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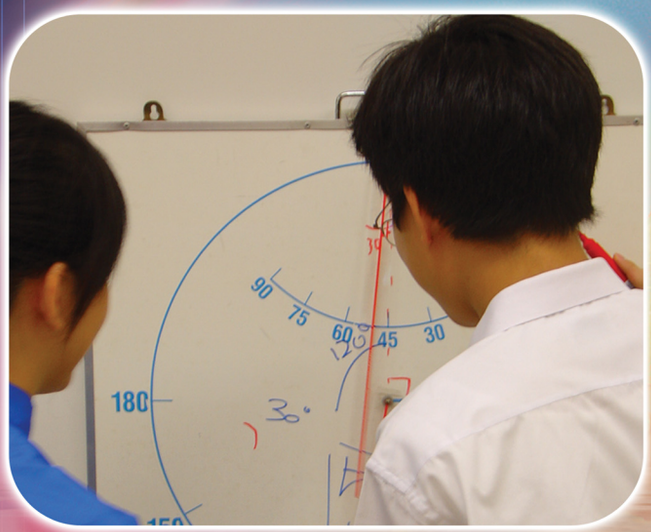
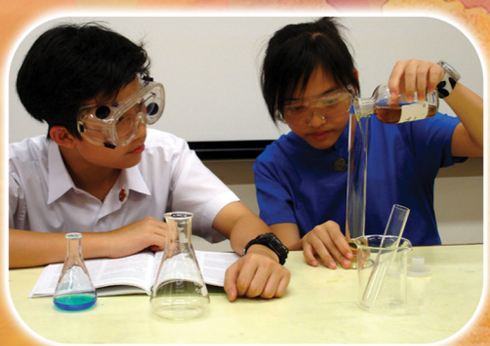
The Fifth HKPISA Report

PISA 2012



From PISA 2000

To PISA 2012



Volume I Executive Summary

MONITORING THE QUALITY AND EQUALITY OF EDUCATION IN HONG KONG FROM AN INTERNATIONAL PERSPECTIVE

從國際視野鑑察香港教育的質素與均等

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FOREWORD

The OECD (Organisation for Economic Co-operation and Development) Programme for International Student Assessment (PISA) has been providing Hong Kong with valuable information to enable examination of the quality and equality of our education system from an international perspective since the first cycle of PISA. In PISA 2012, we attempt to address the extent to which our students have acquired the basic competencies essential for meeting the challenges of the twenty-first century. Since the major domain of assessment in PISA 2012 is mathematics, we compared the results with PISA 2003 when mathematics was also the major domain, asking: How has the performance of our students changed over the past ten years? Have the various aspects of mathematics self-concept and learning motivation improved since then? In what ways have parental involvement and parental investment changed over time and to what extent these parental factors have affected our students' learning?

Premised on the findings in the previous four HKPISA Reports of PISA 2000+, PISA 2003, PISA 2006 and PISA 2009, this report extends our understanding of how well our education system is performing by providing, in mathematics in particular, a longitudinal perspective. It is hoped that it can provide: (i) researchers with the opportunity for examining the current state of affairs in our education system and the outcome of education reforms over time; (ii) policy makers with the information needed for formulating policies that are responsive to students' needs and the global development; and (iii) teachers and parents with a broader view of their children's learning beyond the local context. With the vision of a better future for all children regardless of their social background, we hope that stakeholders can find in this report, a clear "rationale" and robust "evidence" supportive of their decisions and actions.

The success of this project is due to the contribution of stakeholders from various sectors of the education community and I would like to thank all the students, parents, teachers and principals participating in this project. The data in this survey would not be available without their generous cooperation. I would also like to thank the Education Bureau of the Hong Kong Special Administrative Region Government for commissioning us to conduct the PISA 2012 project. Thanks are also due to the principals and teachers in the Advisory Committee, Mr. Tak-wah Fung, Ms. Suk-han Poon, Mr. Kai-lok Tso and Ms. Kwan-yuk Tsui, for their valuable advice given and time committed. Among the working team, I am grateful to our project advisors, Professor Douglas Willms and Professor Leslie Lo, and the project leader, Professor Yue-ping Chung, Professor Wing-kwong Tsang and Professor Hin-wah Wong, for their insight and invaluable guidance. I would also like to thank my colleagues in the research team who committed their time and expertise in the front line tasks of researching and reporting. Thanks are also due to the Centre staff, Wai Leung, Terence, Thomas, Eric, Kwok Wing and Grace. Without their sustained assistance, the project would not be a success.

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OVERVIEW OF PISA

1. The Programme for International Student Assessment (PISA) is a project initiated and coordinated by the Organisation for Economic Co-operation and Development (OECD). The primary goal of this international study is to assess how well 15-year-old students near the completion of compulsory education have acquired the knowledge and skills essential for meeting the challenges of our society. It then develops educational indicators to help governmental bodies and policy makers examine, evaluate, and monitor the effectiveness of the education system at both national and school levels.

2. The PISA assessment takes place every three years starting from 2000, covering the three domains of reading, mathematical, and scientific Literacy. PISA 2012 is the fifth cycle of this assessment, and the major focus is on mathematical Literacy.

3. In PISA 2012, about 510,000 students from 65 countries/regions took part in a two-hour test.

Table 1 Participating Countries/Regions of PISA 2012

OECD Countries			**Partner (Non-OECD) Countries / Regions**		
Australia	Hungary	Poland	Albania	Kazakhstan	Shanghai-China
Austria	Iceland	Portugal	Argentina	Latvia	Singapore
Belgium	Ireland	Slovak Republic	Brazil	Liechtenstein	Thailand
Canada	Israel	Slovenia	Bulgaria	Lithuania	Tunisia
Chile	Italy	Spain	Chinese Taipei	Macao-China	United Arab Emirates
Czech Republic	Japan	Sweden	Colombia	Malaysia	Uruguay
Denmark	Korea	Switzerland	Costa Rica	Montenegro	Vietnam
Estonia	Luxembourg	Turkey	Croatia	Peru	
Finland	Mexico	United Kingdom	Cyprus	Qatar	
France	Netherlands	United States	Hong Kong-China	Romania	
Germany	New Zealand		Indonesia	Russian Federation	
Greece	Norway		Jordan	Serbia	

4. PISA has developed a framework describing the scope and dimensions of the assessment in each of the three domains of literacy. Each domain has three dimensions: the *content* knowledge that students should acquire, the *processes* that need to be performed, and the *situation* in which knowledge and skills are applied or drawn on. In addition to the assessment of the three domains, PISA 2012 requires students and school principals to complete questionnaires. In Hong Kong, PISA also complements the perspectives of students and school principals by including an additional parent questionnaire. These data provide an outlook on parental involvement in children's education, as well as cognitive and non-cognitive aspects of student performance.

5. The main study of PISA 2012 in Hong Kong was conducted from April to May 2012. A two-stage stratified sampling design is used. In the first stage, schools are stratified based on the type of school (government, aided and independent – international and those under Direct Subsidy Scheme) and student academic intake[1] (high, medium and low ability). Schools from each stratum are systematically sampled with probabilities proportional to their enrolment size. The resulting school participation rate is 94.9% which meets the OECD standard. The distribution of participating schools is shown in Table 2.

Table 2 Number of Participating Schools of the PISA 2012 Main Study in Hong Kong

Explicit Strata	Implicit Strata	Total Number of Schools	Number of Participating Schools
Government	High Ability	15	6
	Medium Ability	8	2
	Low Ability	7	2
	N/A	1	0
Aided	High Ability	120	46
	Medium Ability	117	40
	Low Ability	126	33
	N/A	1	0
Independent#	Local (DSS*)	55	16
	International	32	3
Total		**482**	**148**

#There is no implicit stratification for independent schools.

*DSS refers to schools under the Direct Subsidy Scheme.

6. In the second stage, 35 students of age 15 are randomly selected from each school in the sample. A total of 4,670 students from 148 schools are accepted for final analysis according to the OECD sampling standard. Table 3 shows the grade distribution of the sampled students in Hong Kong.

Table 3 Distribution of Participating Students of PISA 2012 Main Study in Hong Kong

Grade/Form	Number of Participating Students	Proportion (%)
7/S1	51	1.1
8/S2	300	6.4
9/S3	1205	25.8
10/S4	3088	66.1
11/S5	26	0.6
Total	**4670**	**100**

[1] Student academic intake denotes the academic ability of Secondary 1 students admitted by school.

