

Hong Kong Ideas Centre

**Results from HKPISA 2009:
Insights for our Policy and Practices**

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Your Major concern

1. what PISA is doing, the meanings of its **findings** for Hong Kong, the implications, the validity and reliability of the findings;
2. what PISA can inform the school administrators, the teachers, and the parent about the **directions** they have to strive for in order to further improve the quality of our education;
3. whether PISA can inform us about the **effectiveness and efficiency** of what we are doing under the new education reform launched in 2000;
4. to fill up gaps in our research on **whole-person** education in HK.
5. Others: **Looking forward** of PISA after 2015; PISA test questions are set so as to improve our **school-based assessment?**

1. What is PISA doing?
Basic Design


- Age-based target population (*15-year-olds*)
- National samples of 150 schools with 5,000 students
- Two hours of testing time for each student
- Context questionnaires for the students, parents and schools
- Sample
 - 475,000 students
 - 65 participating countries

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Basic Background

- Tests **competencies for real-life situations** and not constrained by the common denominator of national curricula
- **Three Domains:**


Reading



Mathematics



Science



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六十五個參與國家/地區(PISA 2009)

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

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HKPISA 研究組

Principal Investigator

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Project Leaders

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HKPISA 研究組

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+IT Expert Team in 2012-2015

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HKPISA2009 抽樣

| Type of School | Student Academic Intake | Total Number of Schools | Number of Participating Schools |
|--------------------------|-------------------------|-------------------------|---------------------------------|
| Government | High | 16 | 5 |
| | Med | 8 | 3 |
| | Low | 7 | 2 |
| Aided | N/A | 3 | 0 |
| | High | 120 | 44 |
| | Med | 120 | 41 |
| | Low | 132 | 39 |
| Independent [#] | N/A | 3 | 0 |
| | Local / DSS* | 54 | 15 |
| | Private/International | 35 | 2 |
| Total | | 498 | 151 |

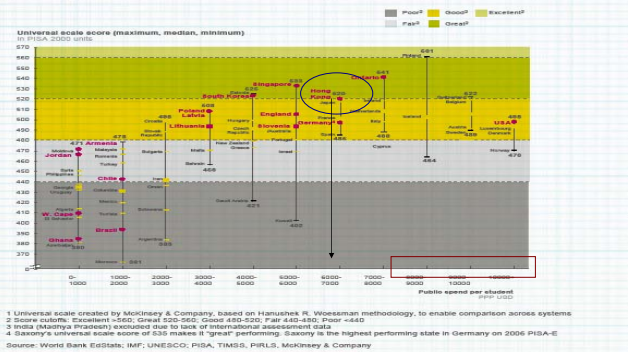
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學生背景

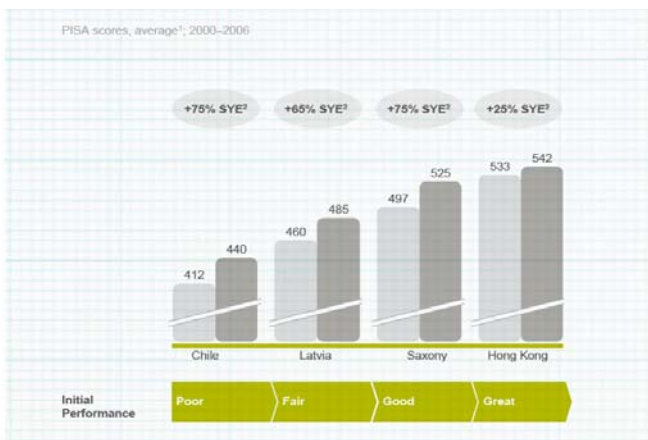
| | Number of participating students | Proportion (%) |
|-------------------|----------------------------------|----------------|
| Grade/Form | | |
| 7 / S1 | 85 | 1.8 |
| 8 / S2 | 353 | 7.3 |
| 9 / S3 | 1210 | 25.0 |
| 10 / S4 | 3185 | 65.8 |
| 11 / S5 | 4 | 0.1 |
| Total | 4837 | 100 |
| Sex | | |
| Female | 2280 | 47.1 |
| Male | 2557 | 52.9 |
| Total | 4837 | 100 |

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Major Findings Effectiveness and Efficiency



