

The Relationships among the Levels of Extraversion, Social Competence and Academic
Motivation

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Declaration

I, Fok Hau Man, declare that this research report represents my own work under the supervision of Dr. WAN Lai Yin Sarah, and that it has not been submitted previously for examination to any tertiary institution for a degree, diploma or other qualifications.

Signature:

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Date:

16 April 2021

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Abstract

Cooperative learning has been widely used in contemporary classrooms since 1970s. It is a learning method which requires students to actively collaborate and interact with one another. While it is shown in a lot of previous studies that cooperative learning is effective in increasing students' academic motivation, limited studies have studied its effectiveness on students with different levels of extraversion and social competence. To establish the basis for the discussion on the effectiveness of cooperative learning on students with individual differences, a quantitative correlational study investigating the relationship among the level of extraversion, social competence, and academic motivation was conducted. The sample of this study was 125 students aged 12 to 18 from a secondary school in Hong Kong. Participants were asked to complete a questionnaire which consists of the scales measuring the level of extraversion, social competence and academic motivation. Pearson Correlation and hierarchical multiple regression was used to examine the relationships among the variables and the moderating effect of social competence on the relation between extraversion and academic motivation. It is found that there is a positive correlation between extraversion and social competence, extraversion and academic motivation, as well as social competence and academic motivation. Yet, no moderating effect of social competence was found on the correlation between extraversion and academic motivation. The educational implication of this study is that measures should be taken to assist students with lower levels of extraversion and competence. Several possible measures were suggested in this report.

Keyword: extraversion, social competence, academic motivation

The Relationships among Extraversion, Social Competence and Academic Motivation

Introduction

Cooperative learning in the classroom has become more common and recommended in the field of education since the 1970s (Zuo, 2011). It is a learning method in which students are required to discuss, collaborate, assist one another and evaluate others' knowledge in a small group setting. Students collaborate with an aim of solving a problem, completing a task, or achieving a goal which results in the acquisition of knowledge (Slavin, 1995). Through collaboration and interaction, students in small groups can fulfill one another's deficiencies and maximize their own and peers' learning (Johnson, Johnson & Smith, 1991). Cooperative learning highlights the importance of group collaboration and interaction among members. In contrast to the traditional teacher-centered approach in which students play a passive role in learning, cooperative learning requires students to have higher engagement in social interaction and social ability from students.

In the educational setting, students with different personalities and temperaments are often assigned in the same classroom, receiving similar educational and learning experiences. John and Srivastava's (1999) Big Five Model states that there are five core personality traits, namely openness, conscientiousness, extraversion, agreeableness, and neuroticism, where extraversion highlights the sociability of an individual. It is found that individuals differ in the level of extraversion varies in different facets, such as attention span, levels of creative ability, and working memory (Elliott, 1972; Eysenck, 1982; Kasof, 1997; Martindale, 1999). These dissimilarities may result in their differences in their engagement and performance in class, which eventually create a learning outcome gap between extroverts and introverts. In a

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contemporary classroom in which cooperative learning is conducted, students with different levels of extraversion and social competence are often required to cooperate and complete tasks together in a group setting. While studies have shown that the adoption of cooperative learning is generally effective to increase students' achievement, motivation, proactiveness as well as students' interests in academic subjects (Johnson & Johnson, 1999), limited research has investigated its effects on students with different levels of extraversion and social competence despite the fact that such kind of research is essential in the prevention of widening the existing possible learning outcome gaps among students with various levels of extraversion. Therefore, to establish the basis for the discussion on the effectiveness of cooperative learning on students with personality differences, a quantitative correlational study investigating the relationship among the level of extraversion, social competence, and academic motivation is conducted.

Literature Review

Extraversion/introversion

Extraversion/introversion has long been one of the most prominent facets of the study of personality. People with a high level of extraversion are regarded as extroverts while those with a low level of it are considered as introverts. According to John and Srivastava's Big Five Model (1999), extraversion features sociability, assertiveness, excitability, high emotional expressiveness and talkativeness. Extroverts are more outgoing, and they gain energy from external social stimulation, preferring to interact with a large group of people and tend to actively express their ideas more than listening during social interaction. In contrast, introverts are more comfortable being by themselves as they are easily exhausted by social situations. They have a stronger preference for interacting with a small group of familiar people and tend to immerse

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themselves within their internal world of thoughts and emotions. They also prefer listening to expressing their ideas verbally when being engaged in socialization and interaction. These differences may influence students' engagement, participation, performances and enjoyment in group learning academic tasks, which may eventually result in learning outcome differences between extroverted and introverted students.

Social Competence

Social competence is a multidimensional and dynamic construct that varies with age and development. It can be defined as the ability to manage social relationships and to achieve social goals in numerous social situations and contexts with the use of appropriate ways to attain positive results (Cavell, 1990; Ford, 1982). It consists of the development of skills, techniques and behaviors which individuals can utilize depending on the social contexts and situations they encounter. According to Dishion (1990), social competence plays an important role in adolescents' academic development. It is highlighted that students who can successfully display more responsible as well as prosocial behaviors at school and gain more social acceptance from their peers are at less risk for academic failure compared with those who display aggressive behaviors and are socially rejected by peers.

Academic Motivation

While many factors may have an impact on student's academic success, it is found that academic motivation is one of the most influential factors which predicts students' academic achievement (Hidi & Harackiewicz, 2000). Academic motivation can be regarded as a learner's desire for studying academic subjects, which is indicated by the level of persistence and interests (McClelland, Atkinson, Clark, & Lowell, 1953). Students who possess different levels of



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academic motivation show differences in both strength and quality regarding the engagement in studying for academic subjects, which also predicts achievement and continuation to university (Deci & Ryan, 2002; Reeve, 1996). According to the Self-determination theory, an individual's motivation is strongly influenced by the different levels of autonomy, which represents the perception of being in control of their own behaviors (Deci & Ryan, 2002). Believing that their behaviors, actions and destinies are primarily determined by external factors rather than their control, amotivated individuals possess the lowest level of autonomy and motivation. (Ryan & Deci, 2000; Vallerand et al., 1992).

According to Deci and Ryan (2002), there are three types of motivation and behavior can be extrinsically motivation, intrinsically motivation, or amotivated. Regarding extrinsic motivation, it refers to the external factors which motivate one to perform various behaviors. Behaviors encouraged by this type of motivation are engaged in as a means to an external purpose. Extrinsic motivation consists of three sub-types of motivation, namely external regulation, introjection, and identification. With external regulation, individuals are motivated to obtain rewards and avoid punishment. In the education context, the examples of external rewards include good academic results, a more prosperous career, or social rewards such as praises, admiration and recognition from peers, teachers and parents. With introjected regulation, the reasons for performing the behaviors are internalized by individuals based on the past external contingencies, whereas with identification, the need of performing the behaviors are also internalized yet deliberately chosen and determined by oneself.

Concerning intrinsic motivation, individuals with intrinsic motivation are encouraged to engage in certain behaviors for the enjoyment, satisfaction and pleasure derived from the

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engagement (Deci & Ryan, 2002). It is suggested that intrinsic motivation can be further classified into three different sub-types, namely intrinsic motivation to know, to accomplish things and to experience stimulation. Intrinsic motivation to know refers to the joy and satisfaction resulted from the process of learning, exploring and understanding something new. Intrinsic motivation towards accomplishment can be seen as the joy and satisfaction one experiences during his/her process of attempts to create or to accomplish, rather than the accomplishment itself. Lastly, individuals with intrinsic motivation to experience stimulation perform behaviors for the sake of experience stimulating sensations.

Apart from extrinsic motivation and intrinsic motivation, the third type of motivation, which is amotivation, was proposed (Deci & Ryan, 2002). Amotivated individuals fail to perceive the relationship and contingencies between their behaviors and the outcomes. In other words, they are neither extrinsically motivated nor intrinsically motivated. They believe that their actions are the results of external forces which are out of their control and hence have a sense of incompetence and lack expectancies of controllability.

Although there are different sub-types of motivation, only extrinsic and intrinsic academic motivation as a whole are examined in this study. This is to reduce the complexity of the study and to ensure the depth of investigation in the facets of extrinsic and intrinsic academic motivation.

The Relationship among the Level of Extraversion, Social Competence, and Academic Motivation

In the recent development of education, teaching and learning approaches, such as cooperative learning and activity-based learning, which feature active involvement and

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collaboration among students have become more popular and are widely encouraged. Numerous studies have justified that these teaching strategies are effective in promoting students' motivation, academic achievement and development of higher-order thinking skills in general (Schmidt, Vermeulen, & Van Der Molen, 2006; Zumbach, Kumpf, & Koch, 2004). The hands-on activities involved, which are usually perceived as 'fun' and 'interesting' by students, can raise learners' interest in the subject matter and increase their intrinsic motivation to learn (Freedman, 1997; Spitzer, 1996). However, when discussing the effectiveness of cooperative learning, limited research has considered students' individual differences, such as personalities and temperaments. It is important to highlight that students' differences in levels of extraversion and social competence may result in the variation of performance in group learning activities among them. For example, students with low levels of extraversion and/ or social competence may find engaging in group activities stressful. This gives rise to some questions: is cooperative learning effective for students who are introverts? Is cooperative learning also effective for students who have a lower level of social competence? What is the effectiveness of cooperative learning on students with contrasting levels of extraversion and social competence? To answer these questions, it is essential to first explore the relationship among extraversion/introversion, social competence, and academic motivation.