MAJOR FINDINGS

Quality and Equality

7. The findings derived from PISA 2012 shed light on both the ***quality*** and ***equality*** of Hong Kong's education system. Quality refers to the effectiveness of the education system in fostering students' literacy skills. Equality refers to the benefit from education received by all students regardless of their socio-economic background.

8. In terms of overall quality, Hong Kong students perform well in the three assessment domains. From PISA 2000+[2] to PISA 2012, Hong Kong continues to rank among the top 10 in the three literacy domains. In PISA 2012, Hong Kong ranks third in mathematics, and second in science and reading. Hong Kong's mean performances are significantly above the OECD averages.[3] Taking statistical significance into account, Hong Kong's mathematics score of 561 is only significantly lower than those of Shanghai (first: 613) and Singapore (second: 573), but is not significantly different from those of Chinese Taipei (fourth: 560) and Korea (fifth: 554). In science, Hong Kong gets a mean score of 555; only Shanghai (first: 580) performs significantly better than Hong Kong. There is no statistical difference between Hong Kong, Singapore (third: 551) and Japan (fourth: 547). In reading, Hong Kong gets a mean score of 545, which is significantly lower than Shanghai's (first: 570), similar to Singapore's (third: 542), Japan's (fourth: 538) and Korea's (fifth: 536), but higher than those of all other participating countries / regions (see Appendix I).

9. As far as equality in the education system of Hong Kong is concerned, in PISA 2012, the disparities between high (95th percentile) and low (5th percentile) achievers in science and reading are relatively small (i.e. smaller than the OECD averages), while the disparity between high and low achievers in mathematics is slightly greater than the OECD average. This suggests that Hong Kong students benefit fairly equally from quality education in Hong Kong regardless of their academic ability. Furthermore, economic, social and cultural status (ESCS) has only a relatively small impact on the literacy performance of Hong Kong students. The impact of socio-economic background on academic performance is expressed as "socio-economic gradient" in PISA.[4] The slope of the gradient line is an indicator of the extent of inequality in student performance attributable to socio-economic background. The modest slope of Hong Kong suggests that Hong Kong students perform equally well regardless of their socio-economic background. Having similar socio-economic background, Hong Kong's 15-year-olds score higher than students of many other countries/regions (see Appendix II).

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[2] The first cycle of PISA, PISA 2000, was conducted in 2000. Thirty-two countries/regions participated. Hong Kong and 10 other countries/regions joined in PISA 2000+, which was conducted in February 2002.

[3] In PISA 2012, the OECD averages are 494 in Mathematics, 501 in Science, and 496 in Reading, with standard deviations of 100.

[4] A steeper gradient indicates a greater impact of socio-economic background on student performance, which suggests more inequality.

10. The percentage of variation in mathematics performance remains large between secondary schools in Hong Kong.[5] This between-school variation is significantly related to the student academic intake ability and socio-economic segregations between schools. Despite these segregations, on average, Hong Kong's low achievers perform better in mathematics when compared to their counterparts in OECD countries. It can be posited that schools and teachers in Hong Kong are catering effectively for the needs of low achievers in mathematics learning. However, the within-school variance in mathematics performance has risen, though not significantly, when compared with that in PISA 2003, signifying an increased heterogeneity of students within schools.

Student Achievement in Mathematical Literacy

11. In mathematics, Hong Kong students perform similarly well in PISA 2012 (561) as in PISA 2009 (555), PISA 2003 (550) and PISA 2000+ (560). Their performance is significantly higher than that in PISA 2006 (547). In comparison to their OECD counterparts, Hong Kong students score significantly higher at all percentile points.

12. In terms of the mathematics proficiency scale, the percentage of Hong Kong students attaining Level 5 and 6 (33.7%) is much higher than that of the OECD average (12.6%). At the other end of the scale, 8.5% of Hong Kong students are not able to reach Level 2, the baseline level of mathematical literacy, but this is far lower than the OECD average of 23.0%.

13. On all the three process sub-scales and four content sub-scales of mathematical literacy, Hong Kong students perform consistently better than their OECD counterparts. Among the three process sub-scales, that is, *formulating*, *employing* and *interpreting*, Hong Kong students give their best performance on *formulating*. Among the four content sub-scales, that is, *change and relationship*, *space and shape*, *quantity*, *uncertainty and data*, they score the highest on the *space and shape* sub-scale. When compared with their overall mathematics proficiency, Hong Kong students show a relatively lower performance on *interpreting* mathematics and on handling *uncertainty and data* items.

14. In common with previous PISA cycles, the gender difference in favour of boys in mathematical literacy persists (15 points) and is higher than the OECD average of 11 points. Furthermore, this difference gradually increases from low to high percentile points. The higher the percentile points, the bigger is the difference. Specifically, from the 5th percentile to 25th percentile, the weaker boys and girls do not show any significant gender difference. However, this difference increases consistently from 18 score points at the 50th percentile to as high as 30 score points at the 95th percentile. These findings indicate that there is still a large gender gap in mathematics performance, especially at the higher end of the scale.

[5] In Hong Kong, the percentage of total variation that lies between schools is 42.3% in mathematics, which is slightly higher than the OECD average of 36.7%.

Student Achievement in Scientific Literacy

15. Hong Kong students perform well in science (555) in PISA 2012. Their performance is significantly higher than in PISA 2006 (542), PISA 2003 (539) and PISA 2000+ (541), but similar to that in PISA 2009 (549). When compared with the OECD average, Hong Kong students outperform their OECD counterparts at all percentile points.

16. Hong Kong shows no significant gender difference in overall science performance. However, gender differences exist in different areas of scientific competency and knowledge systems. Specifically, boys tend to perform better than girls in *explaining phenomena scientifically* and in *earth and space systems* and *physical systems*.

Student Achievement in Reading Literacy

17. In reading literacy, Hong Kong students achieve a mean score of 545 in PISA 2012, which is significantly higher than in any of the previous four cycles. In general, Hong Kong students performed better in the recent three cycles than in the first two cycles. The improvement in the recent three cycles, i.e. from PISA 2006 to PISA 2012, is mainly due to a rise in performance of moderate achievers (at the 50th and 75th percentiles) and high achievers (at the 90th and 95th percentiles).

18. Regarding gender difference among Hong Kong students, girls perform significantly better than boys in reading, although the 25-point gender gap is smaller than the OECD average of 38 points. Furthermore, the gender gap of Hong Kong students in PISA 2012 decreases when compared with the previous cycles (33, 31 and 32 points in PISA 2009, PISA 2006 and PISA 2003 respectively) except PISA 2000+ (16 points).

Parental Involvement, Investment and Perception

19. For parental involvement, social communication between parents and students is positively associated with performance in mathematics, whereas academic communication with parents is negatively associated with mathematics performance. In common with the findings in the previous cycles, parental involvement in school has negative association with students' performance in mathematics.

20. Considering parental investment, Hong Kong parents have under-invested in educational, cultural, material, and information and communication technology (ICT) resources when compared with parents from OECD countries. All these kinds of investment are found to have positive effects on mathematics performance.

21. Hong Kong parents tend to have lower perception of school quality when compared with the OECD average. Among the different indices of parental involvement, parents' perception of school quality has positive and the strongest association with mathematics performance. Parents who report a higher level of school quality tend to have children who perform better in mathematics. As for the indices of parental investment, the effects of educational and ICT resources are slightly stronger than those of cultural and material resources.

IMPLICATIONS AND RECOMMENDATIONS

For Policy Makers

22. Overall, Hong Kong students consistently perform quite well in all three domains of literacy. It can be posited that our education system is effective in developing students' literacy without sacrificing equality. All students, regardless of their socio-economic background, can benefit from our education system. However, the academic segregation between schools in Hong Kong remains high, notwithstanding the reform of the *Secondary School Places Allocation System (SSPA)*, specifically, the reduction of the allocation bands from 5 to 3, and the implementation of fine-tuning of the medium of instruction (MOI) for secondary schools. This is particularly unfavourable to the nurturing of a positive attitude toward life-long learning among young people. It is recommended that the *SSPA* and the policy on *Medium of Instruction* be constantly reviewed so as to reduce academic segregation among schools.

