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Determinants of International Students' Academic Performance: A Comparison between Chinese and Other International Students¹

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Abstract

With the increasing number of international students travelling to well-developed countries for higher education, such as the USA and the UK, there has been a growing interest in exploring the factors that influence their academic performance during their overseas studies. This study aims to give an insight into international students' learning experience by investigating the differences between Chinese and non-Chinese cultural groups, which leads to the identification of the key predictors of their academic achievement via multiple regression analysis. The results suggest that the *perceived importance of learning success to family*, *English writing ability* and *social communication with their compatriots* are significant predictors for all international students. As the predominant group, Chinese students display some distinctive characteristics. For example, Chinese students who studied abroad for the first time are likely to perform better than their compatriots who had studied overseas before. A less active learning strategy is observed among Chinese students in relative to others, but no evidence has found that this negatively affects their academic achievement.

Key Words: academic performance; international students; cross-cultural adjustment

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1. Introduction

Higher education in a multicultural environment has become an overwhelming phenomenon in many nations. Well-developed countries in higher education, led by the USA, the UK, Australia, Canada and New Zealand, have been receiving increasing numbers of international students in the past two decades. According to research conducted recently by the British Council in collaboration with Universities UK and IDF Education Australia (Böhm *et al* 2004, cited by Asteris 2006), global flows of students will increase from 2.1 million in 2003 to approximately 5.8 million by 2020. About 45% of these international students (i.e., 2.6 million) will choose to study in the above five major English speaking destination countries. The Asian countries such as China, India and Malaysia dominate the demand for overseas education.

The United Kingdom, in its attempt to re-establish and maintain its credential as a world class provider of education and training, has declared a formal international education policy designed to attract international students. The government and the British Council developed a programme known as “The UK Education Brand” in 1999. In addition to aggressive marketing strategies, the former Prime Minister Tony Blair proposed a four-point programme in 1999 to increase their market share from 16 percent to 25 percent by 2005. As a result, the number of international students (including EU students) has increased from about 122 thousand in 1996 to 318 thousand in 2006, and the figure is estimated to exceed 800 thousand by 2020 (Taylor, 2005). International students accounted 13.4% of the total UK Higher Education Institutions (HEI) population according to the statistics in 2006, among which the biggest share (12%) came from China (Taylor 2005). The demand of Chinese students is expected to increase by 50% annually compared to a 10% growth rate of non-EU international students.

The great importance of international students to receiving universities has been commonly recognised. In addition to financial contribution to universities’ development, international students’ distinct demand from home students for various courses (such as Mathematics and Engineering) helps the receiving universities to maintain a diverse range of subjects. Educational experience will also be enriched in serving international customers from different cultural backgrounds. The increasing reliance on overseas students has become “inevitable”, and international students are no longer an “optional extra” for universities (Ivor Crewe, president of Universities UK, quoted by Taylor 2005). Therefore, how to improve international students’ study experience is a strategic issue faced by most universities given the growing competition between each other.

This study aims to identify the key factors, especially those culture-related ones, which influence international students’ academic achievement. Considering the predominant proportion of Chinese students, a particular emphasis is given to this cohort. The differences between Chinese and other international students are compared in terms of their learning behaviour and the key predictors of their academic achievement. The results of the analysis highlight the importance of increasing the awareness of the cultural diversity in the higher education settings to better support international students’ learning experience and gain competitiveness in the international higher education market.

The remainder of the paper is set up as follows. Section 2 reviews the literature on academic performance and culture-related issues that affect students' academic performance. Section 3 introduces the key hypotheses generated to inform the empirical enquiry. Section 4 explains the research methods and data collection procedure. Section 5 reports the empirical results. Finally Section 6 concludes.

2. Literature Review

2.1 Academic Performance Research

Academic performance of students in higher education has been the subject of intensive research over the last 30 years (Head 1990). A range of performance predictors have been developed in relation to course quality assurance (e.g. Yorke 1991). Some researches such as McKenzie and Schweitzer (2001) further grouped these factors into academic, psychosocial, cognitive and demographic categories.