Levels of extraversion and academic motivation

It is reported that engaging in activities which involve the participation of other individuals is perceived as a draining procedure by introverts (Pawlik-Keienlen, 2007). A sense of wearing themselves out and emptiness in introverts also emerged when joining these activities (Pawlik-Keienlen, 2007). It is also found that introverts have a lower level of participation in

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meetings (Yellen, Winniford, & Sanford, 1995). Therefore, it is possible that they may have a lower involvement in group learning activities in the classroom. With lower participation as well as a sense of mental exhaustion, introverts may not perceive hands-on group learning activities as fun. However, Spitzer (1996) believes that the inclusion of the element of fun is crucial in promoting students' learning motivation. Introverts may, therefore, have a lack of academic motivation when being pushed to participate in group learning activities, ignoring their stress derived from social interaction.

While the frequent needs for social interaction at school may diminish introverts' academic motivation, extroverts, in contrast, may benefit from social interaction and it may boost their academic motivation. Previous research has shown that a higher level of positive affect and a lower level of negative affect is reported by extroverts when they are engaged in social interaction, which means that extroverts generally have a greater extent of enjoyment in social interaction (Diener, 2009; Emmons et al. 1986). It is also indicated that the correlation between extraversion and positive affect becomes stronger when the level of extraversion is measured in a social setting (Emmons et al., 1986). It implies that by merely being exposed to the presence of other individuals, extroverts can increase their level of positive affect. Therefore, extroverts may experience a higher level of enjoyment at school, which enhances their academic motivation.

Levels of extraversion and social competence

Social competence refers to skills which are required in various kinds of social situation and it is developed through social training (Martowska, 2014). Individuals received social training during the course of development by living and acting among other people, engaging in

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social interaction (Martowska, 2014). As social competence can be shaped by social training, the intensity of social training becomes a determining factor of one's level of social competence.

As extroverts and introverts vary in terms of their need for external and social stimulation (Jung, 1971), the intensity of social training they received may be different. Since extroverts are excited by large group social interactions and tend to seek social stimulation, they get involved in social interaction more often, receiving more social training. This may result in better development of social competence in extroverts. In fact, extroverts have shown to display more sociable behaviors and demonstrate more socially appropriate interaction and conversation techniques, for example, head nodding, smiling and appropriate physical contact when engaging in social interactions (Eaton & Funder, 2003). The frequent utilization of these appropriate social interaction techniques indicates a higher level of social competence. In contrast, as introverts have a higher tendency to be exhausted by social interaction and have a smaller need of seeking external stimulation, they may tend to limit social contacts. This may result in introverts' lower level of social involvement and hence limits the intensity of social training, resulting in a lower level of social competence in introverts.

Levels of social competence and academic motivation

Students with lower social competence are found to possess fewer social skills (Harter, 1985), which are involved in building positive relationships with peers and resolving conflicts that emerged in group learning activities. Social competence is also seen as essential in gaining social acceptance from peers, creating and maintaining positive social interaction and friendships (Hubbard & Coie, 1994; Harter, 1985). Therefore, with a higher level of social competence, students may be more likely to have a better relationship with groupmates and a better

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performance in resolving conflicts, which may contribute to more effective and amicable collaboration and communication with groupmates during the process of cooperative learning activities, eventually resulting in higher achievement and motivation in the academic domain. These factors may also hinder these students from enjoying group learning activities and result in less academic motivation.

The Moderating Effect of Social Competence on the Relationship between Extraversion and Academic motivation

It is mentioned that individuals with a higher level of extraversion receive more positive affect and enjoyment not only through social interaction, but also merely in the presence of other individuals (Emmons et al., 1986). In other words, being able to seek a higher level of enjoyment in studying at school, which is a highly social environment, and through participating in various learning activities, which requires students to cooperate and interact with each other, extroverted students may possess a higher level of academic motivation compared to introverted students. Owing to the fact that students with a high level of social competence are more able to establish amicable relationships with peers and teachers, handle and resolve conflicts more efficiently and demonstrate more socially favorable gestures and conversation skills (Eaton & Funder, 2003; Harter, 1985), extraverted students with a higher level of social competence may benefit even more in learning activities and at school as a social environment. For extroverted students with a higher level of social competence, not only do they enjoy learning activities and being a presence at school due to their higher level of extraversion, but also possess the social skills, techniques and competence to deal with various social interaction situations, including the negative social interactions. These negative social experiences, such as disagreement among

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students, arguments and conflicts, may eventually result in negative affect and reduce the social rewards obtained from peers and teachers, and hence leading to an injurious effect on students' enjoyment in learning, diminishing their academic motivation. Therefore, compared with the extroverted with a low level of social competence, it is possible that extroverted students who possess a higher level of social competence can earn more enjoyment and social rewards during the participation of learning activities at school due to their more advanced utilization of social skills and techniques, which can help them to reduce the occurrence of negative social experience and avoid negative affect arose from them. It eventually results in a higher level of academic motivation. In other words, the level of social competence may amplify academic motivation, moderating the relationship between extraversion and academic motivation.

To summarize, this research investigates the following research questions:

1. What is the relationship between the level of extraversion and academic motivation?
2. What is the relationship between the level of extraversion and social competence?
3. What is the relationship between the level of social competence and academic motivation?
4. Does the level of social competence act as a moderator in the relationship between the levels of extraversion and academic motivation?

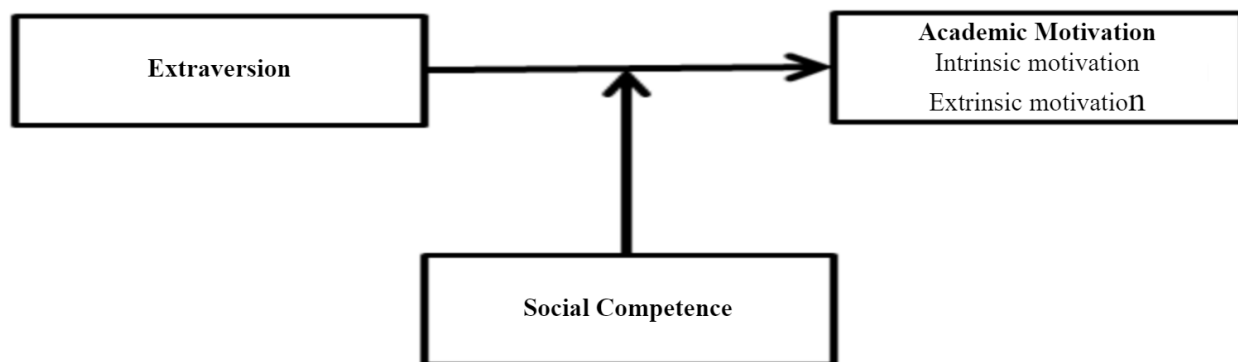


Figure. 1. A diagram indicating the relationship moderating effect of social competence on the relationship between extraversion and academic motivation.

With reference to the relationships among extraversion/introversion, social competence and academic motivation, four hypotheses have been generated:

- H1: There is a significant positive correlation between the level of extraversion and academic motivation.
- H2: There is a significant positive correlation between the levels of extraversion and social competence.
- H3: There is a significant positive correlation between the levels of social competence and academic motivation.
- H4: The level of social competence moderates the correlation between the levels of extraversion and academic motivation.

Methodology

Participant

A total of 124 secondary school students (aged 12-18), which comprised of both Chinese and non-Chinese students and both female and male, were recruited as the participants for the research. All participants invited are from a local secondary school in

Hong Kong, which is a government-subsidized local school. The school is selected due to convenience as the researcher was having field experience in the target school during the span of the research. Convenience sampling was used in the sampling process. To recruit the participants, the researcher promoted and informed potential participants of the research by making announcements at the school.

Instrument

Measuring the Level of Extraversion. The level of extraversion was measured by Big Five Inventory (BFI) (John & Srivastava, 1999). 8 items, which measure the level of extraversion will be extracted from the inventory and be included in the questionnaire (see Appendix A). This self-reported five-point Likert-type inventory (1=Disagree strongly, 5=Agree strongly) includes items, such as “I see myself as someone who is talkative” and “I see myself as someone who is reserved”. The value of Cronbach’s alpha of the extraversion inventory is 0.87 (Arterberry, Martens, Cadigan, & Rohrer, 2014). Besides, the Chinese version of the inventory will also be adopted (Pervin & John, 1999) (see Appendix B). The value of the Cronbach’s alpha of the translated version ranged from .593-.752 and it demonstrates a good convergent and discriminant validity (Carciofo, Yang, Song, Du, & Zhang, 2016).

Measuring Social Competence. Perceived Social Competence Scale-II (PSCS-II) (Anderson-Butcher et al., 2014) was employed to measure the level of social competence of participants (see Appendix C). This self-report 5-point Likert-type scale (1=Not at all true, 5 = really true) includes five items, such as “I show concern for others” and “I give support to others”. In previous research, confirmatory factor analysis (CFAs) has been

conducted, which shows that PSCS-II demonstrated acceptable factorial validity (Anderson-Butcher et al., 2014). The McDonald's omega of the scale was .87, which indicates reliable internal consistency (Romera, Rabanillo, Ortiz, Ruiz, & Bolaños, 2017). To generate the Chinese version of the instrument, double translation was conducted (see Appendix D).