McKinsey & Company
How the World's Most Improved School Systems Keep Getting Better, 2010



- McKinsey & Company
How the World's Most Improved School Systems Keep Getting Better, 2010: p. 17

Top 10 in PISA 2009

| 閱讀 | | 數碼閱讀 ¹ | | 數學 | | 科學 | |
|-------|-----|-------------------|-----|-------|-----|-------|-----|
| 國家/地區 | 平均分 | 國家/地區 | 平均分 | 國家/地區 | 平均分 | 國家/地區 | 平均分 |
| 中國上海 | 556 | 韓國 | 568 | 中國上海 | 600 | 中國上海 | 575 |
| 韓國 | 539 | 紐西蘭 | 537 | 新加坡 | 562 | 芬蘭 | 554 |
| 芬蘭 | 536 | 澳洲 | 537 | 中國香港 | 555 | 中國香港 | 549 |
| 中國香港 | 533 | 日本 | 519 | 韓國 | 546 | 新加坡 | 542 |
| 新加坡 | 526 | 中國香港 | 515 | 中華台北 | 543 | 日本 | 539 |
| 加拿大 | 524 | 冰島 | 512 | 芬蘭 | 541 | 韓國 | 538 |
| 紐西蘭 | 521 | 瑞典 | 510 | 列支敦士登 | 536 | 紐西蘭 | 532 |
| 日本 | 520 | 愛爾蘭 | 509 | 瑞士 | 534 | 加拿大 | 529 |
| 澳洲 | 515 | 比利時 | 507 | 日本 | 529 | 愛沙尼亞 | 528 |
| 荷蘭 | 508 | 挪威 | 500 | 加拿大 | 527 | 澳洲 | 527 |

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Trend Top ranking and East Asian countries/regions

| Country/region | PISA 2009 Rank (mean) | PISA 2006 Rank (mean) | PISA 2003 Rank (mean) | PISA 2000+ Rank (mean) |
|-----------------|--------------------------|--------------------------|--------------------------|---------------------------|
| Shanghai-China | 1 (556) | - | - | - |
| Korea | 2 (539) | 1 (556) | 2 (534) | 7 (525) |
| Finland | 3 (536) | 2 (547) | 1 (543) | 1 (546) |
| Hong Kong-China | 4 (533) | 3 (536) | 10 (510) | 6 (525) |
| Singapore | 5 (526) | - | - | - |
| Canada | 6 (524) | 4 (527) | 3 (528) | 2 (534) |
| New Zealand | 7 (521) | 5 (521) | 6 (522) | 3 (529) |
| Japan | 8 (520) | 15 (498) | 15 (498) | 9 (522) |
| Chinese Taipei | 23 (495) | 16 (496) | - | - |
| Macao-China | 28 (487) | 21 (492) | 16 (498) | - |

PISA 2000+至PISA 2009 香港學生整體表現的比較

| 年份 | 閱讀 | | 數學 | | 科學 | |
|-------|-------|-----|------|-----|-------|-----|
| | 平均分 | 標準差 | 平均分 | 標準差 | 平均分 | 標準差 |
| 2000+ | 525 | 2.9 | 560 | 3.3 | 541 | 3.0 |
| 2003 | 510 | 3.7 | 550 | 4.5 | 539 | 4.3 |
| 2006 | 536 | 2.4 | 547 | 2.7 | 542 | 2.5 |
| 2009 | 533** | 2.1 | 555* | 2.7 | 549** | 2.8 |

*數學能力表現在2009與2006的比較，有顯著差異。

**閱讀和科學能力在2009與2003以及2009與2000+的比較，均有顯著差異。

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閱讀能力水平

為讓各地的教育工作者瞭解學生的具體閱讀水平，OECD會將學生的分數劃分為幾個等級，對每個等級的表現作具體描述。

| 能力級別 | HK | OECD |
|------|--------|--------|
| 6 | 1.2% | 0.8% |
| 5 | 12.4% | 7.7% |
| 4 | 44.2% | 28.6% |
| 3 | 75.6% | 57.4% |
| 2 | 91.7% | 81.4% |
| 1a | 98.3% | 94.4% |
| 1b | 99.8% | 98.9% |
| 低於1b | 100.0% | 100.0% |