As for academic factors, prior academic achievement is a key academic predictor of the students' further achievements at higher levels of study. A number of studies have shown that it plays a dominant role in predicting students' learning outcomes (McKenzie and Schweitzer 2001; McKenzie, Gow and Schweitzer 2004). Learning skills and habits have been reported to influence academic performance (Abbott-Chapman, Hughes and Wyld 1992). Learning strategies and approaches have also been well researched in relation to academic performance. For example, Watkins and Hattie (1981) employed the Biggs Study Process Questionnaire (SPQ) (Biggs 1987), while Sadler-Smith (1996) and Duff, Boyle, Dunleavy and Ferguson (2004) used the "Revised Approaches to Studying Inventory" (RASI) to study the above relationships. These studies showed that approaches to learning had some predictive value for academic achievement. Learning strategies can be classified into subject-matter-specific and general learning strategies. General learning strategies include meta-cognitive strategy, such as planning, monitoring and evaluation of one's own cognition, cognitive strategy, such as integrating new material with prior knowledge, and resource management strategies, such as effort endurance, peer learning and help seeking (Pokay and Blumenfeld 1990). Compared to the subject-matter-specific strategies, more attention has been paid to general learning strategies, especially to resource management strategies, which have shown varied degrees of correlation to academic achievement. For example, Pintrich (1986) found effort to be the only direct predictor of learning outcomes amongst all of the above general strategies. However, opposite evidence was also shown in the literature, such as the study of Plant *et al* (2005) who showed an adverse relationship between the total amount of study time and grade point average. It is therefore interesting to examine these inconclusive issues in the current study.

With regard to the psychosocial dimension, social integration into the university system, financial situation, motivation, social and emotional support and psychological health have all been identified to affect students' success in universities to some extent (Terenzini and Pascarella 1978; Lecompte *et al* 1983; Pokay and Blumenfeld 1990; Gerdes and Mallinckrodt 1994). Amongst all of the above, motivation is the most widely used personality variable in academic performance studies. For example, Nois *et al* (2005) found that achievement striving and the extent to which students take their study seriously significantly correlate with their learning achievement. In contrast, anxiety has been found to negatively influence students' academic performance (Hartnett *et al* 2004)

The cognitive appraisal studies fall into two streams: self-efficacy and attributional style. Self-efficacy, in other words, students' self beliefs about their capabilities to initiate and successfully perform specified tasks at designated levels (Pajares 1996), has been found to have a positive relationship with university grades (Lecompte *et al* 1983; McKenzie and Schweitzer 2001). An individual's attributional style refers to "the general tendency of an individual to generate similar causal explanations across events" (Yee *et al* 2004, p.359). It has been found that pessimistic attributional style has an adverse effect on university success (Peterson and Barrett 1987). Similarly, helpless attributional style may lead to poorer performance (Peterson and Barrett 1987). Some recent studies have brought both categories of cognitive appraisal together to explore students' achievement and found some association between low levels of self-efficacy and helpless attributional style (Cassady 2004).

The relationships between demographic features of students (such as gender and age) and their academic achievement appear to be inconsistent in different empirical studies. For example, although the majority of such studies have suggested a male advantage in student performance in some subjects such as economics (e.g., Anderson *et al* 1994), some studies found no significant gender effect (e.g. Rhine 1989), and others even found a female advantage in the same subject (e.g., Williams *et al* 1992). With regard to the effect of age, contradictory findings have appeared too. For example, Clark and Ramsay (1990) detected a negative relationship between age and academic performance, while McInnis *et al* (1995) found that mature students are more likely to perform better.

Amongst the various predictors above, there are likely to be some interactions between each other, and therefore the effect of one factor on the academic performance may be indirectly reflected through others. Evidence can be seen in the research by Duff *et al* (2004), who investigated the relationship between personalities, the approach to learning and academic performance. Their findings suggest that approach to learning was a subset of personality and was more closely correlated to academic performance. As this study focuses on the direct effects of some key factors, it is not necessary to include all of the above mentioned aspects into the analysis.