Measuring Academic Motivation. Academic motivation of participants will be measured by the Academic Motivation Scale (AMS) (Vallerand et al. 1992) (see Appendix E). This self-reported seven-point Likert-type scale (1=Does not correspond at all, 7=Corresponds exactly) was developed based on Self-Determination Theory. It inquires the participant about the reasons why they go to school. It consists of 28 items in total. Example items include “because I really like going to school” and “because for me, school is fun”. The scale includes seven sub-scores, namely intrinsic motivation (to know), intrinsic motivation (to accomplish things), intrinsic motivation (to experience stimulation), extrinsic motivation (external regulation), extrinsic motivation (introjection) and extrinsic motivation (identification). Each sub-score includes 4 items. The scale's level of concurrent and construct validity was proved to be adequate (Vallerand et al., 1993). With Cronbach' alpha ranging between .62-86. (Vallerand et al., 1992), AMS was also found to be a reliable measure of academic motivation. The Chinese version of the scale was translated with double translation (see Appendix F).

Since the focus of this study mainly lies on the intrinsic and extrinsic motivation, the six sub-scales, excluding amotivation, were then combined to form two variables, which are intrinsic motivation (12 questions) and extrinsic motivation (12 questions).

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Table 1 indicates the composition of the variables, the sub-scales, and the sample questions.

Table 1.

Composition of the Variables, Sub-scales and Sample Questions

Type of Motivation	Sub-scale	Sample Question
Intrinsic Motivation	Intrinsic Motivation to Know	Because I experience pleasure and satisfaction while learning new things.
	Intrinsic Motivation to Accomplish Things	For the pleasure I experience while surpassing myself in my studies.
	Intrinsic Motivation to Experience Stimulation	For the "high" feeling that I experience while reading about various interesting subjects.
Extrinsic Motivation	Extrinsic Motivation Identified	Because I think that a high-school education will help me better prepare for the career I have chosen.
	Extrinsic Motivation Introjected	To prove to myself that I am capable of completing my high-school degree.
	Extrinsic Motivation External Regulation	In order to have a better salary later on.

Reliability

Reliability analysis was adopted on the above scales to assess the internal reliability of the scales in the sample of this study. The extraversion scale of the BFI has a Cronbach's alpha value of .633, which indicates moderate reliability. The Cronbach's alpha value of the PSCS-II for measuring the level of social competence is .902, which demonstrates excellent reliability. For AMS which measures academic motivation, the Cronbach's alpha value of all

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the sub-scales range from .768 to .867. The Cronbach's alpha value of combined scores intrinsic academic motivation and extrinsic academic motivation are .935 and .922 respectively. The Cronbach's alpha values of all scales used are shown in Table 2.

Table 2.
Reliability Analysis of Scales

Construct	No. of items	Cronbach's Alpha
Extraversion	8	.633
Social Competence	5	.902
Intrinsic motivation	12	.935
Intrinsic motivation – to know	4	.854
Intrinsic motivation – towards accomplishment	4	.850
Intrinsic motivation – to experience stimulation	4	.768
Extrinsic motivation	12	.922
Extrinsic motivation - identified	4	.838
Extrinsic motivation - introjected	4	.855
Extrinsic motivation - external regulation	4	.867
Amotivation	4	.770

Note. $N = 124$

Procedure

Students who had expressed their interest in joining the study were invited to the classroom. They were informed of the aims and the procedure of the study. It was highlighted to the participants that there is no risk involved in this study and they have the rights of withdrawing from the study at any time without any consequences. Participants were then given the information sheet of the study and the participant consent form. For participants aged 15 or below, a parental consent form and the information sheet were given to the parents. Participants who submitted their signed participant consent form and/or parental consent form were then invited to complete a set of 41-items questionnaires which is composed of the BFI, AMS and

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PSCS-II, in a classroom setting under the supervision and guidance of the researchers.

Participants were given a maximum of 30 minutes to complete the whole set of questionnaires.

Talking and any form of communication among participants was not allowed. Participants could leave the venue after completing and submitting the questionnaires to the researchers. The data collected was then inputted into SPSS and analyzed.

Data Analysis

Concerning the method of data analysis, after the data was collected and inputted, the process of data cleaning was conducted. One sample was deleted due to the massive number of missing items in the response. A descriptive analysis was then adopted to summarize the data collected and generate descriptive statistics of the variables, including the demographic variables, the level of extraversion, social competence, the sub-scores of academic motivations and the average scores of academic intrinsic and extrinsic motivation. Scatterplots are generated to visually examine the relationship between extraversion and academic intrinsic/extrinsic motivation, extraversion and social competence, as well as social competence and academic intrinsic and extrinsic motivation respectively. After that, Pearson correlation was conducted to further investigate the relationship. Finally, to examine the moderating effect of social competence on the relationship between extraversion and academic intrinsic and extrinsic motivation, hierarchal multiple regression was used. The interaction predictor was first generated by multiplying the centered mean of extraversion and that of social competence. This allowed us to study the extent and strength of the linear relationship between extraversion and academic intrinsic/extrinsic motivation, social competence and academic intrinsic/extrinsic motivation as

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well as the extent of moderating effect of social competence on the relationship between extraversion and academic intrinsic/extrinsic motivation.

Result

Descriptive analysis and Pearson Correlation

The frequencies and the proportion of the gender and the ethnicity of participants were shown in Table 3 and Table 4 respectively. The mean and standard variation of extraversion, social competence and academic motivation are indicated in Table 5. According to the scatterplots generated (see Fig. 2 – Fig. 8), positive linear relations are found between extraversion and social competence, extraversion and academic intrinsic and extrinsic motivation, as well as social competence and academic intrinsic and extrinsic motivation. To further investigate the relationship among these variables, after conducting the preliminary analysis for correlation, Pearson correlation was conducted (see Table 6). It is found that extraversion is moderately correlated with social competence, extrinsic motivation and intrinsic motivation respectively, $r = .350, p < .001$, $r = .364, p < .001$, and $r = .448, p < .000$, whereas there is strong relationship found between social competence and extrinsic motivation, $r = .519, p < .000$. Similarly, social competence is also found to be strongly correlated with intrinsic motivation, $r = .530, p < .000$. Since extraversion correlated with social competence, intrinsic motivation and extrinsic motivation, multiple regression analysis is conducted to investigate the moderating effect of social competence.

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Table 3.

Frequency and Proportion of the Gender of Participants

	Frequency	Percent	Valid Percent	Cumulative Percent
Female	39	31.5	31.5	31.5
Male	85	68.5	68.5	100.0
Total	124	100.0	100.0	

Table 4.

Frequency and Proportion of the Ethnicity of Participants

	Frequency	Percent	Valid Percent	Cumulative Percent
Chinese	102	82.3	82.3	82.3
Non-Chinese	22	17.7	17.7	100.0
Total	124	100.0	100.0	

Table 5.

Means and Standard Deviations of Age, Extraversion, Social Competence and Academic Motivation

	Mean	Standard Deviation
Age	15.71	1.860
Extraversion	3.20464	.497
Social Competence	3.466	.828
Intrinsic motivation	4.469758064516128	1.129105710782800
Intrinsic motivation – to know	4.6673	1.22794
Intrinsic motivation – towards accomplishment	4.5726	1.18544
Intrinsic motivation – to experience stimulation	4.1694	1.19643
Extrinsic motivation	4.686827956989247	1.184359214445382
Extrinsic motivation - identified	4.6935	1.26469
Extrinsic motivation - introjected	4.3810	1.38020
Extrinsic motivation - external regulation	4.9859	1.39223
Amotivation	3.0726	1.36996

Note. N = 124

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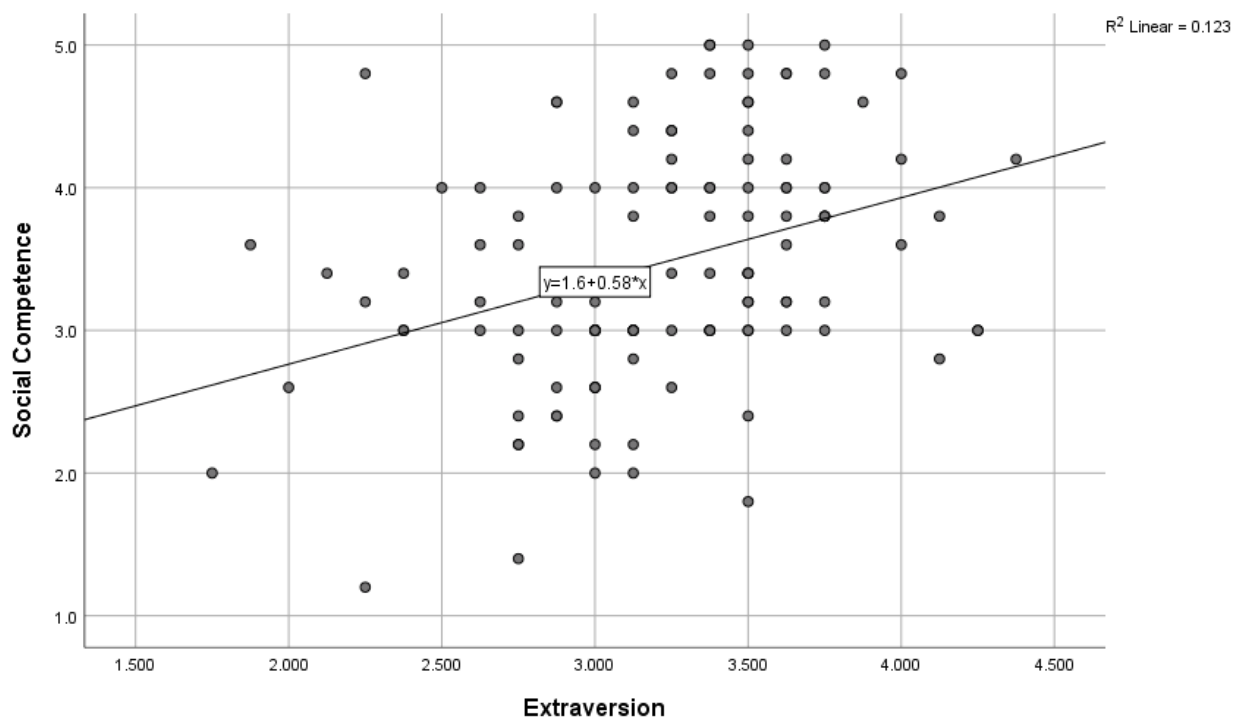