23. The increased variance of student ability within school warrants attention. This implies that teachers need more support, resource and time to cater for the wider individual learning differences. Reallocating lesson time for conducting action research into areas such as lesson study and peer learning, and providing training are feasible measures for catering for individual learning differences.

24. It is worth capitalising on parental practices that have a positive influence on student learning. Apart from home-based involvement which is consistently proven to be useful for enhancing student performance, school-based involvement, which is currently underexploited, should be fostered. To overcome the problem-oriented view on school-based involvement, a communitarian view of schooling should be promoted by means of parent education and teacher education. In this way, parent's resources and expertise could be mobilised to support the all-round development of adolescents.

25. The impressive performance of Hong Kong students is indisputable. However, the considerable gender differences with boys performing at the lower end of the reading scale, and girls lagging behind in mathematics are persistent and alarming. Therefore, helping boys to do better in reading and girls to do better in mathematics should be on the agenda for further improvement in students' literacy.

For Educators & Parents

26. The survey of students' self-related cognition and learning motivation indicates that a wide array of students' non-cognitive (affective) factors, such as mathematics self-efficacy, mathematics self-concept, and intrinsic and instrumental motivation, are positively associated with mathematics performance. It can be contended that the cognitive and the non-cognitive (affective) domains are inter-related and interacting with each other; both are important elements in nurturing future citizens.

27. Given the generally outstanding mathematics performance of Hong Kong students, mathematics teachers may have sufficient room for attempting to bring our mathematics teaching in line with a broader conception of mathematics for the Information Age by making a liberal move to de-emphasise the current demands for skills in fast and routine mathematical manipulations such as formulae, but instead, to give students more opportunities to analyse, to conceptualise, to reason, to argue and to reflect in working out mathematics in the classroom.

28. Regardless of parents' socio-economic status, the findings support that home-based parental involvement in children's education is a promising avenue by which children's mathematics performance can be enhanced. Enhancing communication among family members, discussing school life with the children and spending time just chatting with them are important measures that parents may take to support their children's learning. Parental involvement in school turns out to be negatively associated with student performance. This might be due to limited resources in terms of time and expertise, or the belief in home-school cooperation, which cause schools to limit their contact with parents when there are problems with their children. The proper and positive role of home-school communication should be promoted in order to facilitate partnership rather than confrontation between school and parents. This partnership will lead to a more thorough understanding of the children, which is essential for providing the children with appropriate guidance and support.

29. Professional associations of teachers, the governmental bodies such as Curriculum Development Institute, and the HKPISA Centre should seek more collaboration to reap the harvest available from the PISA research to improve curriculum and instruction.

For Future Research

30. PISA 2012 provides useful information about students' academic performance and various contextual factors. These factors include students' immigration status, out-of-school learning time, gender differences in cognitive outcomes, self-related cognition, learning motivation in mathematics, and educational and career aspiration to name but few. All these themes are worthy of further investigation, and the relative contribution of different individual, familial and school factors should be explored in future.

31. The findings concerning students' low mathematics self-concept and high mathematics anxiety warrant the need for further investigation notwithstanding Hong Kong students' top mathematics performance. Given that mathematics self-concept is positively associated with mathematics performance, longitudinal study and action research are recommended to identify ways to enhance students' self-concept while alleviating their anxiety in learning mathematics.

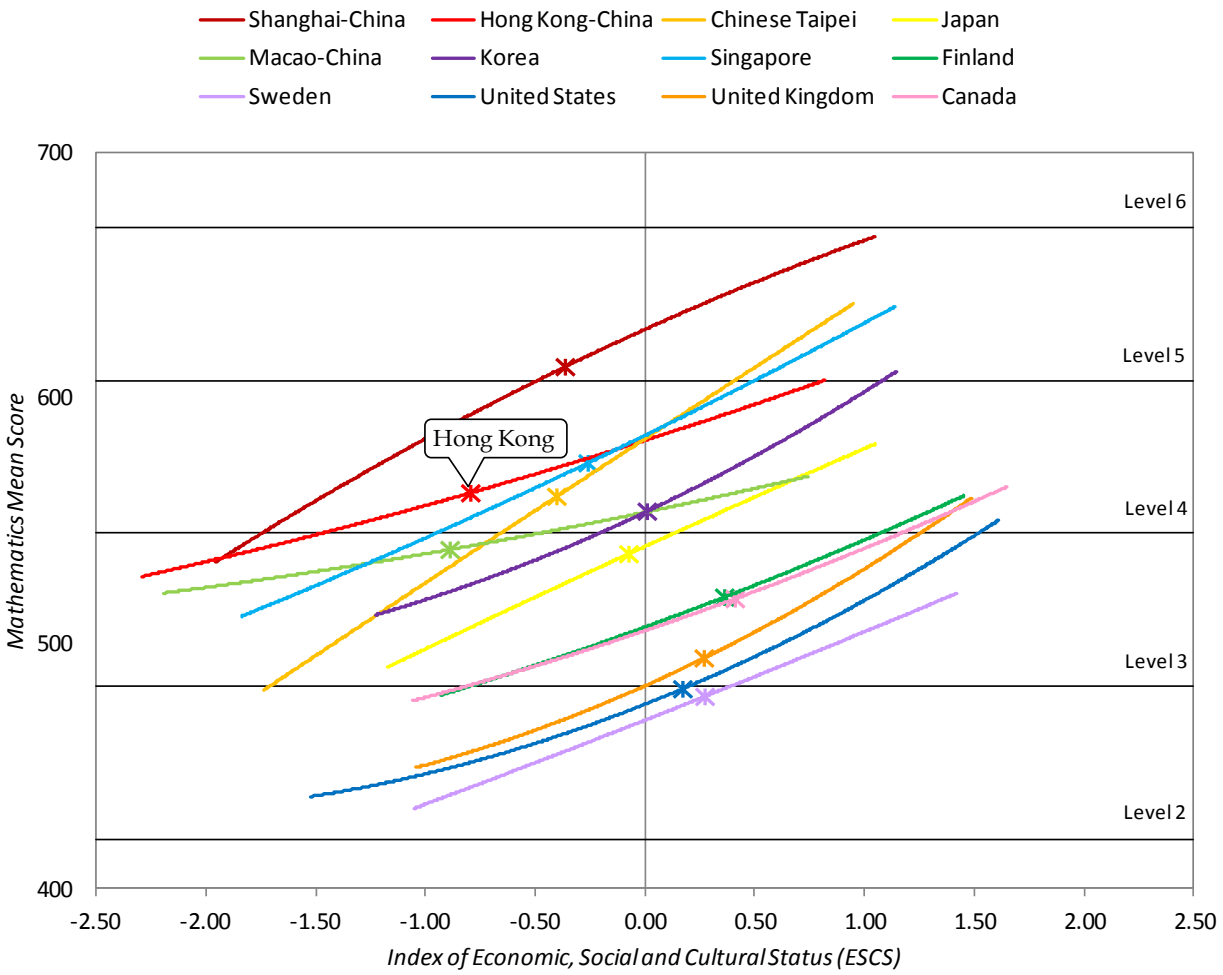
32. The finding concerning the negative association of school-based involvement of parents with student performance is similar to that apparent in previous cycles, suggesting that this undesirable condition is persisting. Further research is needed to help transform the nature of home-school interaction and parental participation, which has not improved considerably during the past ten years.

