum	Maximum	Mean	SD	Male	Female
Grade 4	258	8	10	8.92	0.45	48.5	51.5
Grade 5	267	9	11	9.88	0.44	44.3	55.7
Grade 6	261	10	13	10.67	0.49	43.7	56.3

**Table 2: Correlation Matrix**

	ACH T1	ACH T2	EI T1	EI T2	MT T1	MT T2	School	Gender
<b>ACH T1</b>	1							
<b>ACH T2</b>	0.56**	1						
<b>EI T1</b>	0.51**	0.37**	1					
<b>EI T2</b>	0.39**	0.52**	0.53**	1				
<b>MT T1</b>	0.63**	0.42**	0.51**	0.37**	1			
<b>MT T2</b>	0.39**	0.63**	0.37**	0.48**	0.44**	1		
<b>School</b>	0.06	-0.07*	0.12**	0.02	0.06	0.01	1	
<b>Gender</b>	0.03	-0.02	-0.11**	-0.07*	-0.10**	-0.04	-0.08*	1
<b>Mean</b>	2.89	2.82	4.76	4.83	6.27	6.24	/	/
<b>SD</b>	0.72	0.69	1.14	1.07	1.19	1.20	/	/

**ACH = Achievement; EI = Emotional Intelligence; MT = Motivation**

**Table 3:** Direct and Indirect Effects of the Mediation Model

<b>Model Summary Mediator (Learning Motivation)</b>					
	<b>R</b>	<b>R2</b>	<b>SE</b>	<b>F</b>	<b>p</b>
	.72	.52	.23	161.68	.000
<b>Total Effect of X (Emotional Intelligence) on Y (Academic Achievement)</b>					
	<b>Effect</b>	<b>SE</b>	<b>t</b>	<b>LLCI</b>	<b>ULCI</b>
	.05	.03	2.08	.00	.09
<b>Direct Effect of X on Y</b>					
	<b>Effect</b>	<b>SE</b>	<b>t</b>	<b>LLCI</b>	<b>ULCI</b>
	.01	.02	0.57	-.02	.05
<b>Indirect Effect of X on Y</b>					
	<b>Effect</b>	<b>SE</b>	<b>t</b>	<b>LLCI</b>	<b>ULCI</b>
	.05	.01	--	.02	.08

**Table 4:** Direct and Indirect Effects of the Mediation Model (Alternative)

<b>Model Summary Mediator (Emotional Intelligence)</b>					
	<b>R</b>	<b>R2</b>	<b>SE</b>	<b>F</b>	<b>p</b>
	.58	.33	.32	96.68	.000
<b>Total Effect of X (Learning Motivation) on Y (Academic Achievement)</b>					
	<b>Effect</b>	<b>SE</b>	<b>t</b>	<b>LLCI</b>	<b>ULCI</b>
	.05	.03	2.08	.00	.09
<b>Direct Effect of X on Y</b>					
	<b>Effect</b>	<b>SE</b>	<b>t</b>	<b>LLCI</b>	<b>ULCI</b>
	.03	.02	1.43	-.01	.07
<b>Indirect Effect of X on Y</b>					
	<b>Effect</b>	<b>SE</b>	<b>t</b>	<b>LLCI</b>	<b>ULCI</b>
	.02	.01	--	-.01	.07

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.