Figure 2. Relation between extraversion and social competence

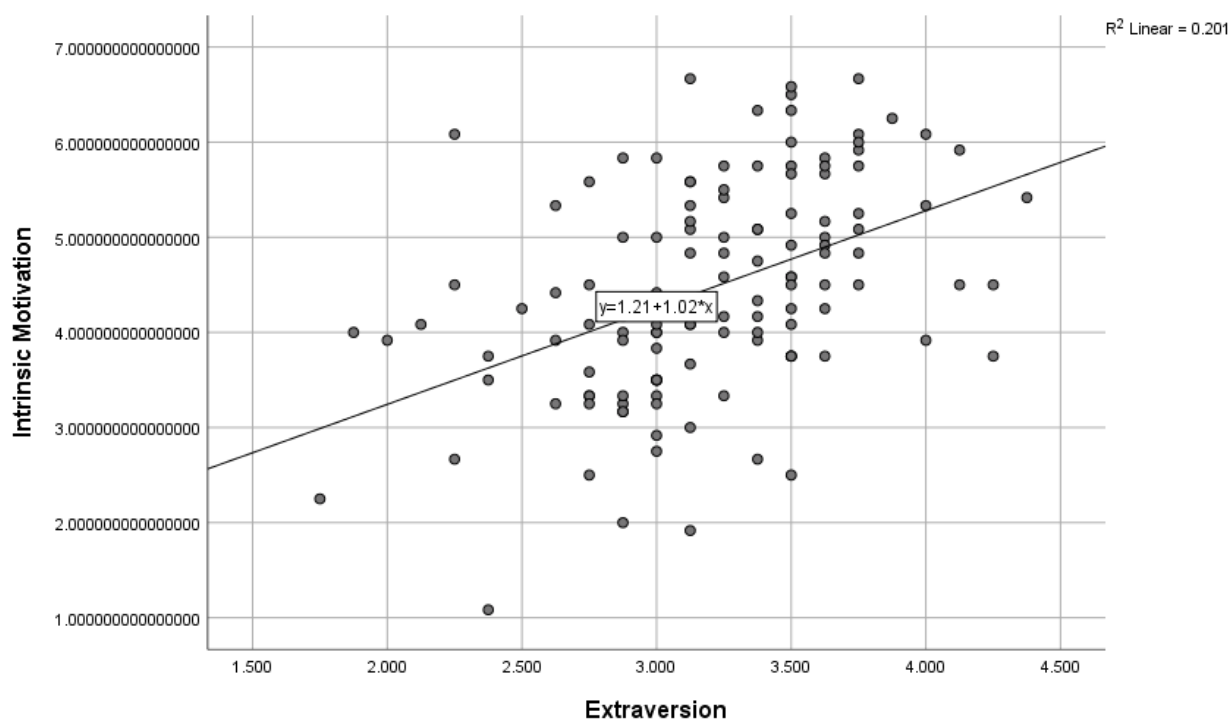


Figure 3. Relation between extraversion and intrinsic motivation

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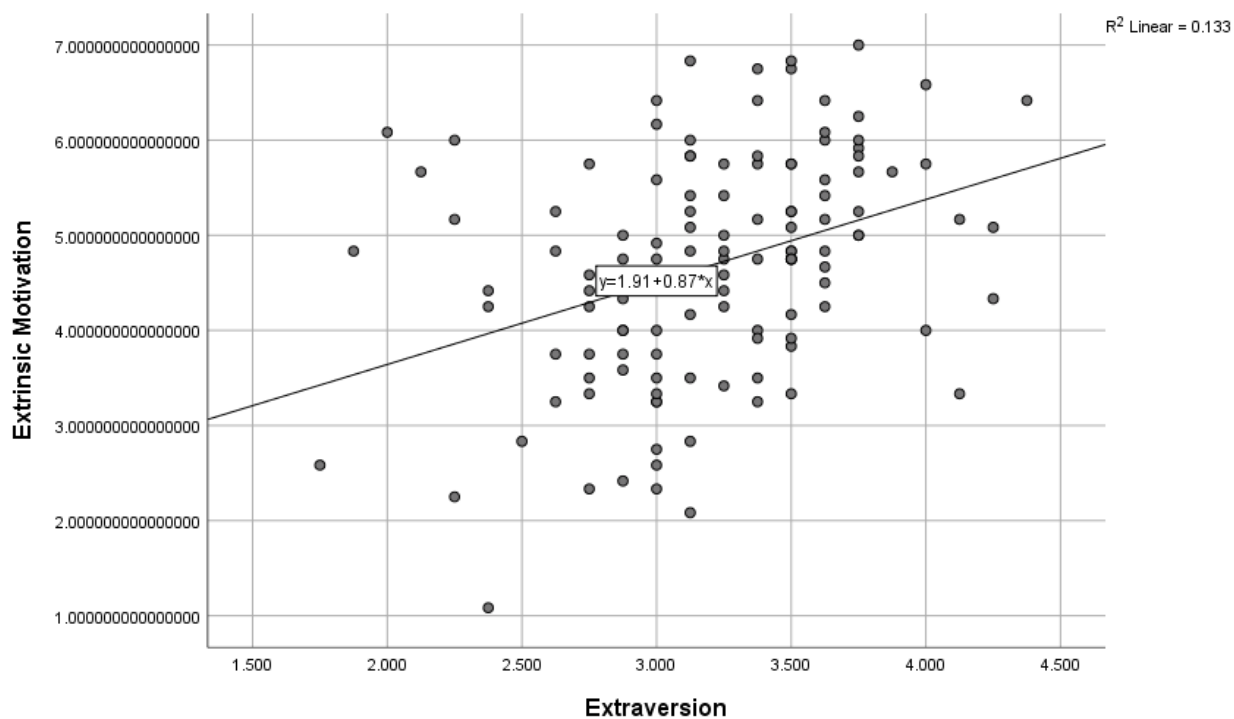