Appendix I Performance of 15-Year-Old Students in Mathematical, Scientific and Reading Literacy in PISA 2012

Mathematics			Science			Reading		
Countries / Regions	Mean	S.E.	Countries / Regions	Mean	S.E.	Countries / Regions	Mean	S.E.
Shanghai-China	613	(3.3)	Shanghai-China	580	(3.0)	Shanghai-China	570	(2.9)
Singapore	573	(1.3)	**Hong Kong-China**	**555**	**(2.6)**	**Hong Kong-China**	**545**	**(2.8)**
Hong Kong-China	**561**	**(3.2)**	Singapore	551	(1.5)	Singapore	542	(1.4)
Chinese Taipei	560	(3.3)	Japan	547	(3.6)	Japan	538	(3.7)
Korea	554	(4.6)	Finland	545	(2.2)	Korea	536	(3.9)
Macao-China	538	(1.0)	Estonia	541	(1.9)	Finland	524	(2.4)
Japan	536	(3.6)	Korea	538	(3.7)	Ireland	523	(2.6)
Liechtenstein	535	(4.0)	Vietnam	528	(4.3)	Chinese Taipei	523	(3.0)
Switzerland	531	(3.0)	Poland	526	(3.1)	Canada	523	(1.9)
Netherlands	523	(3.5)	Canada	525	(1.9)	Poland	518	(3.1)
Estonia	521	(2.0)	Liechtenstein	525	(3.5)	Estonia	516	(2.0)
Finland	519	(1.9)	Germany	524	(3.0)	Liechtenstein	516	(4.1)
Canada	518	(1.8)	Chinese Taipei	523	(2.3)	New Zealand	512	(2.4)
Poland	518	(3.6)	Netherlands	522	(3.5)	Australia	512	(1.6)
Belgium	515	(2.1)	Ireland	522	(2.5)	Netherlands	511	(3.5)
Germany	514	(2.9)	Australia	521	(1.8)	Belgium	509	(2.2)
Vietnam	511	(4.8)	Macao-China	521	(0.8)	Switzerland	509	(2.6)
Austria	506	(2.7)	New Zealand	516	(2.1)	Macao-China	509	(0.9)
Australia	504	(1.6)	Switzerland	515	(2.7)	Vietnam	508	(4.4)
Ireland	501	(2.2)	Slovenia	514	(1.3)	Germany	508	(2.8)
Slovenia	501	(1.2)	United Kingdom	514	(3.4)	France	505	(2.8)
Denmark	500	(2.3)	Czech Republic	508	(3.0)	Norway	504	(3.2)
New Zealand	500	(2.2)	Austria	506	(2.7)	United Kingdom	499	(3.5)
Czech Republic	499	(2.9)	Belgium	505	(2.1)	United States	498	(3.7)
France	495	(2.5)	Latvia	502	(2.8)	Denmark	496	(2.6)
United Kingdom	494	(3.3)	France	499	(2.6)	Czech Republic	493	(2.9)
Iceland	493	(1.7)	Denmark	498	(2.7)	Italy	490	(2.0)
Latvia	491	(2.8)	United States	497	(3.8)	Austria	490	(2.8)
Luxembourg	490	(1.1)	Spain	496	(1.8)	Latvia	489	(2.4)
Norway	489	(2.7)	Lithuania	496	(2.6)	Hungary	488	(3.2)
Portugal	487	(3.8)	Norway	495	(3.1)	Spain	488	(1.9)
Italy	485	(2.0)	Hungary	494	(2.9)	Luxembourg	488	(1.5)
Spain	484	(1.9)	Italy	494	(1.9)	Portugal	488	(3.8)
Russian Federation	482	(3.0)	Croatia	491	(3.1)	Israel	486	(5.0)
Slovak Republic	482	(3.4)	Luxembourg	491	(1.3)	Croatia	485	(3.3)
United States	481	(3.6)	Portugal	489	(3.7)	Sweden	483	(3.0)
Lithuania	479	(2.6)	Russian Federation	486	(2.9)	Iceland	483	(1.8)
Sweden	478	(2.3)	Sweden	485	(3.0)	Slovenia	481	(1.2)
Hungary	477	(3.2)	Iceland	478	(2.1)	Lithuania	477	(2.5)
Croatia	471	(3.5)	Slovak Republic	471	(3.6)	Greece	477	(3.3)
Israel	466	(4.7)	Israel	470	(5.0)	Turkey	475	(4.2)
Greece	453	(2.5)	Greece	467	(3.1)	Russian Federation	475	(3.0)
Serbia	449	(3.4)	Turkey	463	(3.9)	Slovak Republic	463	(4.2)
Turkey	448	(4.8)	United Arab Emirates	448	(2.8)	Cyprus	449	(1.2)
Romania	445	(3.8)	Bulgaria	446	(4.8)	Serbia	446	(3.4)
Cyprus	440	(1.1)	Chile	445	(2.9)	United Arab Emirates	442	(2.5)
Bulgaria	439	(4.0)	Serbia	445	(3.4)	Chile	441	(2.9)
United Arab Emirates	434	(2.4)	Thailand	444	(2.9)	Thailand	441	(3.1)
Kazakhstan	432	(3.0)	Romania	439	(3.3)	Costa Rica	441	(3.5)
Thailand	427	(3.4)	Cyprus	438	(1.2)	Romania	438	(4.0)
Chile	423	(3.1)	Costa Rica	429	(2.9)	Bulgaria	436	(6.0)
Malaysia	421	(3.2)	Kazakhstan	425	(3.0)	Mexico	424	(1.5)
Mexico	413	(1.4)	Malaysia	420	(3.0)	Montenegro	422	(1.2)
Montenegro	410	(1.1)	Uruguay	416	(2.8)	Uruguay	411	(3.2)
Uruguay	409	(2.8)	Mexico	415	(1.3)	Brazil	410	(2.1)
Costa Rica	407	(3.0)	Montenegro	410	(1.1)	Tunisia	404	(4.5)
Albania	394	(2.0)	Jordan	409	(3.1)	Colombia	403	(3.4)
Brazil	391	(2.1)	Argentina	406	(3.9)	Jordan	399	(3.6)
Argentina	388	(3.5)	Brazil	405	(2.1)	Malaysia	398	(3.3)
Tunisia	388	(3.9)	Colombia	399	(3.1)	Indonesia	396	(4.2)
Jordan	386	(3.1)	Tunisia	398	(3.5)	Argentina	396	(3.7)
Colombia	376	(2.9)	Albania	397	(2.4)	Albania	394	(3.2)
Qatar	376	(0.8)	Qatar	384	(0.7)	Kazakhstan	393	(2.7)
Indonesia	375	(4.0)	Indonesia	382	(3.8)	Qatar	388	(0.8)
Peru	368	(3.7)	Peru	373	(3.6)	Peru	384	(4.3)
OECD average	*494*	*(0.5)*	*OECD average*	*501*	*(0.5)*	*OECD average*	*496*	*(0.5)*

Note: Shaded area indicates scores significantly different from those of Hong Kong.

Appendix II Relationship between Student Performance in Mathematics and ESCS in Twelve Countries/Regions



Note: The ESCS index for PISA 2012 is derived from three variables related to family background: parental education, occupation and number and type of home possessions related to education.

PISA 概述

1. 學生能力國際評估計劃(PISA)由經濟合作與發展組織(OECD)發起及統籌，旨在評估接近完成普及教育的十五歲學童，對社會所需知識與技能掌握的情況，並建立教育指標，讓各國政府及政策制訂者審視、評價和監察國家和學校層面的教育成效。

2. PISA 自 2000 年起每三年舉行一次，研究涵蓋閱讀、數學及科學能力三大範疇。PISA 2012 是第五屆評估計劃，重點評估數學能力。

3. 在 PISA 2012，有來自 65 個國家和地區約 510,000 名學生參加了兩小時的測試。

表一　PISA 2012 的參與國家和地區

OECD 成員國家			**夥伴 (非 OECD 成員) 國家/地區**		
澳洲	匈牙利	波蘭	阿爾巴尼亞	哈薩克斯坦	中國上海
奧地利	冰島	葡萄牙	阿根廷	拉脫維亞	新加坡
比利時	愛爾蘭	斯洛伐克共和國	巴西	列支敦士登	泰國
加拿大	以色列	斯洛文尼亞	保加利亞	立陶宛	突尼西亞
智利	意大利	西班牙	中華台北	中國澳門	阿拉伯聯合酋長國
捷克共和國	日本	瑞典	哥倫比亞	馬來西亞	烏拉圭
丹麥	韓國	瑞士	哥斯達黎加	黑山共和國	越南
愛沙尼亞	盧森堡	土耳其	克羅地亞	秘魯	
芬蘭	墨西哥	英國	塞浦路斯	卡塔爾	
法國	荷蘭	美國	中國香港	羅馬尼亞	
德國	紐西蘭		印度尼西亞	俄羅斯聯邦	
希臘	挪威		約旦	塞爾維亞共和國	