2.2 International Students and Cross-Cultural Issues

The phenomenon of increasing proportion of international students in the higher education institutions has stimulated the interest of cross-cultural studies in the context of student learning. The cultural dimension has enabled various academic performance models to explore the divergence of academic performance between home students and international students. Culture includes elements such as "acquired knowledge, learned patterns of behaviour, attitudes, values, expectations, rituals and rules, a sense of identify and of history" (Webb and Read 2000, p.1). Cognitive theorists regard culture not as physical objects or observable behaviour but a group's "cosmology" (Goffman 1974, p. 27), or how experience is classified and understood (Robinson, 1985). Language is an important instrument to identify cultural differences (Webb and Read 2000). For those international students whose first language is not English, their Proficiency in English plays a crucial role in successfully completing their studies in an English-speaking learning environment. A number of studies have provided evidence to support this argument (e.g., Wardlow 1999).

In addition to language, there are many other culture-specific factors associated with academic behaviour and achievement. For example, a number of studies have

suggested that effort endurance and hard work are emphasised in the Chinese culture (Hau and Salili 1996), and Chinese learners attribute their performance more to their effort than to their ability (Hau and Salili 1990; 1991). A large body of literature on cross-cultural comparisons between Asian (particularly Chinese) and Western (principally American, Australian and British) students supports the view that “Asian students have difficulty in adjustment to an educational environment that was more characterised by independent learning and less instructor supervision and guidance” (Smith and Smith 1999, p.66). There have been some observations of Asian (represented by Chinese) students’ inactive classroom behaviour. They tend to be less keen to participate in group discussions or debate in class, and do not like to raise or answer questions. Nevertheless, the findings from Hong Kong research by Watkins and Biggs (1996) contradicted the perception of Asian students as passive and rote learners. They showed that Chinese students are more likely to adopt a deep approach to learning than their Western counterparts. It seems classroom performance does not necessarily reflect the approach to learning. The effect of classroom performance on academic achievement is worth further investigation.

Apart from the general divergence of learning behaviour between Chinese and Western students, another dimension of the question is that foreign students have to cope with a range of obstacles that home students do not need to. For example, it has been frequently noticed that international students, especially those travelling from Far East to the Western world, may face culture shocks and difficulties in cross-cultural adjustment. Robertson *et al* (2000) found that the most common references of international students (from Far East) were feelings of isolation from local (Australian) classmates, homesickness, and the need for social activities. Stress is also frequently noted by overseas students and is found to be at a higher level amongst them compared to home students (Burns 1991). Overseas students are under greater pressure from families to succeed and less competent with academic skills (Robertson *et al* 2000; New Zealand Ministry of Education 2004). According to Searle and Ward (1990), cross-cultural adjustment is a function of psychological/emotional adjustment and socio-cultural adaptation. The former is associated with the social support they receive, and the latter depends on cultural knowledge and cultural identity. It has been found that supportive communication practices with friends and spouses were useful in releasing stress (Misra *et al* 2003) and therefore facilitating cross-cultural adjustment. A preference for a mentor who is interpersonally involved in the student’s life has been found among international research students compared with their domestic counterparts in the U.S. (Rose 2005). This finding highlights social barriers faced by many international students and the primacy of social support as a coping strategy (Jacob and Greggo 2001; Wan *et al* 1992).

In addition to the general social culture shock, international students may also suffer from “academic culture shock”. Gilbert (2000, p.14) argued that academic culture shock is a subset of culture shock, and “is a case of incongruent schemata about higher education in the students’ home country and in the host country”. Academic culture shock is directly associated with the learning environment of an academic institution, including the education system, lecture style, assessment, relationship between students and lecturers and so on. International students from Asian countries, whose only study experience has been with their home countries’ educational systems, may feel significant difference when they start their studies at a Western university.

Although there has been a large body of literature on cross-cultural issues in the context of higher education learning, most of these studies have focused on the cross-cultural adjustment, comparisons of learning strategies, approaches to learning, and effects of cultural factors (such as family relationship) on the academic behaviour of the overseas students of a particular nationality or ethnic group, mostly Asians, in a Western educational institution (such as Wardlow 1999). The major gap is that little research has delved into the variation of international students from different nations and cultures (Hartnett *et al* 2004). Researchers therefore have called for a more refined classification of students which would allow more specific distinctions to be drawn between and among students and this will further enhance our understanding of the dynamics of learning behaviour across cultures (Rose 2005). This is particularly relevant for higher education in Business and Management in the face of increasing class diversity (Turnet 2006).