Figure 4. Relation between extraversion and extrinsic motivation

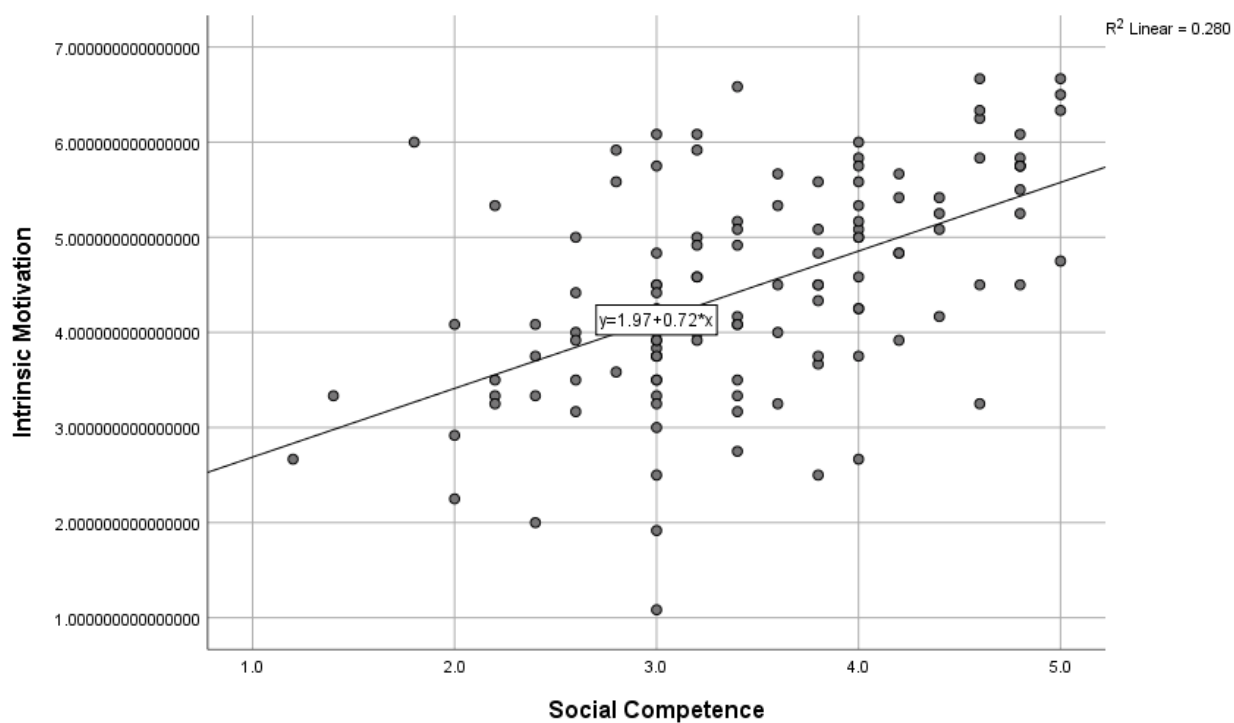


Figure 5. Relation between social competence and intrinsic motivation

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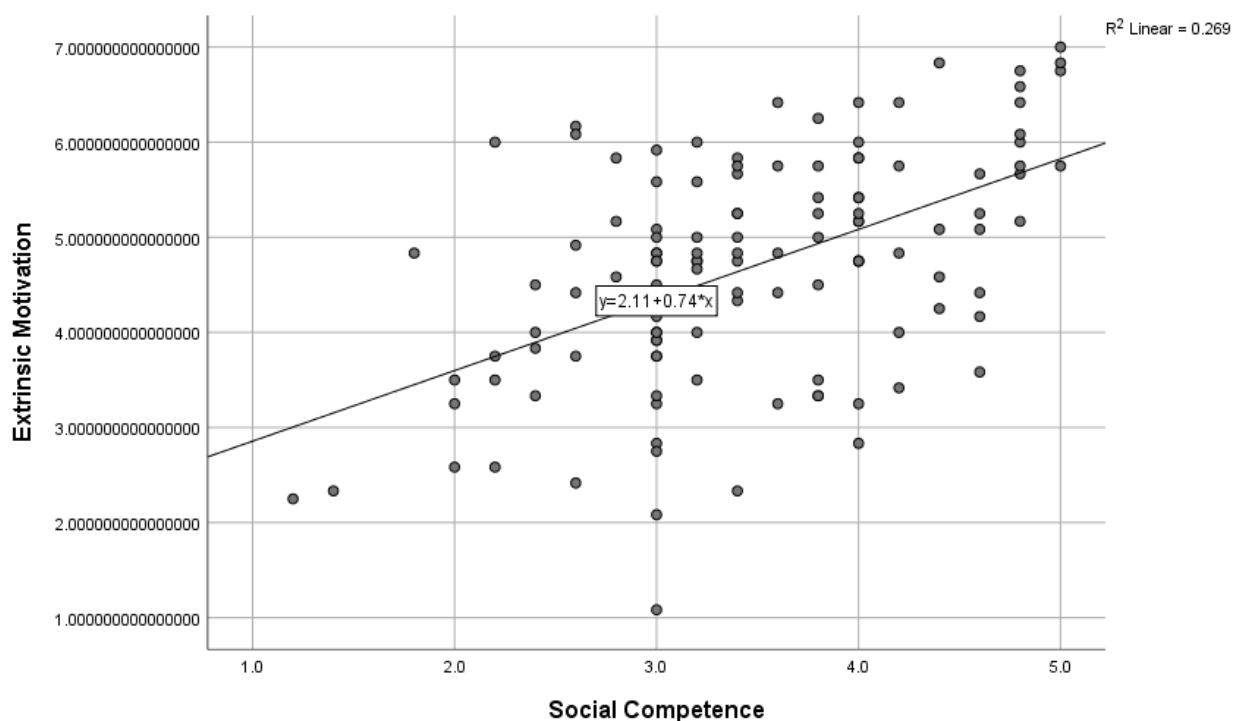


Figure 6. Relation between social competence and extrinsic motivation

Table 6.

Correlation between Extraversion, Social Competence and Academic motivation

Variables	1	2	3	4
1. Extraversion	-			
2. Social Competence	.350**	-		
3. Intrinsic Motivation	.448**	.530**	-	
4. Extrinsic Motivation	.364**	.519**	.775**	-

Notes. $N = 124$. ** $p < .001$, two-tailed.

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Multiple Regression Analysis

Hierarchical multiple regressions were conducted to investigate if the association between extraversion and academic motivation are moderated by social competence, after controlling the influence of demographic factors, namely age, level of study, gender and ethnicity.

For intrinsic motivation (dependent variable), the demographic factors are input in the first step of regression analysis, explaining 6.5% of the variance in intrinsic motivation. After the entry of the centered extraversion in the second step, the total variance explained by the model was 23%. At Step 3, the centered social competence was entered and the total variance explained by the model as a whole was 37%, $F(6,117) = 11.46$, $p < .001$. The model explained an additional 14% of the variance in intrinsic motivation, $R^2 \text{ change} = .14$, $F \text{ change}(1,117) = 26.06$, $p < .001$. In the last step, where the interactive predictor variable of extraversion and social competence was entered, the model was found statistically insignificant, with sig. $F \text{ change}$ value of .542, which is greater than .05. This indicates that the moderating effect of social competence on the relationship between extraversion and academic intrinsic motivation is statistically insignificant. In the third model, which is the final significant model, only extraversion and social competence were statistically significant, with extraversion having a lower beta value ($\beta = .27$, $p = .001$) compared with social competence ($\beta = .442$, $p < .001$).

Similarly, for extrinsic motivation (dependent variable), the demographic factors are input in the first step of regression analysis, which explained 10.3% of the variance in extrinsic motivation. After the entry of the centered extraversion in the second step, the total variance explained by the model was 19.8%. At Step 3, the centered social competence was entered and the total variance explained by the model as a whole was 33.8%, $F(6,117) = 9.96$, $p < .001$. The

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model explained an additional 14% of the variance in intrinsic motivation, R^2 change = .14, F change (1,117) = 24.67, $p < .001$. In the last step, where the interactive predictor variable of extraversion and social competence was entered, the model was found statistically insignificant, with sig. F change value of .917, which is greater than .05. This indicates that the moderating effect of social competence on the relationship between extraversion and academic extrinsic motivation is statistically insignificant. In the third model, which is the final significant model, merely extraversion and social competence were statistically significant, with extraversion having a lower beta value ($\beta = .169$, $p = .001$) compared with social competence ($\beta = .441$, $p < .001$).

Discussion

This study aims at investigating the relationship among the levels of extraversion, social competence and academic motivation, including extrinsic and intrinsic motivation, as well as examining the moderating effect of social competence on the relationship between extraversion and academic motivation. Based on the previous research, four hypotheses were generated in this study. Firstly, it was hypothesized that there is a significant positive correlation between the level of extraversion and academic motivation. Secondly, extraversion is expected to have a positive correlation with social competence. Thirdly, it was expected that there would be a significant positive correlation between social competence and academic motivation. Lastly, social competence was expected to be the moderator between the relationship of extraversion and academic motivation.

In this research, it is found that extraversion positively correlated with academic motivation, including both extrinsic and intrinsic motivation. In fact, this finding conforms with

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the previous research in which a positive association was found in the relationship between extraversion and academic intrinsic and extrinsic motivation (Hart et al., 2007; Komarraju et al., 2009). Because of the increased adoption of cooperative learning strategies in teaching and learning and the nature of schools as a highly social environment, learning requires students to actively interact with peers and teachers. Therefore, students with a higher level of extraversion, who have a tendency to seek social interaction, would consider learning at school to be fun and have more enjoyment in learning, resulting in a higher level of extrinsic academic motivation. On the other hand, extroverted students are also found to be more sensitive to social rewards, which include praises and recognition from others (Ashton et al., 2002). In order to seek external social rewards, extroverted students may be more motivated to engage in academic activities, resulting in a higher level of extrinsic academic motivation.

Apart from the relationship between extraversion and academic motivation, a significant positive correlation was also found between extraversion and social competence in the current study. This finding aligns with the previous research which indicates that the level of extraversion in children would foretell and predict the level of social competence (Zupančič, Podlesek, & Kavčič, 2016). Social competence is an ability which can be improved and developed through practice in social training, which includes daily social interaction with peers, rather than an innate ability (Martowska, 2014). Extraverted students, who enjoy and engage in more social interaction to seek social rewards (Caspi, Roberts, & Shiner, 2005), will receive social training more frequently and intensely, having more opportunities to develop their social understanding, advancing their strategies for conflict resolution, social skills, and affirmative

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communication patterns. This results in better development of social competence in extroverted students compared with the introverted counterparts.

In this research, it is also found that there is a positive correlation between social competence and academic intrinsic and extrinsic motivation. This finding echoes with previous research (Magelinskaitė, Kepalaitė, & Legkauskas, 2014). Students with higher social competence have a higher ability in demonstrating affirmative communication patterns and conflict resolution, which enable them to build amicable and positive relationships with their teachers and peers. When engaging in group learning activities at school, students who possess higher social competence are able to manage group interaction more effectively, demonstrating a higher ability in resolving conflicts, cooperating, and communicating with peers. These abilities allow students to avoid conflicts and other negative social interaction arising from the engagement in the learning activities, maximizing students' enjoyment and positive learning experience, resulting in a higher level of academic intrinsic motivation. With excellent skills in handling social interaction in group activities, students with higher social competence would also gain more positive learning outcomes from the learning activities and receive more social rewards, such as praises, recognition and admiration from peers and teachers. These social rewards may act as an external motivating factor which enhances the extrinsic academic motivation of students. In fact, in another study, it was also shown that positive relationship with teachers and peers, which can be developed more easily by students with a higher level of social competence, have a favorable impact on students' academic motivation (Kiefer, Alley, & Ellerbrock, 2015).

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Although it is found that the three variables, namely extraversion, social competence and academic motivation, positively correlated with one another, the moderating effect of social competence in the relationship between extraversion and academic extrinsic and intrinsic motivation are not observed. This implies that social competence does not amplify the extrinsic academic motivation, which may be resulted from the obtainment of social rewards, and the intrinsic academic motivation, which may be resulted from the enjoyment of the learning activities, respectively. One of the possible explanations for this finding is that some strategies for affect regulation, such as reappraisal and distraction, are proved to be more effective than the others (Augustine & Hemenover, 2009), and extroverts are shown to have a higher tendency to employ more effective strategies for affect regulation to a greater degree (Larsen & Augustine, 2008). This means that although extroverted students with a lower level of social competence, compared to their counterparts with a higher level of social competence, may engage in more conflicts and negative socializing experience during group learning activities and socialization with peers at school due to their lack of social skills, the negative affect which arose from these negative socializing experience may have only insignificant impacts on their desire to seek social rewards and their enjoyment in socialization with peers because of their adoption of effective affect regulating strategies. In other words, the negative socializing experience resulted from the lack of social competence have only little negative influences on academic extrinsic and intrinsic motivation in extroverts. That is to say, there is no significant moderating effect of the level of social competence on the relationship between extraversion and academic intrinsic and extrinsic motivation.