4. PISA 建構了一個架構，說明三個能力範疇的評估所涵括的內容與維度，而每個範疇均有三個維度：學生須具備的「知識內容」、需要進行的「過程」、以及運用或獲得知識技能的「處境」。除了評估三個範疇，PISA 2012 亦邀請學生和校長填寫問卷。在香港，PISA 還增設家長問卷，以補充學生和校長的看法和了解家長如何參與子女的教育、以及學生在認知和其他方面的表現。

5. 在香港，PISA 2012 主測試於 2012 年 4 月至 5 月期間進行。研究採用二段分層抽樣方法，在第一階段，研究把學校按類型(官立、資助、私立學校──包括國際學校和直資學校)與收生成績[1] (高、中、低能力)分組，有系統地從學校組別中隨機抽選樣本學校，選中機率與學校的學生人數成正比例。得出的學校參與率為 94.9%，符合 OECD 標準。表二顯示參與學校在各組的分佈。

表二　香港參加 PISA 2012 主測試的學校分佈

顯層	隱層	學校總數	參與學校數目
官立學校	高能力	15	6
	中能力	8	2
	低能力	7	2
	(不適用)	1	0
資助學校	高能力	120	46
	中能力	117	40
	低能力	126	33
	(不適用)	1	0
私立學校#	本地 (直資*)	55	16
	國際學校	32	3
總數		**482**	**148**

私立學校沒有收生成績資料。
* 直資是參加直接資助計劃的學校。

6. 在第二階段，研究從每所參與學校隨機抽樣選取 35 名十五歲學生。根據 OECD 的抽樣標準，共有來自 148 所中學的 4,670 名學生獲納入最後的分析樣本。表三顯示了樣本中的學生年級分佈。

表三　香港參加 PISA 2012 主測試的學生年級分佈

年級	參與學生人數	百分比 (%)
中一	51	1.1
中二	300	6.4
中三	1205	25.8
中四	3088	66.1
中五	26	0.6
總數	**4670**	**100**

[1] 收生成績指中一學生的入學成績。

重點研究結果

質素與均等

7. PISA 2012 研究結果為本港教育系統的「質素」與「均等」兩方面帶來啟示。「質素」指教育系統培育學生基礎能力的成效；「均等」指教育系統讓不同社經背景的學生均能從教育中獲益。

8. 就整體質素而言，香港學生於三個評估範疇均表現良好。由 PISA 2000+[2]至 PISA 2012，香港持續在三個範疇中穩據前十名。在 PISA 2012，香港在數學排名第三，在科學和閱讀均排名第二。香港的平均成績顯著高於 OECD 平均值[3]。若以統計學的顯著度作準，香港的數學分數(561 分)只顯著低於上海(第一名: 613 分)和新加坡(第二名: 573 分)，但與中華台北(第四名: 560 分)和韓國(第五名: 554 分)無顯著差異。科學方面，香港的平均分數為 555 分，只顯著低於上海(第一名: 580 分)，但與新加坡(第三名: 551 分)和日本(第四名: 547 分)並無顯著差異。閱讀方面，香港的平均分數為 545 分，顯著低於上海(第一名: 570 分)，而與新加坡(第三名: 542 分)、日本(第四名: 538 分)和韓國(第五名: 536 分)的分數相若，但高於所有其他參與國家和地區(見附錄一)。

9. 就香港教育系統的均等而言，在 PISA 2012 的科學和閱讀範疇中的高分者(第 95 百分位數)和低分者(第 5 百分位數)之間的成績差距比其他參與國家和地區的差距相對較小(即較 OECD 平均值小)；但在數學範疇，高分者和低分者的成績差距則稍微大於 OECD 平均值。這個結果顯示，香港學生不論學習能力如何，都能大致均等地從香港的優質教育中獲益。此外，香港學生的社經及文化地位(economic, social and cultural status, ESCS)對能力表現的影響相對小。PISA 以「社經坡度」(socio-economic gradient)表示社經背景對學業成績的影響，坡度反映社經背景有多大程度導致學生能力表現的差異[4]。香港的社經坡度不大，反映無論學生社經背景如何，表現一樣出色。就相同社經背景的學生而言，香港十五歲學生的表現亦比其他許多參與國家和地區的學生較佳(見附錄二)。

10. PISA 2012 研究結果顯示，香港中學之間在數學方面仍然存在著大的成績差距百分比[5]，這差距與學校之間的收生成績差異和社經地位差異有顯著關係。儘管如此，香港的低分者於數學範疇的表現仍較 OECD 國家和地區的低分者為佳。由此可以推論，香港的學校和教師能有效地照顧低分者在學習數學方面的需要。另一方面，香港學生數學成績的校內差異較 PISA 2003 的校內差異上升，升幅雖不顯著，卻意味校內學生的能力差異程度仍有所增加。

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[2] 第一屆 PISA，即 PISA 2000，於 2000 年舉行，共有 32 個國家和地區參加。香港和其他 10 個國家和地區參加了於 2002 年 2 月舉行的 PISA 2000+。

[3] 在 PISA 2012，OECD 的數學平均分為 494 分，科學平均分為 501 分，閱讀平均分為 496 分，而標準差為 100 分。

[4] 坡度愈大，社經背景對學生表現的影響則較大，即較不平等。

[5] 香港學生數學表現的校間差異佔總差異的百分比為 42.3%，略高於 OECD 平均值(36.7%)。

數學能力表現

11. 數學能力方面，香港學生於 PISA 2012 表現良好(561 分)，與 PISA 2009(555 分)、PISA 2003(550 分)和 PISA 2000+(560 分)的表現相若，分數顯著高於 PISA 2006 的 547 分；與 OECD 國家比較，香港學生在所有百分位數的分數均顯著高於 OECD 學生。

12. 就數學能力水平而言，香港學生達到第五級和第六級的百分比為 33.7%，高於 OECD 平均值的 12.6%；而香港學生未能達到第二級(即基本水平的數學能力)的百分比為 8.5%，遠低於 OECD 平均值的 23.0%。

13. 在數學能力的三個「過程」分量表和四個「知識內容」分量表，香港學生的表現均較 OECD 國家出色。在三個「過程」分量表，即「闡述」(*formulating*)、「運用」(*employing*)及「理解」(*interpreting*)，香港學生於「闡述」方面表現最為出色；至於四個「知識內容」分量表，即「變化和關係」(*change and relationship*)、「空間和形狀」(*space and shape*)、「數量」(*quantity*)及「不確定性和數據」(*uncertainty and data*)，香港學生於「空間和形狀」方面得分最高。若與其整體的數學能力比較，香港學生在「理解」數學和處理「不確定性和數據」方面相對較弱。

14. 性別差距方面，跟歷屆評估結果相若，男生的數學表現持續較女生為佳，兩者得分差距為 15 分，高於 OECD 平均值的 11 分。此差距由低百分位數至高百分位數逐漸增加：百分位數愈高，性別差距則愈大。具體而言，第 5 至 25 百分位數能力較弱的男女生之間並無顯著差距，但性別差距由第 50 百分位數的 18 分持續增加至第 95 百分位數的 30 分。結果顯示男女生的數學表現仍存著很大差距，高分者尤甚。

科學能力表現

15. 科學能力方面，香港學生於 PISA 2012 的表現良好(555 分)，與 PISA 2009 的表現相若(549 分)，分數比 PISA 2006(542 分)、PISA 2003(539 分)和 PISA 2000+(541 分)顯著提升；與 OECD 平均值比較，香港學生在所有百分位數的表現均較 OECD 學生出色。

16. 在性別差距方面，香港男女生在整體科學能力的表現並無顯著差距，但在各個科學能力和知識系統分項的表現則可見性別差距。具體而言，男生於「解釋科學現象」(*explaining phenomena scientifically*)、「地球與太空系統」(*earth and space systems*)及「物理系統」(*physical systems*)的表現較女生優勝。

閱讀能力表現

17. 閱讀能力方面，香港學生於 PISA 2012 取得的平均分為 545 分，顯著地高於過去四屆評估所得的分數。整體而言，香港學生在最近三屆評估的表現較首兩屆的表現為佳。最近三屆(由 PISA 2006 至 PISA 2012)學生的分數提升，主要是由於中分者(第 50 與 75 百分位數)和高分者(第 90 與 95 百分位數)的表現有所進步。