HK多4.7% 達到第五級別或以上

HK多10.37% 達到基本能力級別

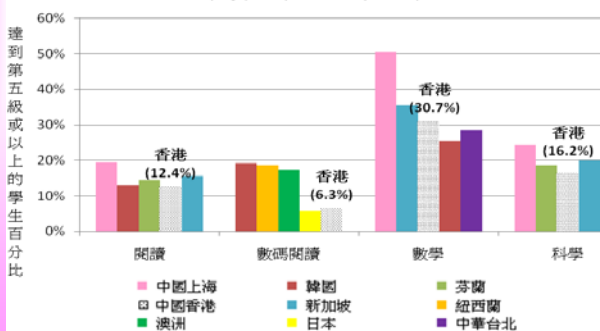
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Cumulative Percentage of students at different proficiency levels (Top 4)

| | HK | Shanghai | Korea | Finland |
|----------|--------|----------|--------|---------|
| 6 | 1.2% | 2.4% | 1.0% | 1.6% |
| 5 | 12.4% | 19.4% | 12.9% | 14.5% |
| 4 | 44.2% | 54.1% | 45.8% | 45.1% |
| 3 | 75.6% | 82.6% | 78.8% | 75.2% |
| 2 | 91.7% | 95.9% | 94.2% | 91.9% |
| 1a | 98.3% | 99.3% | 98.9% | 98.3% |
| 1b | 99.8% | 99.9% | 99.8% | 99.8% |
| below 1b | 100.0% | 100.0% | 100.0% | 100.0% |

我們有多少尖子？

表現最佳國家和地區的尖子百分比



教育均等

- 高分者－低分者
- 性別－男生vs女生
- 移民身份
- 校間差異
- 高與低社經文化地位

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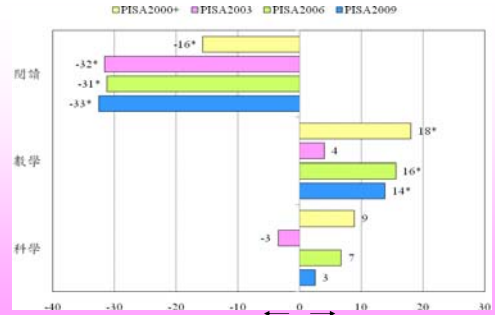
不同百分位的香港學生於 PISA: 2000+ – 2009 閱讀能力的比較

高分者 – 低分者 = 270-279 小於 OECD = 304-329。
與PISA2000+比較只有能力較高學生有顯著的進步。
與PISA2003比較所有水平學生都有明顯進步。
與PISA2006比較，無明顯差異。

| 百分位 | 2000+ | | 2003 | | 2006 | | 2009 | | 相變 | | |
|------|-------|-------|------|-------|------|-------|------|-------|------------|-----------|-----------|
| | 分數 | 標準差 | 分數 | 標準差 | 分數 | 標準差 | 分數 | 標準差 | 2009-2000+ | 2009-2003 | 2009-2006 |
| 第5個 | 369 | (8.9) | 355 | (9.8) | 390 | (6.0) | 380 | (5.5) | 11 | 25* | -10 |
| 第10個 | 413 | (7.2) | 396 | (7.0) | 426 | (5.7) | 418 | (4.5) | 5 | 22** | -8 |
| 第25個 | 477 | (3.6) | 461 | (5.2) | 484 | (3.8) | 482 | (3.0) | 5 | 21*** | -2 |
| 第50個 | 534 | (2.7) | 519 | (3.4) | 543 | (2.6) | 541 | (2.3) | 7* | 22*** | -2 |
| 第75個 | 584 | (2.8) | 569 | (2.7) | 594 | (2.4) | 592 | (2.5) | 8* | 23*** | -2 |
| 第90個 | 624 | (3.1) | 608 | (2.8) | 636 | (2.7) | 634 | (2.9) | 10* | 26*** | -2 |
| 第95個 | 646 | (4.1) | 630 | (3.0) | 660 | (2.5) | 659 | (3.1) | 13* | 29*** | -1 |

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香港學生在閱讀、數學和科學能力的性別差距



* 數值有顯著差異 女生表現較佳 男生表現較佳

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男生與女生的改進

- 女生改進較大!