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Despite the fact that the moderating effect of social competence on the correlation between extraversion and academic motivation is not observed, the findings of this study are still important as it provides educators with educational implications. Firstly, a positive correlation between extraversion and academic motivation is found in this study. It implies that educators should implement some strategies in order to assist introverts in the classroom. Instead of excessively relying on teaching strategies which require extroverted behaviors, teachers should also incorporate individual work and written work, allocating time for reflection. These allows introverts, who prefers being alone and thinking to socializing and expressing verbally, to consolidate their knowledge and demonstrate their learning outcomes (Condon & Ruth-Sahd, 2013). One of the possible approaches to balance between group work and individual work in a lesson is called Think-Pair-Share (TPS) (Lyman, 1981). In this approach, students are first asked to think individually and give a written response to a question related to the learning materials or topics. Then, students are asked to form a pair with another classmate and to discuss their ideas and views. Lastly, each pair of students is required to share the content they have discussed with the whole class. This useful approach enables extroverted students to reap the benefits of group activities while still providing introverted students with the silent time they need for reflection. While adjustments of the forms of class activities should be made to cater to introverts, teachers may also assist them to adapt and mitigate their aversion to social interactions and the public through practicing (Bart, 2011). For example, teachers can encourage introverts to speak up while enumerating the benefit of speaking up and expressing their ideas to others.

Secondly, it is found that social competence has a stronger influence on both extrinsic and intrinsic motivation, compared to extraversion. Therefore, in order to enhance students'

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academic motivation, it is crucial to promote students' social competence. In the development of social competence in students, teachers play an important role. One of the actions teachers could take so as to cultivate students' social competence is creating opportunities for social interaction among students. For instance, teachers can implement interactive teaching strategies including pair work, teamwork, and group activities in their teaching. As social competence can be improved through social training by living and acting among other people and engaging in social interaction (Martowska, 2014), interactive teaching strategies allows students to increase the intensity and frequency of social interaction with peers and teachers, enabling them to practice and apply their social skills, improving their social competence. Besides, through engaging in group activities in class, students who lack social competence can acquire social skills implicitly from their peers with high social competence, who act as positive role models (Hoglund & Leadbeater, 2004). Besides, with more opportunities to collaborate and interact with peers, students are also more likely to establish positive and supportive relationships with peers. This contributes to the sense of belongingness and relatedness and this encourages students to demonstrate more favorable social behaviors to facilitate the achievement of the common goal among students (Weiner, 2003). Teachers should also strive to build a positive teacher-and-student relationship. It is shown that teachers who display more openness, empathy and understanding can support students in developing better social competence (Mulder, 2008). Students who successfully establish secure relationships with teachers are also shown to approach others with more positive expectations and attitudes (Hamre & Pianta, 2001), which contribute to a higher level of social competence.

However, for some students, such as students with learning disabilities, an increase in the intensity and frequency of social interaction and the development of positive teacher-student relationships may not be sufficient for them to cultivate social competence. These students encounter difficulties in recalling information about social interaction, understanding body language, and comprehending sarcasm (Bauminger et al., 2005; Elksnin & Elksnin, 2004). Research has shown that students with learning disabilities struggle to form stable friendships and around 50% of them are even reported to be neglected, victimized, or rejected by their peers (Baumeister et al. 2008; Mishna, 2003; Wiener & Schneider, 2002). Therefore, in order to provide additional assistance to these students for promoting the development of social competence, social training workshops can be provided to them, instructing social skills explicitly. In these workshops, teachers may teach simple affect regulation strategies to reduce students' inappropriate expression of aggression and anger. Students can also rehearse and practice communication skills and conflict-resolving skills, which are required in daily social interaction, through activities such as interviewing and role play.

Limitations and Suggestions for Future Studies

There are two key limitations in this research. One of the limitations is related to the reliability of the instrument for measuring extraversion, which is the extraversion scale of the Big Five Inventory. Although the value of its Cronbach's Alpha is acceptable, the extraversion scale demonstrated relatively low reliability (Cronbach's Alpha = .633) compared to other measurements in this study. One of the possible reasons which can explain such a level of reliability is extraversion is a less favorable trait in the Asian context and the Asian educational context. Quietness and silence are often regarded as connoting depth and seriousness and it is

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deemed a virtue in the Asian educational context as it is believed to reflect students' attentive listening (Condon & Ruth-Sahd, 2013). Because of this cultural difference, social desirability bias may have arisen and affected participants' scoring on their extraversion, resulting in the relatively lower reliability of the extraversion scale. The second limitation in this study is related to the representativeness of the sample in this research. Because of convenience, all participants in this study were recruited from the same secondary school, which mainly consist of students with lower academic ability. Thus, the results of the study may not be able to generalize to the population of secondary school students in Hong Kong.

For future studies, it is suggested replicating this study using the introversion/extraversion scale from the Chinese Personality Assessment Inventory (Cheung et al., 1996). This personality inventory has taken Chinese cultures into account. The second suggestion is that the study can be replicated with participants from various schools of different banding and academic achievement. This improves the representativeness of the sample and ensures the results to be able to be generalized to the population of secondary school students in Hong Kong.

Lastly, since it is found that there is a positive correlation among the level of extraversion, social competence, and academic motivation in this study, an experimental study investigating the differences in the effectiveness of cooperative learning on students with different levels of extraversion and social competence is suggested for the future study. This experimental research will allow educators to have a deeper understanding of the effectiveness of cooperative learning on students with individual differences and give educational implications on

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the possible teaching adjustment needed when conducting cooperative learning in contemporary classrooms.

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Appendix A

Extraversion scale of Big Five Inventory – English Version (BFI; John & Srivastava, 1999)

Here are a number of characteristics that may or may not apply to you. Circle the response that indicate the extent to which you agree or disagree with that statement, where 1 = Disagree strongly, 2 = Disagree a little, 3 = Neither agree nor disagree, 4 = Agree a little, 5 = Agree strongly.

<u>I see myself as someone who...</u>	Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
1. is talkative	1	2	3	4	5
2. is reserved	1	2	3	4	5
3. is full of energy	1	2	3	4	5
4. generates a lot of enthusiasm	1	2	3	4	5
5. tends to be quiet	1	2	3	4	5
6. has an assertive personality	1	2	3	4	5
7. is sometimes shy, inhibited	1	2	3	4	5
8. is outgoing, sociable	1	2	3	4	5

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Appendix B

Extraversion scale of Big Five Inventory – Chinese Version (BFI; Pervin & John, 1999)

這裡有一些適合或不適合你的特徵。請圈出最能表達你同意程度的數字 (1 = 非常不同意，5 = 非常同意)。

<u>我認為自己……</u>	非常不同意	有點不同意	無所謂	有點同意	非常同意
1. 愛說話	1	2	3	4	5
2. 含蓄的	1	2	3	4	5
3. 精力充沛	1	2	3	4	5
4. 具有很大的熱情	1	2	3	4	5
5. 比較安靜	1	2	3	4	5
6. 性格決斷	1	2	3	4	5
7. 有時羞怯、拘謹	1	2	3	4	5
8. 外向，好交際	1	2	3	4	5

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Appendix C

Perceived Social Competence Scale-II – English Version

(PSCS-II; Anderson-Butcher et al., 2014)

Circle the response that best characterizes how you feel about the statement, where 1 = Not at all true, 2 = A little true, 3 = Somewhat true, 4 = Pretty true, 5 = Really true.

	Not at all true	A little true	Somewhat true	Pretty true	Really True
1. I help other people.	1	2	3	4	5
2. I ask others if I can be of help.	1	2	3	4	5
3. I show concern for others.	1	2	3	4	5
4. I show care for others.	1	2	3	4	5
5. I give support to others	1	2	3	4	5

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Appendix D

Perceived Social Competence Scale-II – Chinese Version

(PSCS-II; Anderson-Butcher et al., 2014)

請圈出最能表達你對陳述同意程度的數字 (1 = 完全不正確, 2 = 有點正確, 3 = 適度地正確, 4 = 相當正確, 5 = 非常正確)。

	完全不 正確	有點正 確	適度地正 確	相當正 確	非常正 確
1. 我幫助別人。	1	2	3	4	5
2. 我問別人我能不能幫上忙。	1	2	3	4	5
3. 我關心別人。	1	2	3	4	5
4. 我照顧別人。	1	2	3	4	5
5. 我支持別人。	1	2	3	4	5

EXTRAVERSION, SOCIAL COMPETENCE, ACADEMIC MOTIVATION

Appendix E

Academic Motivation Scale – English Version (AMS; Vallerand et al. 1992)

Using the scale below, circle the response to indicate to what extent each of the following items presently corresponds to one of the reasons why you go to school.

Does not correspond at all	Corresponds a little		Corresponds moderately	Corresponds a lot		Corresponds exactly
1	2	3	4	5	6	7

Why do you go to school?