3. The Present Study

This study attempts to make some contribution to this under-research area. In particular, this study aims to examine how selected academic and culture-related factors affect international students' academic performance. Considering nationality distribution amongst the subjects, a particular emphasis is given to the predominant cohort, namely, Chinese students, in relation to students from other counties. This enables us to identify the heterogeneity between the two groups of students in their response to different performance predictors. Based on previous research, several key hypotheses are proposed. Each of the following categories includes a few individual examinations.

- i. *English language proficiency is predictive of international students' academic achievement.*
- ii. *Other academic factors such as learning preference, effort, and learning environment affect academic performance.*
- iii. *Psychosocial factors, such as social communication and perceived significance and value of study, have significant association with intentional students' academic achievement.*
- iv. *The evaluations of the key predictors by Chinese students are not significantly different from those by other international students.*
- v. *The key predictors identified to affect Chinese students' achievement are not different from the predictors for other international students.*

This study was conducted in the School of Management at the University of Surrey. The University of Surrey is a typical example of multicultural institutions of higher education. It has a substantial proportion of overseas students, especially at the postgraduate level. In particular, about 20% of the total students come from non-EU countries, and the proportion is much higher as far as the postgraduate students are concerned. The School of Management has received the largest proportion of international students, dominated by Chinese nationals, followed by Greek and other EU students. According to the School's Admission Office, there were 707 postgraduate students in the School of Management in the academic year 2004-2005, and more than 90% of them were international students. Chinese students accounted for 44.8% of the total postgraduate students. In order to better facilitate the learning experience of these international students, it is necessary for educators to have a good understanding of the features of international students' learning behaviour in relation to their academic achievement. Meanwhile, internationalisation has become an

emerging trend in higher education, especially in business and management subjects. It has been one of the key reflections included in the mission of the School of Management. In the respect of international training, the School does not only continuously teach international students on the current campus, but also provide full international training on its overseas campuses (such as in China). Therefore, such research has strategic significance for the school's long-term international development.

4. Research Methods

The study adopts quantitative research methods, based on a questionnaire survey conducted in 2005. The research obtained the ethical approval from the Ethics Committee in the School of Management. Data were collected from the MSc students on all management courses in the School of Management. The voluntary nature of this study was explained to students in advance. The completion of the questionnaire was anonymous and the students did not need to provide their name or their University Registration Number. It took approximately 10 minutes to complete the questionnaires, and they were collected immediately after completion. Amongst the total 435 students, 93.1% of them were international students, half of which were Chinese nationals. A sample of 178 international students consented to participate in the study. So the representability of the sample was fairly satisfactory.

The questionnaire was developed using some relevant studies as references such as the Survey of International Students conducted by the Ministry of Education of New Zealand in 2003 (Ward and Masgoret 2004). There were three sections in the questionnaire: personal information, Proficiency in English and study experience at UniS. The first section included such information as *gender*, *age*, *past work experience* and *relevance of prior studies to the current course*. The second section asked participants to report their latest English test (TOEFL or IELTS) results and to evaluate their English language abilities in the areas of reading, writing, listening and speaking and the overall ability. Due to high correlations between the *English test score* and the *overall self-evaluation*, and between the four individual areas of self-evaluations, the *English test score* and *English writing ability* were selected to represent students' proficiency in English for further analysis. The last section included most potential predictors of academic achievement (in addition to Proficiency in English) and the self-reported average mark they achieved in the first semester of their study. Questions measuring various predictors were rated along a 5-point Likert scale. The following scales of predictors were included: *perceived value of study* (3 items) and *importance of learning success to family* (1 item), both measuring psychosocial effects; *learning preference* (4 items) to reflect the extent of active learning strategy, and *learning effort* (6 items) to measure active participation in learning, both belonging to the academic predictor category; *social communication with compatriots and others* (2 items) and *familiarity of learning environment* (9 items), detecting the degree of cultural adaptation and academic culture shock.

Table 1 presents the results of reliability tests of these scales. All scales in Table 1 showed acceptable levels of reliability, apart from the social communication scale. Therefore, the two items of this scale, social communication with compatriots and with other students were treated individually in the following analysis, as were English test score and self-evaluated English writing ability, as addressed above. As for other scales, the mean score of each scale was calculated and utilised for further analysis.