| | 男生 | | 女生 | | 差距 (男生-女生) | |
|-------|-----|-------|-----|-------|------------|-------|
| | 平均分 | 標準差 | 平均分 | 標準差 | 平均分 | 標準差 |
| 2000+ | 518 | (4.8) | 533 | (3.6) | -16 | (6.1) |
| 2009 | 518 | (3.3) | 550 | (2.8) | -33 | (4.4) |
| 相差 | 0 | (8.9) | 17 | (8.1) | -17 | (7.5) |

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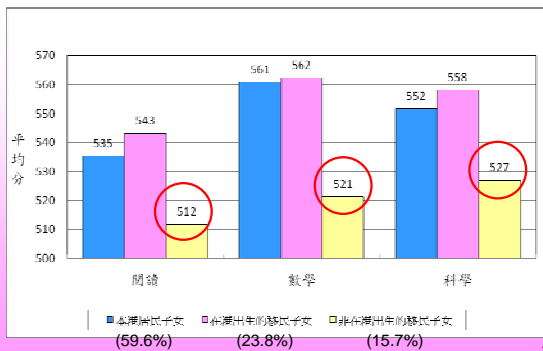
高分者或低分者改進較大?

第5級或以上女生的改進最為顯著!

| | 男生 - 能力級別 | | | | 女生 - 能力級別 | | | |
|-------|---------------|-------|-----------------|-------|---------------|-------|-----------------|-------|
| | 低於第2級 (< 407) | | 第5級或以上 (>= 626) | | 低於第2級 (< 407) | | 第5級或以上 (>= 626) | |
| | % | 標準差 | % | 標準差 | % | 標準差 | % | 標準差 |
| 2000+ | 11.9 | (1.5) | 9.0 | (1.1) | 6.3 | (1.0) | 10.1 | (1.2) |
| 2009 | 11.3 | (1.2) | 8.9 | (1.0) | 4.9 | (0.7) | 16.4 | (1.0) |
| 相差 | -0.6 | (1.9) | -0.1 | (1.5) | -1.4 | (1.2) | 6.3 | (1.6) |

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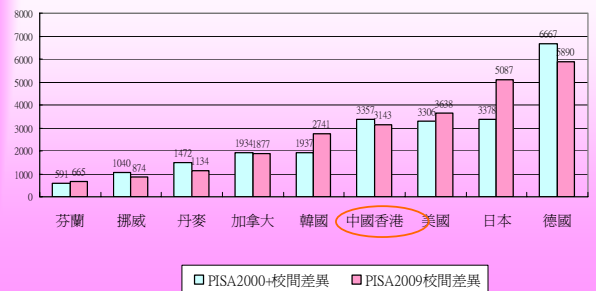
不同移民身份的學生在PISA 2009的閱讀表現



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校間表現差異趨勢 (PISA2000+ -- PISA2009)

閱讀表現的校間差異減少了! 基礎教育制度比從前能力分隔減少, 意味着更均等!



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校間與校內閱讀差異的趨勢

- 校間差異減少了! 即能力分隔減少, 意味着更均等!
- 校內學生差異卻顯著增加, 意味着處理「校內學習差異」成爲的重要課題!!!

| | 總差異 | 校間差異 | 校內差異 |
|------|------|------|------|
| 2000 | 7050 | 3357 | 3646 |
| 2009 | 7058 | 3143 | 4360 |
| 差距 | 8 | -214 | 714 |

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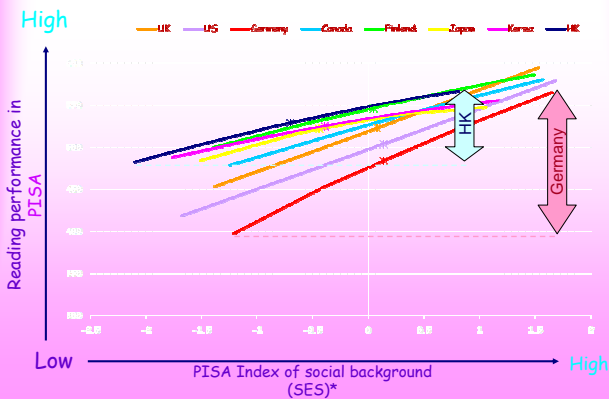
社經文化地位對學生表現的影響

| | 校內社經文化地位影響 ² | | 校間社經文化地位影響 ³ | |
|------|-------------------------|-------|-------------------------|--------|
| | 與每單位學生社經文化地位相關的分數 | 標準差 | 與每單位學校平均社經文化地位相關的分數 | 標準差 |
| 2000 | 6 | (1.3) | 71 | (11.8) |
| 2009 | 3 | (1.4) | 32 ↓ | (14.2) |
| 差距 | -3.4 | (2.2) | -39.0 | (21.1) |