18. 性別差距方面，香港女生的閱讀表現顯著較男生為佳，兩者得分的差距為 25 分，低於 OECD 平均值(38 分)。此外，香港學生於 PISA 2012 的性別差距，除了高於 PISA 2000+ 的 16 分外，均較過去三屆的性別差距有所減少(即 PISA 2009 的 33 分、PISA 2006 的 31 分及 PISA 2003 的 32 分)。

家長參與、資源投放與觀感

19. 在家長參與方面，家長在家裏與子女關懷性的溝通，與子女的數學表現呈正相關；但與子女督導功課方面的溝通與子女的數學表現呈負相關。此外，家長在學校的參與跟學生的數學表現呈負相關，這結果與歷屆 PISA 的結果一致。

20. 資源投放方面，香港家長投放在教育、文化、物質和資訊及通訊科技(ICT)的資源較 OECD 國家的家長為低。研究發現，這些資源對學生的數學表現均有正面的影響。

21. 與 OECD 平均值比較，香港家長對學校質素的觀感較低。各項家長參與指標中，家長對學校質素的觀感與子女的數學表現呈最大的正相關；當家長較滿意子女的學校質素，子女在數學方面的表現亦趨向較佳。而各項家長投放資源的指標中，教育資源和資訊及通訊科技資源對子女數學表現的影響稍微大於文化和物質資源的影響。

啟示及建議

給教育政策制訂者

22. 整體而言，香港學生在三個能力範疇持續有出色的表現。由此可以推論，香港的教育系統給學生提供了優質而均等的教育機會，有效發展學生能力的同時，不會犧牲弱勢學生的學習機會，無論學生的社經背景如何，都能在教育系統中獲益。另一方面，儘管教育局改革中一派位機制(SSPA)，把派位組別由五個減至三個，並且微調中學教學語言政策(MOI)，香港的中學之間仍然存在明顯的學能分隔現象，對於培養年輕人對終身學習的積極態度尤其不利。教育局宜定期檢討「中一派位機制」及「中學教學語言政策」，以減低學校之間的學能分隔。

23. 校內學生能力差距增大，情況值得關注。學生能力差距增大意味著教師需獲得更多支援、資源和時間，以照顧學生之間日益擴大的學習差異。為處理學習差異的問題，可考慮的方法包括把部分課堂時間調配予教師進行改善教學的行動研究，如課堂研究或同儕學習活動，以及提供適當培訓等。

24. 家長參與有助子女學習，做法值得加以推廣。過去研究顯示，家庭為本參與有助提升學生的能力表現；除了家庭為本參與，當局亦宜促進尚未充分發揮作用的學校為本參與。通過家長教育和教師培訓，提高家校協作的意識，以扭轉問題取向的取態，藉此動員家長的資源和專長，支援青少年的全人發展。

25. 香港學生的優異表現無可置疑；然而，男生持續在閱讀方面大大落後於女生，而女生則在數學方面落後於男生，情況令人憂慮。因此，提升男生的閱讀能力和女生的數學能力，實為進一步提升學生能力的重要議題。

給教育工作者及家長

26. 學生的自我觀和學習動機的調查顯示，很多非認知(情意)的因素均與學生的數學表現呈正相關，這些因素包括數學自我效能感、數學自我觀、內在和工具性動機。認知和非認知(情意)的因素相輔相成，要培育未來的公民，兩者缺一不可。

27. 鑑於香港學生數學表現普遍優秀，教師應有足夠空間嘗試將現今資訊時代中廣義的數學概念引入香港的數學教育。我們建議教師在課堂採取較開放的教學取向，即從現時著重訓練快速和慣性的數學運算技巧，例如使用公式，逐步改為給予學生更多機會在課堂上進行分析、構思、推理和反思數學運算的過程。

28. 研究結果証明，無論家長的社經地位如何，家長在家裏參與子女的教育是提升子女數學表現的有效途徑。家長加強家庭成員之間的溝通，與子女討論學校生活，抽空和子女閒聊，對促進子女的學習十分重要。研究發現，家長在學校的參與和學生成績呈負相關，相信這是由於學校在資源方面的限制，例如在時間和專業知識方面，或是對家校合作的信念，以致學校可能只有在學生出現問題時才聯絡家長。家校雙方宜發展適當的正面溝通，促進家庭與學校之間的伙伴關係，而非對抗。良好的伙伴關係能使雙方更全面了解孩子，此乃給予孩子恰當輔導和支援的必需條件。

29. 教師專業組織、政府機構例如課程發展處和本中心宜尋求更多的合作機會，充分利用 PISA 的研究成果來改善課程與教學及規劃進一步的研究。

給未來研究的啟示

30. PISA 2012 提供了有關學生能力表現的資料，也提供了各種背景因素的資料，包括學生的移民身份、學生的校外學習時間、認知學習的性別差距、自我觀、數學的學習動機、對學業和前途的期望等。這些主題都值得進一步研究，各項個人、家庭和學校因素對學習成效的相對影響在未來也應予以探討。

31. 香港學生的數學表現優異，但數學自我觀偏低和數學焦慮感偏高，值得進一步進行研究。鑑於數學自我觀與數學表現有正相關，我們建議展開縱向調查和行動研究，以了解如何提升學生的數學自我觀，並減低對學習數學的焦慮感。

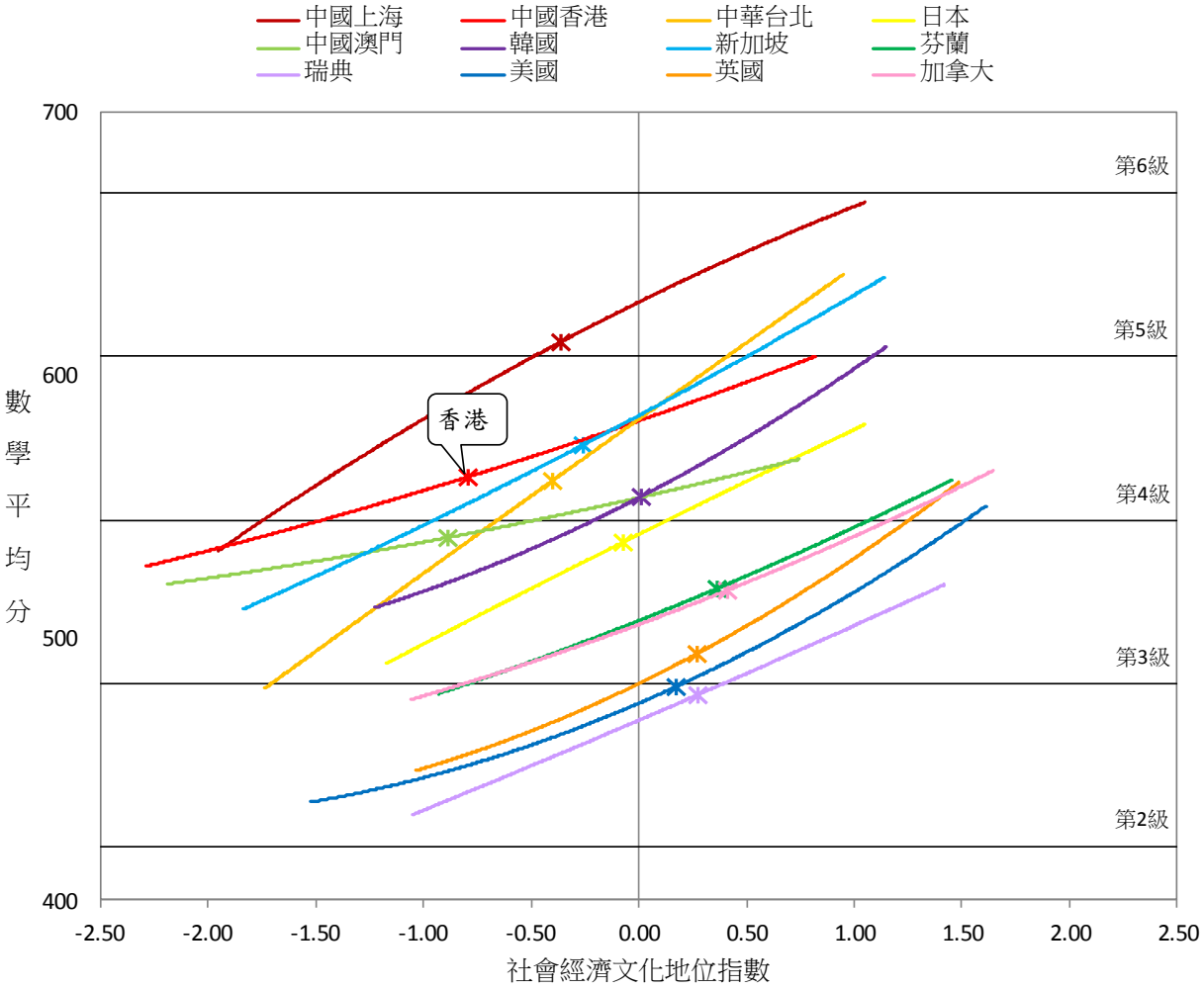
32. 家長的校本參與和學生成績呈現負相關，情況與歷屆 PISA 的結果相若，顯示不理想的情況仍然持續。過去十年，家校溝通和家長參與的性質仍未有顯著的改善，有需要作進一步研究來改善問題。