Table 1 Reliability Tests of Scales

Scale	Cronbach α
<i>Perceived value of study</i>	.62
<i>Learning preference</i>	.69
<i>Learning effort</i>	.72
<i>Familiarity of learning environment</i>	.86
<i>Social communication</i>	-.14

5. Empirical Results

5.1 Descriptive Analysis

Amongst the 178 participants of this study, there were 106 female (59.6%) and 72 male (40.4%) students. Sixty-seven percent (66.7%) of all participants stated that this was their first overseas study experience. With regard to nationality composition, there were 25 nationalities involved in the sample, and the distribution was highly consistent with the whole population (see Table 2). Chinese students accounted for 49.4% in the sample. Due to the smaller size of the each sub-sample of other nationalities, it was impossible to give them individual statistical analysis. Therefore the comparative study was based on two groups only: Chinese students and other international students all combined into one group.

Table 3 shows the basic description of the key variables. The Pearson correlation tests show that the degrees of the correlations between the key scales of the predictors were at all satisfactory low level (<0.35) apart from that between *English test score* and *English writing ability* (.52). Due to the importance of both indicators of Proficiency in English as well as the acceptable degree of correlation between them, they were both kept in regression analysis. It was also found that *age* and *work experience* was highly correlated (.87), therefore *Work experience* was removed from the multiple regression analysis.

Table 2 Nationality Composition of the Sample

Nationality	Frequency	Percentage (%)
<i>Chinese</i>	88	49.4
<i>Greek</i>	18	10.1
<i>Thai</i>	16	9.0
<i>Nigerian</i>	15	8.4
<i>Taiwanese</i>	13	7.3
<i>Korean</i>	4	2.2
<i>Others</i>	24	13.5
<i>Total</i>	178	100.0

Table 3 Descriptives of Key Variables

Variable	Mean	S.D.	English test score	Writing ability	Perceived value	Importance of learning success to family	Learning preference	Effort	Familiarity to environment	Social with compatriots	Social with others
<i>Writing ability</i>	3.50	.887	.529**								
<i>Perceived value</i>	3.71	.655	.082	.237**							
<i>Importance of learning success to family</i>	3.67	1.075	.053	.107	.105						
<i>Learning preference</i>	3.10	.664	.226**	.314**	.227**	-.042					
<i>Effort</i>	3.67	.570	.132	.184*	.281**	.037	.361**				
<i>Familiarity to environment</i>	3.27	.706	.041	-.054	.044	.205**	-.139	.146			
<i>Social with compatriots</i>	3.61	1.02	-.011	.042	.011	.075	-.180*	.140	.085		
<i>Social with others</i>	3.08	.950	.310**	.168*	-.031	.124	.209**	.019	-.015	-.065	
<i>Overall mark</i>	57.7	3.976	.313**	.401**	.025	-.057	.138	.082	-.018	.099	.149

Note: * and ** denote the correlation is significant at the 5% and 1% levels, respectively 2-tailed

5.2 Independent Samples T-tests

In order to examine if Chinese students' ratings of the key predictors are significantly different from those of other international students, independent samples t-tests were employed. Table 4 shows the results of these tests. These results suggested that there were some significant cultural differences in international students' learning behaviour. For example, Chinese students were less likely to adopt active learning strategy, and were involved in less social interaction with students from other countries. More significantly, their Proficiency in English was poorer than their peers from other countries. Although the mean score suggested that Chinese students put in more effort on their studies than other international students, the difference was not significant. There was no evidence to show any difference in terms of the degree of perceived value of study between two groups of students; all of them regarded learning success as equally important to their families. As for their achievement, Chinese students' average mark was significantly lower than their peers. It is necessary to identify what factors were associated with these students' achievement most significantly and if those factors influenced the performance of Chinese students and students from other countries differently. The regression analysis was adopted to answer these questions.

Table 4 Independent-Samples T-Tests of Key Variables between Chinese and Other International Students

Variable	Mean Difference	t-statistic
<i>English test score</i>	-.764	5.16**
<i>English Writing ability</i>	-.812	6.671**
<i>Perceived value of study</i>	-.132	1.335
<i>Importance of learning success to family</i>	-.045	.279
<i>Learning preference</i>	-.251	2.526*
<i>Effort</i>	.089	-1.037
<i>Familiarity of learning environment</i>	.038	-.356
<i>Social communication with compatriots</i>	.104	-.679
<i>Social communication with other nationals</i>	-.684	5.132**
<i>Average mark of study</i>	-1.486	2.154*

Note: *p<.05; ** p<.01.