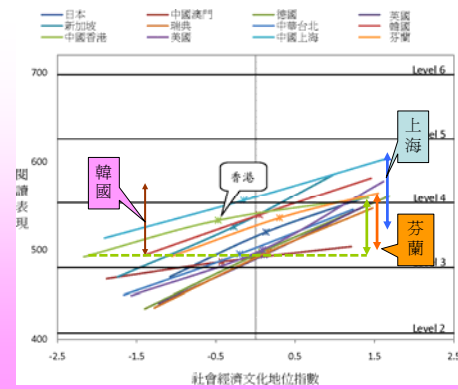
社經文化地位的影響減少了, 我們的基礎教育制度比從前更均等!

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Quality and Equality of Hong Kong Secondary School System (PISA2000+)



基礎教育的均等程度

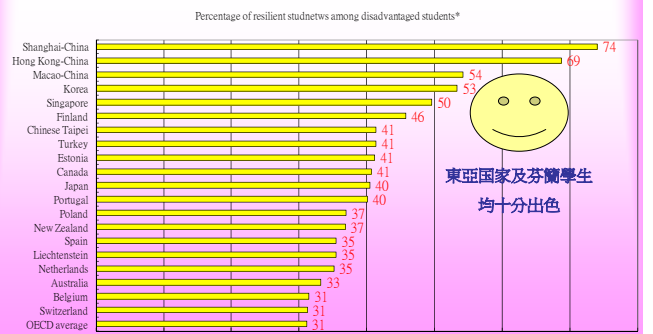


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抗逆學生 Resilient students

- Resilient students are those who come from a disadvantaged socio-economic background and perform much higher than would be predicted by their background.
- In PISA2009, a student is classified as resilient if he or she is in the bottom quarter of the PISA index ESCS in the country of assessment and performs in the top quarter across students from all countries after accounting for ESCS background.
- OECD average is 31%

抗逆學生在弱勢學生中所佔百分比



與本港學生表現有關的因素

閱讀投入感

- 閱讀興趣(與閱讀時間),
- 多元閱讀, 網上閱讀

家長因素

- 家長參與, 家庭資源
- 家長對學校觀感

學習策略

- 背誦/記憶, 聯繫/引伸, 控制
- 後設認知: 理解和記憶, 總結

課堂觀感

- 紀律風氣;
- 教師激發閱讀參與, 運用結構和鷹架策略

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總結 (1): 成就

- 質素: 閱讀、數學及科學成績優異
- 趨勢: 閱讀表現由2000+ 至 2009 穩步向上
- 趨勢: 閱讀態度由2000+ 至 2009 穩步向上
- 校間學能分隔由2000+ 至 2009 下降
- 校間社經文化地位對教育均等的影響由2000+ 至 2009 下降
- 香港有相當高百分比的抗逆學生, 他們雖然來自弱勢的社經背景, 仍於測試中取得優秀成績, 顯示香港的教育工作者於協助弱勢學生上有相當成效。