附錄一　十五歲學生在 PISA 2012 的數學、科學和閱讀能力表現

數學			科學			閱讀		
國家／地區	平均值	標準誤差	國家／地區	平均值	標準誤差	國家／地區	平均值	標準誤差
中國上海	613	(3.3)	中國上海	580	(3.0)	中國上海	570	(2.9)
新加坡	573	(1.3)	**中國香港**	**555**	**(2.6)**	**中國香港**	**545**	**(2.8)**
中國香港	**561**	**(3.2)**	新加坡	551	(1.5)	新加坡	542	(1.4)
中華台北	560	(3.3)	日本	547	(3.6)	日本	538	(3.7)
韓國	554	(4.6)	芬蘭	545	(2.2)	韓國	536	(3.9)
中國澳門	538	(1.0)	愛沙尼亞	541	(1.9)	芬蘭	524	(2.4)
日本	536	(3.6)	韓國	538	(3.7)	愛爾蘭	523	(2.6)
列支敦士登	535	(4.0)	越南	528	(4.3)	中華台北	523	(3.0)
瑞士	531	(3.0)	波蘭	526	(3.1)	加拿大	523	(1.9)
荷蘭	523	(3.5)	加拿大	525	(1.9)	波蘭	518	(3.1)
愛沙尼亞	521	(2.0)	列支敦士登	525	(3.5)	愛沙尼亞	516	(2.0)
芬蘭	519	(1.9)	德國	524	(3.0)	列支敦士登	516	(4.1)
加拿大	518	(1.8)	中華台北	523	(2.3)	紐西蘭	512	(2.4)
波蘭	518	(3.6)	荷蘭	522	(3.5)	澳洲	512	(1.6)
比利時	515	(2.1)	愛爾蘭	522	(2.5)	荷蘭	511	(3.5)
德國	514	(2.9)	澳洲	521	(1.8)	比利時	509	(2.2)
越南	511	(4.8)	中國澳門	521	(0.8)	瑞士	509	(2.6)
奧地利	506	(2.7)	紐西蘭	516	(2.1)	中國澳門	509	(0.9)
澳洲	504	(1.6)	瑞士	515	(2.7)	越南	508	(4.4)
愛爾蘭	501	(2.2)	斯洛文尼亞	514	(1.3)	德國	508	(2.8)
斯洛文尼亞	501	(1.2)	英國	514	(3.4)	法國	505	(2.8)
丹麥	500	(2.3)	捷克共和國	508	(3.0)	挪威	504	(3.2)
紐西蘭	500	(2.2)	奧地利	506	(2.7)	英國	499	(3.5)
捷克共和國	499	(2.9)	比利時	505	(2.1)	美國	498	(3.7)
法國	495	(2.5)	拉脫維亞	502	(2.8)	丹麥	496	(2.6)
英國	494	(3.3)	法國	499	(2.6)	捷克共和國	493	(2.9)
冰島	493	(1.7)	丹麥	498	(2.7)	意大利	490	(2.0)
拉脫維亞	491	(2.8)	美國	497	(3.8)	奧地利	490	(2.8)
盧森堡	490	(1.1)	西班牙	496	(1.8)	拉脫維亞	489	(2.4)
挪威	489	(2.7)	立陶宛	496	(2.6)	匈牙利	488	(3.2)
葡萄牙	487	(3.8)	挪威	495	(3.1)	西班牙	488	(1.9)
意大利	485	(2.0)	匈牙利	494	(2.9)	盧森堡	488	(1.5)
西班牙	484	(1.9)	意大利	494	(1.9)	葡萄牙	488	(3.8)
俄羅斯聯邦	482	(3.0)	克羅地亞	491	(3.1)	以色列	486	(5.0)
斯洛伐克共和國	482	(3.4)	盧森堡	491	(1.3)	克羅地亞	485	(3.3)
美國	481	(3.6)	葡萄牙	489	(3.7)	瑞典	483	(3.0)
立陶宛	479	(2.6)	俄羅斯聯邦	486	(2.9)	冰島	483	(1.8)
瑞典	478	(2.3)	瑞典	485	(3.0)	斯洛文尼亞	481	(1.2)
匈牙利	477	(3.2)	冰島	478	(2.1)	立陶宛	477	(2.5)
克羅地亞	471	(3.5)	斯洛伐克共和國	471	(3.6)	希臘	477	(3.3)
以色列	466	(4.7)	以色列	470	(5.0)	土耳其	475	(4.2)
希臘	453	(2.5)	希臘	467	(3.1)	俄羅斯聯邦	475	(3.0)
塞爾維亞共和國	449	(3.4)	土耳其	463	(3.9)	斯洛伐克共和國	463	(4.2)
土耳其	448	(4.8)	阿拉伯聯合酋長國	448	(2.8)	塞浦路斯	449	(1.2)
羅馬尼亞	445	(3.8)	保加利亞	446	(4.8)	塞爾維亞共和國	446	(3.4)
塞浦路斯	440	(1.1)	智利	445	(2.9)	阿拉伯聯合酋長國	442	(2.5)
保加利亞	439	(4.0)	塞爾維亞共和國	445	(3.4)	智利	441	(2.9)
阿拉伯聯合酋長國	434	(2.4)	泰國	444	(2.9)	泰國	441	(3.1)
哈薩克斯坦	432	(3.0)	羅馬尼亞	439	(3.3)	哥斯達黎加	441	(3.5)
泰國	427	(3.4)	塞浦路斯	438	(1.2)	羅馬尼亞	438	(4.0)
智利	423	(3.1)	哥斯達黎加	429	(2.9)	保加利亞	436	(6.0)
馬來西亞	421	(3.2)	哈薩克斯坦	425	(3.0)	墨西哥	424	(1.5)
墨西哥	413	(1.4)	馬來西亞	420	(3.0)	黑山共和國	422	(1.2)
黑山共和國	410	(1.1)	烏拉圭	416	(2.8)	烏拉圭	411	(3.2)
烏拉圭	409	(2.8)	墨西哥	415	(1.3)	巴西	410	(2.1)
哥斯達黎加	407	(3.0)	黑山共和國	410	(1.1)	突尼西亞	404	(4.5)
阿爾巴尼亞	394	(2.0)	約旦	409	(3.1)	哥倫比亞	403	(3.4)
巴西	391	(2.1)	阿根廷	406	(3.9)	約旦	399	(3.6)
阿根廷	388	(3.5)	巴西	405	(2.1)	馬來西亞	398	(3.3)
突尼西亞	388	(3.9)	哥倫比亞	399	(3.1)	印度尼西亞	396	(4.2)
約旦	386	(3.1)	突尼西亞	398	(3.5)	阿根廷	396	(3.7)
哥倫比亞	376	(2.9)	阿爾巴尼亞	397	(2.4)	阿爾巴尼亞	394	(3.2)
卡塔爾	376	(0.8)	卡塔爾	384	(0.7)	哈薩克斯坦	393	(2.7)
印度尼西亞	375	(4.0)	印度尼西亞	382	(3.8)	卡塔爾	388	(0.8)
秘魯	368	(3.7)	秘魯	373	(3.6)	秘魯	384	(4.3)
OECD 平均值	*494*	*(0.5)*	*OECD 平均值*	*501*	*(0.5)*	*OECD 平均值*	*496*	*(0.5)*