5.3 Multiple Regression Analysis

Regression analysis is one of the most commonly used methods in exploring predictors of academic performance (e.g., Chen 2002; McKenzie and Schweitzer 2001). This study followed the methodology to examine the significance of various factors discussed above in predicting international students' academic achievement. The dependent variable in the multiple regression model was the *self-reported average mark* that students achieved in their studies, the key scales of the predictors, along with age, gender, course relevancy, past work experience, first time overseas study. The categorical variables (e.g. gender and first time overseas study) were re-coded as dummy variables in the regression model.

Table 5 reports the two regression models estimated: one for the full sample of all international students, and the other for the sub-sample of Chinese students only. The results of these models were compared between each other in order to test the

hypothesis that there is no difference in the predictive power of the key factors on Chinese and other students' performance. As the R^2 's suggested, 32.5% and 40.3% of variance in academic performance of all international students and that of Chinese students, respectively, were explained by the predictors considered in these models. F -statistics further indicated that the models as a whole were significant.

With regard to the effects of individual predictors, both models consistently showed that the *perceived importance of learning success to family* had the most significant effect on students' academic achievement and this appeared to be an adverse effect. This finding is supported by previous research on Asian students' academic behaviour such as Robertson *et al* (2000), but the current study shows that this effect took place not only on Asian students but also on other culture cohorts. Many international students on the one hand were under great stress of intensive study and on the other hand were faced with high expectations from their families for successful completion of their study. Another factor that might contribute to the pressure was that majority of these students were sponsored fully or partially by their families. A great deal of fear of failure was therefore built up. Future study can directly assess whether or not students' financial dependence on family inflates the level of stress which becomes a liability for their academic achievement. If the student family's benign intention to sponsor his or her overseas education is counterproductive to his or her academic achievement, then both the family and the student need to consider what the best strategy is to finance overseas education.

The *English writing ability* was shown to be another crucial predictor in both models. This finding was also in line with past literature (e.g. Wardlow 1999), which has demonstrated the essential role of writing skills in academic accomplishment. *Social communication with compatriots* is also a significant predictor for both international students as a whole and Chinese students in particular, although the degrees of their effects were slightly different. This finding was supported by the argument of Misra *et al* (2003) that supportive communication with friends and spouses are useful to release stress and therefore contributes to cross-cultural adjustment. Communicating with one's compatriots may also enable students to share new experiences and help each other to sort out problems together, which could be another important mechanism through which this variable exerts positive impact on academic achievement. Seen from the magnitudes of the coefficients, this variable carries greater weight on Chinese students' performance than other their peer classmates. This may be related to their cultural characteristics more collectivistic rather than individualistic, the latter of which is more evident in Western cultures (Watkins and Biggs 1996).

The second model has demonstrated some distinctive characteristics of Chinese students. First, those Chinese students who never studied overseas before tended to do better in their studies than their compatriots who had such experiences before. But this predictor did not show a significant effect on the achievement in the full sample. This finding seems to be contradictory to the argument with regard to culture shock. The explanation of the finding is probably that as it was the first time these Chinese students studied abroad, they were more energetic and were more likely to carry on their previous learning approach and habit, which featured hard-working and greater input of effort in learning. Meanwhile, they might be more enthusiastic to experience a new culture, and therefore they were more active in taking part in cross-cultural adjustment. This effect is absent on European students because they did not feel as

much cultural difference as Chinese students did. In terms of the impact of learning preference, Chinese students were less likely to adopt active learning strategy as shown in the T-test, however, this variable has insignificant impact on academic achievement in both the full sample and the Chinese sub-sample.