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總結 (2): 挑戰

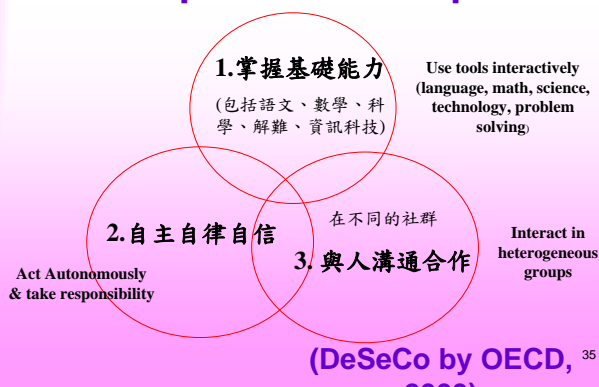
- **校內學習差異問題擴大**: 反映校內學生學習能力差異比前擴大。教育當局如何支援學校以照顧學生的學習差異, 中學教師如何裝備自己是極為重要的課題。
- 香港學生的**數碼閱讀能力相對較弱**。雖然現時98%以上的香港學生無論在學校或家裏, 都可以使用電腦及連線, 他們的數碼閱讀表現仍然較弱, 教育工作者宜對此進行研究。
- 縱觀各個能力範疇, 香港的整體表現良好, 在培育**尖子上卻稍遜於其他國家和地區**。香港的教育制度是否為高能力學生提供足夠的自我發展空間? 香港的教育政策如何能為他們的發展提供適切的資源?

總結 (3): 值得反思的是一

- 教學方面如何落實**照顧個別差異**, 以保持香港學生的優勢?
- 為何**男生**在閱讀上,**女生**在數學上的弱勢多年沒有改善? 為何**新移民**子女的弱勢多年沒有改善?
- **家庭內親子溝通**對香港中學生仍有正面作用; 但如何改善**學校內參與**呢?
- 學校內如何改善**學習策略**? 如何改善**課堂教學**? 如何平衡**課室秩序**和**學生參與**的原則, 以促進學生的**自主學習能力**?

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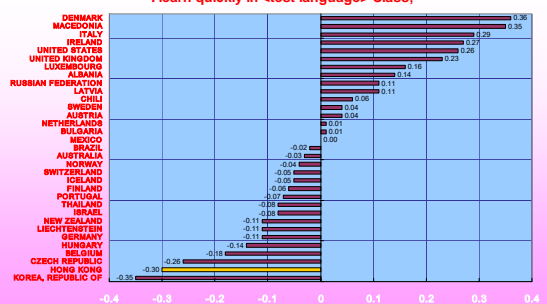
Looking Forward (1): Whole person development



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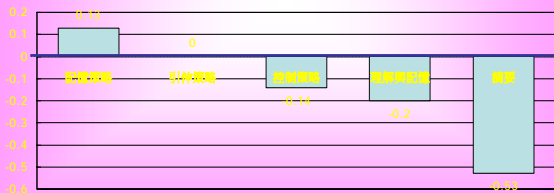
Reading Self-concept

Sample items: I get good marks in <test language>;
I learn quickly in <test language> Class;



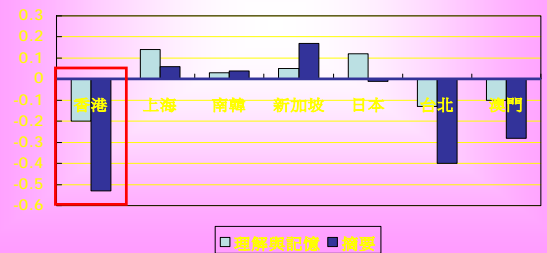
香港學生的學習策略

- 香港學生只有**記憶策略**指標高於國際水平。
- 香港學生在**控制策略**和兩項**後設認知**指標均偏低。



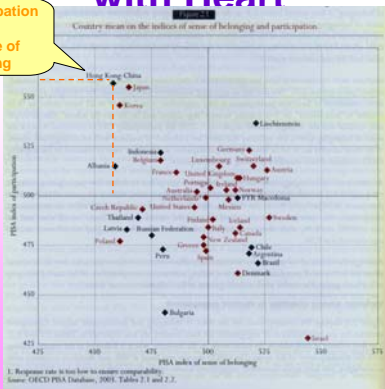
東亞各地學生的學習策略

- 東亞地區學生之中只有香港、澳門和台北的**後設認知**指數低於OECD國際水平。
- 香港學生兩項**後設認知**指數都是東亞區最低的。



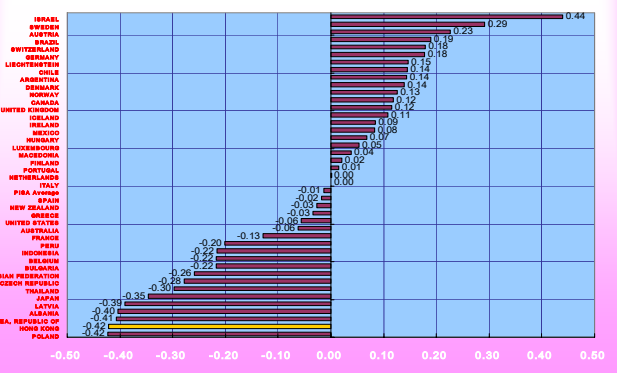
Looking Forward (2): School with Heart

High participation but low sense of belonging



Sense of Belonging

Sample items: I feel like an outsider; I make friends easily; I feel like I belong; I feel lonely