1. Because I need at least a high-school degree in order to find a high-paying job later on.	1	2	3	4	5	6	7
2. Because I experience pleasure and satisfaction while learning new things.	1	2	3	4	5	6	7
3. Because I think that a high-school education will help me better prepare for the career I have chosen.	1	2	3	4	5	6	7
4. Because I really like going to school.	1	2	3	4	5	6	7
5. Honestly, I don't know; I really feel that I am wasting my time in school.	1	2	3	4	5	6	7
6. For the pleasure I experience while surpassing myself in my studies.	1	2	3	4	5	6	7
7. To prove to myself that I am capable of completing my high-school degree.	1	2	3	4	5	6	7
8. In order to obtain a more prestigious job later on.	1	2	3	4	5	6	7
9. For the pleasure I experience when I discover	1	2	3	4	5	6	7

EXTRAVERSION, SOCIAL COMPETENCE, ACADEMIC MOTIVATION

new things never seen
before.

10. Because eventually it will enable me to enter the job market in a field that I like.	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---

11. Because for me, school is fun.	1	2	3	4	5	6	7
---------------------------------------	---	---	---	---	---	---	---

12. I once had good reasons for going to school; however, now I wonder whether I should continue.	1	2	3	4	5	6	7
--	---	---	---	---	---	---	---

13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.	1	2	3	4	5	6	7
--	---	---	---	---	---	---	---

14. Because of the fact that when I succeed in school, I feel important.	1	2	3	4	5	6	7
--	---	---	---	---	---	---	---

15. Because I want to have “the good life” later on.	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---

16. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---

17. Because this will help me make a better choice regarding my career orientation.	1	2	3	4	5	6	7
--	---	---	---	---	---	---	---

18. For the pleasure that I experience when I am taken by discussions with interesting teachers.	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---

19. I can't see why I go to school and frankly, I couldn't care less.	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---

20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---

21. To show myself that I am an intelligent person.	1	2	3	4	5	6	7
--	---	---	---	---	---	---	---

EXTRAVERSION, SOCIAL COMPETENCE, ACADEMIC MOTIVATION

22. In order to have a better salary later on.	1	2	3	4	5	6	7
23. Because my studies allow me to continue to learn about many things that interest me.	1	2	3	4	5	6	7
24. Because I believe that my high school education will improve my competence as a worker.	1	2	3	4	5	6	7
25. For the “high” feeling that I experience while reading about various interesting subjects.	1	2	3	4	5	6	7
26. I don’t know; I can’t understand what I am doing in school.	1	2	3	4	5	6	7
27. Because high school allows me to experience a personal satisfaction in my quest for excellence in my studies.	1	2	3	4	5	6	7
28. Because I want to show myself that I can succeed in my studies.	1	2	3	4	5	6	7

EXTRAVERSION, SOCIAL COMPETENCE, ACADEMIC MOTIVATION

Appendix F

Academic Motivation Scale – Chinese Version (AMS; Vallerand et al. 1992)

根據以下的標度，圈選答案，以表明以下各項在何種程度上與您上學的原因相對應。

完全不對應	小程度上對應		適度地對應	大程度上對應		完全對應
1	2	3	4	5	6	7

你為什麼上學？

1. 因為我以後至少需要高中學歷才能找到一份高薪工作。	1	2	3	4	5	6	7
2. 因為我在學習新事物時會感到快樂和滿足。	1	2	3	4	5	6	7
3. 因為我認為高中教育會幫助我更好地為自己選擇的職業做準備。	1	2	3	4	5	6	7
4. 因為我真的很喜歡上學。	1	2	3	4	5	6	7
5. 老實說，我不知道；我真的覺得我在浪費時間在學校。	1	2	3	4	5	6	7
6. 我很高興能在學習中超越自己。	1	2	3	4	5	6	7
7. 向自己證明我有能力完成我的高中學位。	1	2	3	4	5	6	7
8. 為了以後獲得一份更有聲望的工作。	1	2	3	4	5	6	7
9. 當我發現從未見過的新事物時，感到很高興。	1	2	3	4	5	6	7
10. 因為最終它將使我能夠進入自己喜歡的領域的就業市場。	1	2	3	4	5	6	7

EXTRAVERSION, SOCIAL COMPETENCE, ACADEMIC MOTIVATION

11. 因為對我來說，學校很有趣。	1	2	3	4	5	6	7
12. 我曾經有充分的理由去上學。但是，現在我想知道是否應該繼續。	1	2	3	4	5	6	7
13. 在我超越自己的一項個人成就時，我感到很榮幸。	1	2	3	4	5	6	7
14. 因為當我在學校取得成功時，我感到很重要。	1	2	3	4	5	6	7
15. 因為我想以後擁有“美好的生活”。	1	2	3	4	5	6	7
16. 我很高興能拓寬我感興趣的科目的知識面。	1	2	3	4	5	6	7
17. 因為這會使我對自己的職業方向做出更好的選擇。	1	2	3	4	5	6	7
18. 與有趣的老師進行討論時，我感到很高興。	1	2	3	4	5	6	7
19. 我不明白為什麼要上學，坦率地說，我不在乎。	1	2	3	4	5	6	7
20. 當我完成困難的學術活動時，我會感到滿足。	1	2	3	4	5	6	7
21. 向自己展示我是一個聰明的人。	1	2	3	4	5	6	7
22. 為了以後有更好的薪水。	1	2	3	4	5	6	7
23. 因為我的學業使我能夠繼續學習許多令我感興趣的事物。	1	2	3	4	5	6	7
24. 因為我相信我的高中教育會提高我作為員工的能力。	1	2	3	4	5	6	7
25. 因為我在閱讀各種有趣的主题時感受到了“興奮”的感覺。	1	2	3	4	5	6	7

EXTRAVERSION, SOCIAL COMPETENCE, ACADEMIC MOTIVATION

26. 我不知道; 我不明白我在學校做什麼。	1	2	3	4	5	6	7
27. 因為中學讓我在追求卓越的學習中獲得個人滿足感。	1	2	3	4	5	6	7
28. 因為我想向自己展示我可以在學業上成功。	1	2	3	4	5	6	7

Appendix G

Participants Consent Form – English Version

THE EDUCATION UNIVERSITY OF HONG KONG
Department of Psychology**CONSENT TO PARTICIPATE IN RESEARCH****The Relationships among Extraversion, Social Competence and Academic Motivation**

I, _____, hereby consent to participate in the captioned project supervised by Dr. WAN Lai Yin Sarah and conducted by Fok Hau Man, who are staff and student of Department of Psychology in The Education University of Hong Kong.

I understand that information obtained from this research may be used in future research and may be published. However, my right to privacy will be retained, i.e., my personal details will not be revealed.

The procedure as set out in the **attached** information sheet has been fully explained. I understand the benefits and risks involved. My participation in the project is voluntary.

I acknowledge that I have the right to question any part of the procedure and can withdraw at any time without negative consequences.

Signature:

Name of Participant:

Date:

Appendix H

Participants Consent Form – Chinese Version

香港教育大學

心理學系

參與研究同意書

外向性、社交能力與學習動機之關係研究

本人同意參加由溫麗妍博士負責監督，學生研究員霍巧敏負責執行的研究計劃。她／他們是香港教育大學的教員和學生。

本人理解此研究所獲得的資料可用於未來的研究和學術發表。然而本人有權保護本人的隱私，本人的個人資料將不能洩漏。

研究員已將所附資料的有關步驟向本人作了充分的解釋。本人理解可能會出現的風險。本人是自願參與這項研究。

本人理解本人有權在研究過程中提出問題，並在任何時候決定退出研究，更不會因此而對研究工作產生的影響負有任何責任。

簽署:

參加者姓名：

日期：

EXTRAVERSION, SOCIAL COMPETENCE, ACADEMIC MOTIVATION

Appendix I

Parental Consent Form – English Version

THE EDUCATION UNIVERSITY OF HONG KONG
Department of Psychology**CONSENT TO PARTICIPATE IN RESEARCH****The Relationships among Extraversion, Social Competence and Academic Motivation**

I hereby consent my child, _____, to participate in the captioned project supervised by Dr. WAN Lai Yin Sarah and conducted by Fok Hau Man, who are staff and student of Department of Psychology in The Education University of Hong Kong.

Signature:

Name of Participant:

Date:

Signature:

Name of Parent / Guardian*:

Date:

Appendix J

Parental Consent Form – Chinese Version

香港教育大學

心理學系

參與研究同意書

外向性、社交能力與學習動機之關係研究

茲同意敝子弟_____參加由溫麗妍博士負責監督，學生研究員霍巧敏負責執行的研究計劃。她／他們是香港教育大學的教員和學生。

簽署：

參加者姓名：

日期：

簽署：

父母／監護人*姓名：

日期：

Appendix K

School Consent Form – English Version

THE EDUCATION UNIVERSITY OF HONG KONG**Department of Psychology****CONSENT TO PARTICIPATE IN RESEARCH (FOR SCHOOL)****The Relationships among Extraversion, Social Competence and Academic Motivation**

My school hereby consents to participate in the captioned project supervised by Dr. WAN Lai Yin Sarah and conducted by Fok Hau Man, who are staff and student of Department of Psychology in The Education University of Hong Kong.

I understand that information obtained from this research may be used in future research and may be published. However, our right to privacy will be retained, i.e., the personal details of my students / teachers will not be revealed.

The procedure as set out in the **attached** information sheet has been fully explained. I understand the benefits and risks involved. My students' / teachers' participation in the project are voluntary.

I acknowledge that we have the right to question any part of the procedure and can withdraw at any time without negative consequences.