註：有顏色部分顯示該國家／地區與香港成績有顯著分別。

附錄二　十二個國家和地區的學生數學表現與社會經濟文化地位的關係



註：PISA 2012 之社會經濟文化地位指數由三個家庭背景相關變數衍生出來，包括家長教育程度、家長職業類別、家庭所擁有的教育資源數量及種類。

Acknowledgement

Aberdeen Technical School

Assembly of God Hebron Secondary School

Baptist Wing Lung Secondary School

Belilios Public School

Buddhist Fat Ho Memorial College

Buddhist Ho Nam Kam College

Buddhist Hung Sean Chau Memorial College

Buddhist Tai Hung College

Buddhist Wai Yan Memorial College

Buddhist Wong Wan Tin College

Caritas St. Joseph Secondary School

Caritas Yuen Long Chan Chun Ha Secondary School

Carmel Holy Word Secondary School

Carmel School Association - ELSA High School

Chan Sui Ki (La Salle) College

Cheung Chau Government Secondary School

Cheung Chuk Shan College

Cheung Sha Wan Catholic Secondary School

China Holiness College

Ching Chung Hau Po Woon Secondary School

Chong Gene Hang College

Christian & Missionary Alliance Sun Kei Secondary School

Christian Alliance S W Chan Memorial College

Christian Nationals' Evangelism Commission Lau Wing Sang Secondary School

Clementi Secondary School

CMA Choi Cheung Kok Secondary School

Cognitio College (Hong Kong)

Cumberland Presbyterian Church Yao Dao Secondary School

Daughters of Mary Help of Christians Siu Ming Catholic Secondary School

Delia Memorial School (Hip Wo)

Diocesan Boys' School

ELCHK Lutheran Secondary School

ELCHK Yuen Long Lutheran College

Elegantia College (Sponsored by Education Convergence)

Evangel College

Fukien Secondary School

Fukien Secondary School (Siu Sai Wan)

Fung Kai Liu Man Shek Tong Secondary School

G.T. (Ellen Yeung) College

General Chamber of Commerce and Industry of The Tung Kun District Lau Pak Lok Secondary School

Gertrude Simon Lutheran College

Helen Liang Memorial Secondary School (Shatin)

Heung To Middle School

HHCKLA Buddhist Leung Chik Wai College

HHCKLA Buddhist Ma Kam Chan Memorial English Secondary School

Ho Dao College (Sponsored by Sik Sik Yuen)

Ho Lap College (Sponsored by the Sik Sik Yuen)

Holy Family Canossian College

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School

Hong Kong Taoist Association The Yuen Yuen Institute No.2 Secondary School

Hotung Secondary School

Immaculate Heart of Mary College

Jockey Club Ti-I College

Kau Yan College

Kiangsu-Chekiang College (Kwai Chung)

Kiangsu-Chekiang College (Shatin)

King Ling College

Kit Sam Lam Bing Yim Secondary School

Ko Lui Secondary School

Kowloon Technical School

Kowloon Tong School (Secondary Section)

Kwok Tak Seng Catholic Secondary School

Kwun Tong Maryknoll College

La Salle College

Law Ting Pong Secondary School

Lee Kau Yan Memorial School

Leung Shek Chee College

Ling Liang Church E Wun Secondary School

Liu Po Shan Memorial College

Lock Tao Secondary School

Lok Sin Tong Wong Chung Ming Secondary School

Lok Sin Tong Yu Kan Hing Secondary School

Lung Kong World Federation School Limited Lau Wong Fat Secondary School

Ma Kam Ming Charitable Foundation Ma Chan Duen Hey Memorial College

Madam Lau Kam Lung Secondary School of Miu Fat Buddhist Monastery

Man Kiu College

Maryknoll Convent School (Secondary Section)

Mu Kuang English School

Munsang College

Munsang College (Hong Kong Island)

New Asia Middle School

Ning Po No.2 College

NLSI Peace Evangelical Secondary School

NTHYK Yuen Long District Secondary School

Our Lady of the Rosary College

Pak Kau College

Po Chiu Catholic Secondary School

Po Kok Secondary School

Po Leung Kuk Laws Foundation College

Po Leung Kuk Lee Shing Pik College

Po Leung Kuk Lo Kit Sing (1983) College

Po Leung Kuk Ma Kam Ming College

Pok Oi Hospital Tang Pui King Memorial College

Pooi To Middle School

Pui Kiu Middle School

Pui Shing Catholic Secondary School

Pui Tak Canossian College

Pui Ying Secondary School

Qualied College

Queen Elizabeth School Old Students' Association Tong Kwok Wah Secondary School

Raimondi College

Rhenish Church Pang Hok-Ko Memorial College

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S.K.H. Lam Kau Mow Secondary School

S.K.H. Lam Woo Memorial Secondary School

S.K.H. Li Fook Hing Secondary School

S.K.H. Li Ping Secondary School

S.K.H. Lui Ming Choi Secondary School

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San Wui Commercial Society Secondary School

Sha Tin Government Secondary School

Sha Tin Methodist College

Shatin Pui Ying College

Shau Kei Wan Government Secondary School

Sheung Shui Government Secondary School

Shi Hui Wen Secondary School

Shun Lee Catholic Secondary School

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Shun Tak Fraternal Association Seaward Woo College

Shun Tak Fraternal Association Yung Yau College

Shung Tak Catholic English College

Sing Yin Secondary School

South Tuen Mun Government Secondary School

St Stephen's Girls' College

St. Antonius Girls' College

St. Catharine's School For Girls, Kwun Tong

St. Clare's Girls' School

St. Francis Xavier's School, Tsuen Wan

St. Joseph's College

St. Louis School

St. Mark's School

St. Paul's College

St. Paul's School (Lam Tin)

St. Stephen's Church College

St. Teresa Secondary School

Stewards Pooi Tun Secondary School

Tak Sun Secondary School

The Association of Directors & Former Directors of Pok Oi Hospital Ltd. Leung Sing Tak College

The Bishop Hall Jubilee School

The Chinese Foundation Secondary School

The Church of Christ in China Chuen Yuen College

The Church of Christ in China Fong Yun Wah Secondary School

The Church of Christ in China Fung Leung Kit Memorial Secondary School

The Church of Christ in China Kei Long College

The Church of Christ in China Kei To Secondary School

The Church of Christ in China Kwei Wah Shan College

The Church of Christ in China Mong Man Wai College

The Church of Christ in China Rotary Secondary School

The Church of Christ in China Yenching College

The Hong Kong Chinese Christian Churches Union Logos Academy

The Hong Kong Sze Yap Commercial & Industrial Association Wong Tai Shan Memorial College

The Hong Kong Taoist Association Ching Chung Secondary School

The Jockey Club Eduyoung College

The Methodist Church Hong Kong Wesley College

The Yuen Yuen Institute MFBM Nei Ming Chan Lui Chung Tak Memorial College

Tin Shui Wai Government Secondary School

Tin Shui Wai Methodist College

Tseung Kwan O Government Secondary School

Tsuen Wan Government Secondary School

Tsung Tsin Christian Academy

Tsung Tsin College

Tuen Mun Catholic Secondary School

Tung Chung Catholic School

Tung Wah Group of Hospitals Kap Yan Directors' College

Tung Wah Group of Hospitals Li Ka Shing College

Tung Wah Group of Hospitals Lo Kon Ting Memorial College

Tung Wah Group of Hospitals Lui Yun Choy Memorial College

Tung Wah Group of Hospitals Mrs Fung Wong Fung Ting College

Tung Wah Group of Hospitals Sun Hoi Directors' College

Tung Wah Group of Hospitals Yau Tze Tin Memorial College

Tung Wah Group of Hospitals Yow Kam Yuen College

United Christian College (Kowloon East)

Valtorta College

Victoria Shanghai Academy

Wa Ying College

Wah Yan College, Hong Kong

Wah Yan College, Kowloon

Wai Kiu College

Wong Shiu Chi Secondary School

Yan Oi Tong Chan Wong Suk Fong Memorial Secondary School

Yan Oi Tong Tin Ka Ping Secondary School

Ying Wa College

Yu Chun Keung Memorial College

Yuen Long Merchants Association Secondary School

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(commissioned by Education Bureau, The Government of HKSAR 香港特別行政區政府 教育局委辦)

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Prof. Leslie Nai Kwai LO	Director, Hong Kong Institute of Educational Research, CUHK	盧乃桂教授