“Many system leaders used vivid language to describe the journey their school system had undergone: in Lithuania we heard of the “soup,” while in Hong Kong we were told of the “typhoon.”

- McKinsey & Company
How the World's Most Improved School Systems Keep Getting Better, 2010: P.8

How the world's most improved school systems keep getting better



Looking Forward (3)

McKinsey deemed Hong Kong education system as ‘great’, but not ‘excellent’ yet

- Other “great” systems **continue to improve**
- Need to ensure strong and weak students realise **full potential**
- Importance of holistic education and the need to strengthen teaching & learning of **21st century skills**



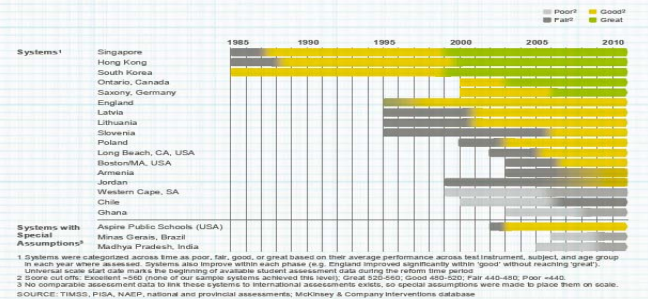
Exhibit 17:
Great to excellent journeys emphasize learning through peers and innovation

The “great to excellent” journey: improving through peer-led support and teaching innovation

In the final frontier of school improvement, the journey from great to excellent, systems focus on creating an environment that will unleash the creativity and innovation of its educators and other stakeholder groups. At this point in the improvement journey, system educators are highly skilled and have a body of agreed routines and practices that have become innate to how they work. The intervention cluster for the journey from great to excellent serves further to enhance the educators’ responsibility for looking after each other’s development; the systems give their teachers the time, resources, and flexibility to reflect upon and try out new ideas to better support student learning (Exhibit 17).¹⁷

Exhibit 6:
Our sample represents a continuum of improvement from poor to fair to good to great

**From Great to Excellent : “Teacher Participation” in SBM
“Parent and Community” Involvement to establish “School with Heart”**



- McKinsey & Company
How the World's Most Improved School Systems Keep Getting Better, 2010: p. 19

企業承擔

學校起動計劃



- 為期**六年**
- 為**十所弱勢學校**提供資源，
- **每年每所學校撥捐二百萬元**，資助金額共港幣一億五千萬
- 約**一萬名弱勢學生**受惠
- 大學與商界合作，**提供全方位支援**，涵蓋範圍包括教、學、品行、學習條件及支持、學生輔導、生涯規劃，以及家長與教師的合作等



「學校起動計劃」成員學校

- ✓ 中華基督教會基福中學
- ✓ 五育中學
- ✓ 仁愛堂陳黃淑芳紀念中學
- ✓ 天主教南華中學
- ✓ 天主教普照中學
- ✓ 佛教何南金中學
- ✓ 保良局朱敬文中學
- ✓ 棉紡會中學
- ✓ 鳳溪第一中學
- ✓ 樂善堂余近鄺中學
- ✓ 潮州會館中學

九龍倉集團屬下十個與學校緊密合作的業務單位

- ✓ 九龍倉集團有限公司
- ✓ 九倉電訊
- ✓ 九龍倉中國地產發展有限公司
- ✓ 時代廣場
- ✓ 海港城
- ✓ 馬哥勃羅酒店
- ✓ 現代貨箱碼頭
- ✓ 荷里活廣場
- ✓ 連卡佛
- ✓ 會德豐地產 (香港) 有限公司



為孩子創造
「自主自足」
的學習空間



HKPISA



Thank you !

Further information

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