Table 5 Summary of Multiple Regression Analysis

Variable	Full sample			Sub-sample of Chinese		
	B	S.E.	Beta	B	S.E.	Beta
<i>Intercept</i>	52.786	3.945	--	45.459	5.676	--
<i>Gender</i>	-.411	.915	-.052	.279	1.220	.032
<i>Age</i>	.274	.630	.047	.589	1.012	.083
<i>Course Relevancy</i>	.222	.598	.043	.744	.654	.157
<i>First time overseas study</i>	-.268	.931	-.031	2.660	1.295	.273*
<i>English test score</i>	.634	.518	.149	.456	.730	.089
<i>English Writing ability</i>	1.645	.573	.348**	1.938	.803	.345*
<i>Perceived value of study</i>	-.728	.601	-.129	-.103	.764	-.019
<i>Importance of learning success to family</i>	-1.305	.408	-.358**	-1.611	.557	-.456**
<i>Learning preference</i>	-.307	.708	-.052	-.422	.981	-.064
<i>Effort</i>	.852	.739	.135	-.361	1.106	-.050
<i>Familiarity of learning environment</i>	-.037	.648	-.006	.210	.786	.037
<i>Social communication with compatriots</i>	1.098	.448	.284*	1.741	.684	.384*
<i>Social communication with others</i>	-.511	.451	-.124	.605	.675	.131
			$R^2 = .325$			$R^2 = .403$
			$F=2.267^{**}$			$F=2.029^*$

Notes: ** indicates $p < .01$; * indicates $.01 < p < .05$; The observations with missing values in the dependent and independent variables were excluded from the model estimation, and therefore the total degrees of freedom of the above models reduced to 87 and 52, respectively.

To summarise the findings from both the multiple regression analysis and the independent-samples t-tests, the *English writing ability* is the key predictor that explained the difference of academic performance between Chinese and other international students. As Table 4 has shown, Chinese students' English writing ability was significantly lower than other international students, as with their academic performance. Meanwhile, the regression analysis has shown that it is one of the common significant predictors of all international students' performance. Therefore, it can be concluded that Chinese students' relatively poor English writing ability determined their lower achievement than that of other international students.

6. Conclusions

This study has examined the effects of various academic and cultural related factors on academic performance of MSc international students in the School of Management at the University of Surrey. It has been found that the *perceived significance of learning success to family, proficiency in English* and *social communication with compatriots* were the most significant predictors of academic performance of all international students in this study. It should be noted that the first predictor had an adverse association with academic achievement, while the other two showed positive effects. An additional factor related to students overseas study experience presented some predictive power only for Chinese students' performance. It was suggested that the Chinese students who never studied abroad before were likely to have higher achievement in their current studies than their compatriots who had studied overseas before. This study also found that Chinese students were likely to show lower *Proficiency in English* than other students and they tended to adopt less active *learning strategy*. However, no evidence showed that this *learning strategy* had significant impact on their academic achievement. But the poorer English writing ability of Chinese students explained their relatively low performance in comparison to other international students. Further research is necessary to detect the interrelationships between various predictors to clarify the complex causations.

The above findings suggest that the international office of the university and that at the School of Management, in coordination with various international students' societies, should organise more welcoming socio-cultural events at the beginning of new academic years to encourage all international students actively participate in cross-cultural adjustment. In addition, increasing tutor-student face-to-face communication in less formal environments will help them release various stresses and improve their confidence to carry on their studies. Considering the crucial role that English language proficiency plays on their studies, language support should be further strengthened. Particular attention should be paid to Chinese students' writing skills. Pre-course language training seems to be more practical and more beneficial for international students, especially for Chinese students.

There have been some limitations to this study. First of all, this study has only focused on the factors closely related to the nature of the research subjects: international students. Therefore, some predictors identified in the general academic performance research were omitted. Secondly, there might be other culture-specific factors to be considered in the exploration of international students' academic performance. Inclusion of these variables is likely to improve the explanatory power of regression analysis. However, it will require a larger sample size and some caution in dealing with the multicollinearity problem. Thirdly, the sample size was relatively small and the nationality distribution across the sample was unbalanced. Due to insufficient subjects of home students and other nationalities except Chinese, a more comprehensive cross-cultural comparison, such as between home students and international students, or between Chinese and Greek students, was impossible for the current study, but can be considered in future research with better data support. Lastly, this study focused on one institution and postgraduate students only. It will be useful to investigate the same issue across different institutions and study levels. The opportunities for such investigation will be sought in our future research.

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