Signature:

Name of Principal / Delegate*:

(Prof/Dr/Mr/Mrs/Ms/Miss*)

Post:

Name of School:

Date:

Appendix L

Information Sheet for Participants – English Version

INFORMATION SHEET**The Relationships among Extraversion, Social Competence and Academic Motivation**

You are invited to participate in a project supervised by Dr. WAN Lai Yin Sarah and conducted by Fok Hau Man, who are staff and student of Department of Psychology in The Education University of Hong Kong.

Cooperative learning has been widely used in secondary schools' lessons. It requires students to collaborate and interact with other students within a small group setting. However, as students differ in extraversion and social competence, cooperative learning may have different impacts on different students' learning. To establish the basis for future investigation on the effectiveness of cooperative learning, this research aims at examining the relationship among the level of extraversion, social competence and academic motivation.

80 secondary school students aged 12 to 18 will be invited to participate in the research. Participants' contact details will be obtained from the participating school. Participants will be invited to the participating school and are required to complete a set of questionnaires about extraversion, social competence and academic motivation under the supervision of the researcher. The process takes around 30 minutes. Data collection will be conducted from October 2020 to December 2020. This research will not provide you with potential benefit, yet it provides valuable data for further investigation on the effectiveness of cooperative learning.

There are no known risks involved in this research. You have every right to withdraw from the study at any time without negative consequences. All information related to you will remain confidential, and will be identifiable by codes known only to the researcher. Personal data collected will be deleted upon the completion of the research. The results of the research will be used in future academic research and publication. The research will be published in the form of thesis.

If you would like to obtain more information about this study, please contact me by email at _____ or telephone number _____, or my supervisor Dr. WAN Lai Yin Sarah by email at _____.

If you have any concerns about the conduct of this research study, please do not hesitate to contact the Human Research Ethics Committee by email at hrec@eduhk.hk or by mail to Research and Development Office, The Education University of Hong Kong.

Thank you for your interest in participating in this study.

Fok Hau Man

Appendix M

Information Sheet for Participants – Chinese Version

有關資料

外向性、社交能力與學習動機之關係研究

誠邀閣下參加溫麗妍博士負責監督，學生研究員霍巧敏負責執行的研究計劃。她／他們是香港教育大學的教員和學生。

合作學習在中學課堂上被廣泛使用。在合作學習中，學生需以小組形式與其他學生合作及交流。然而，鑒於學生於外向性與社交能力中存有差異，合作學習或於不同學生的學習上產生不同的影響。為了為日後研究合作學習成效的學術研究建立基礎，是次研究的主要目的為調查外向性、社交能力與學習動機之關係。

是次研究將會邀請 125 位屬於年齡介乎 12 至 18 歲的中學生參與。研究參與者的聯絡資料由學校提供。研究參與者將被邀請到參與學校，並在研究員監察下填寫一份有關外向性、社交能力與學習動機的問卷，整個過程需時約 30 分鐘。數據搜集將於二零二零年十月至二零二零年十二月內進行。

是次研究並不為閣下提供任何個人利益，但所搜集之數據將對日後研究合作學習的成效提供寶貴的資料。

是次研究並不涉及任何已知風險。閣下的參與純屬自願性質。閣下享有充分的權利在任何時候決定退出這項研究，更不會因此引致任何不良後果。凡有關閣下的資料將會保密，一切資料的編碼只有研究人員得悉。在研究中所收集的個人資料將會在研究結束後被刪除。研究所獲得的資料將會用於未來的研究和學術發表，透過撰寫學術論文發佈研究成果。

如閣下想獲得更多有關這項研究的資料，請以電郵 或電話
與本人或本人的導師溫麗妍博士 聯絡。

如閣下對這項研究的操守有任何意見，可隨時與香港教育大學人類實驗對象操守委員會聯絡(電郵: hrec@eduhk.hk; 地址：香港教育大學研究與發展事務處)。

謝謝閣下有興趣參與這項研究。

學生研究員

霍巧敏

Appendix N

Information Sheet for Parents – English Version

INFORMATION SHEET**The Relationships among Extraversion, Social Competence and Academic Motivation**

You are invited to participate with your child in a project supervised by Dr. WAN Lai Yin Sarah and conducted by Fok Hau Man, who are staff and student of Department of Psychology in The Education University of Hong Kong.

Cooperative learning has been widely used in secondary schools' lessons. It requires students to collaborate and interact with other students within a small group setting. However, as students differ in extraversion and social competence, cooperative learning may have different impacts on different students' learning. To establish the basis for future investigation on the effectiveness of cooperative learning, this research aims at examining the relationships among extraversion, social competence and academic motivation.

125 secondary school students aged 12 to 18 will be invited to participate in the research. Participants' contact details will be obtained from the participating school. Participants will be invited to the participating school and are required to complete a set of questionnaires about extraversion, social competence and academic motivation under the supervision of the researcher. The process takes around 30 minutes. Data collection will be conducted from October 2020 to December 2020. This research will not provide your child with potential benefit, yet it provides valuable data for further investigation on the effectiveness of cooperative learning.

There are no known risks involved in this research. Your child's participation in the project is voluntary. You and your child have every right to withdraw from the study at any time without negative consequences. All information related to your child will remain confidential and will be identifiable by codes known only to the researcher. Personal data collected will be deleted upon the completion of the research. The results of the research will be used in future academic research and publication. The research will be published in the form of thesis.

If you would like to obtain more information about this study, please contact me by email at _____ or telephone number _____, or my supervisor Dr. WAN Lai Yin Sarah by email at _____.

If you have any concerns about the conduct of this research study, please do not hesitate to contact the Human Research Ethics Committee by email at hrec@eduhk.hk or by mail to Research and Development Office, The Education University of Hong Kong.

Thank you for your interest in participating in this study.

Appendix O

Information Sheet for Parents – Chinese Version

有關資料

外向性、社交能力與學習動機之關係研究

誠邀閣下及 貴子女參加溫麗妍博士負責監督，學生研究員霍巧敏負責執行的研究計劃。她／他們是香港教育大學的教員和學生。

合作學習在中學課堂上被廣泛使用。在合作學習中，學生需以小組形式與其他學生合作及交流。然而，鑒於學生於外向性與社交能力中存有差異，合作學習或於不同學生的學習上產生不同的影響。為了為日後研究合作學習成效的學術研究建立基礎，是次研究的主要目的為調查外向性、社交能力與學習動機之關係。

是次研究將會邀請 125 位屬於年齡介乎 12 至 18 歲的中學生參與。研究參與者的聯絡資料由學校提供。研究參與者將被邀請到參與學校，並在研究員監察下填寫一份有關外向性、社交能力與學習動機的問卷，整個過程需時約 30 分鐘。數據搜集將於二零二零年十月至二零二零年十二月內進行。

是次研究並不為 貴子女提供任何個人利益，但所搜集之數據將對日後研究合作學習的成效提供寶貴的資料。

是次研究並不涉及任何已知風險。閣下及 貴子女的參與純屬自願性質。閣下及 貴子女皆享有充分的權利在任何時候決定退出這項研究，更不會因此引致任何不良後果。凡有關 貴子女的資料將會保密，一切資料的編碼只有研究人員得悉。在研究中所收集的個人資料將會在研究結束後被刪除。研究所獲得的資料將會用於未來的研究和學術發表，透過撰寫學術論文發佈研究成果。

如閣下想獲得更多有關這項研究的資料，請以電郵
與本人或本人的導師溫麗妍博士
或電話
聯絡。

如閣下對這項研究的操守有任何意見，可隨時與香港教育大學人類實驗對象操守委員會聯絡(電郵: hrec@eduhk.hk; 地址：香港教育大學研究與發展事務處)。

謝謝閣下有興趣參與這項研究。

學生研究員

霍巧敏

Appendix P

Information Sheet for School

INFORMATION SHEET (FOR SCHOOL)**The Relationships among Extraversion, Social Competence and Academic Motivation**

Your school is invited to participate in a project supervised by Dr. WAN Lai Yin Sarah and conducted by Fok Hau Man, who are staff and student of Department of Psychology in The Education University of Hong Kong.

Cooperative learning has been widely used in secondary school's lessons. It requires students to collaborate and interact with other students within a small group setting. However, as students differ in extraversion and social competence, cooperative learning may have different impacts on different students' learning. To establish the basis for future investigation on the effectiveness of cooperative learning, this research aims at examining the relationships among extraversion, social competence and academic motivation.

80 secondary school students aged 12 to 18 will be invited to participate in the research. Participants' contact details will be obtained from the participating school. Participants will be invited to the participating school and are required to complete a set of questionnaires about extraversion, social competence and academic motivation under the supervision of the researcher. The process takes around 30 minutes. Data collection will be conducted from October 2020 to December 2020. This research will not provide your school with potential benefit, yet it provides valuable data for further investigation on the effectiveness of cooperative learning.

There are no known risks involved in this research. Please understand that your students' / teachers' participation are voluntary. They have every right to withdraw from the study at any time without negative consequences. All information related to your students / teachers will remain confidential, and will be identifiable by codes known only to the researcher. Personal data collected will be deleted upon the completion of the research. The results of the research will be used in future academic research and publication. The research will be published in the form of thesis.

EXTRAVERSION, SOCIAL COMPETENCE, ACADEMIC MOTIVATION

If you would like to obtain more information about this study, please contact me by email at _____ or telephone number _____, or my supervisor Dr. WAN Lai Yin Sarah by email at _____.

If you have any concerns about the conduct of this research study, please do not hesitate to contact the Human Research Ethics Committee by email at hrec@eduhk.hk or by mail to Research and Development Office, The Education University of Hong Kong.

Thank you for your interest in participating in this study.

Fok Hau Man