IMPLICATIONS OF PISA 2015 FINDINGS: AFFECTIVE LEARNING OUTCOMES

Leo Wong @ CUHK

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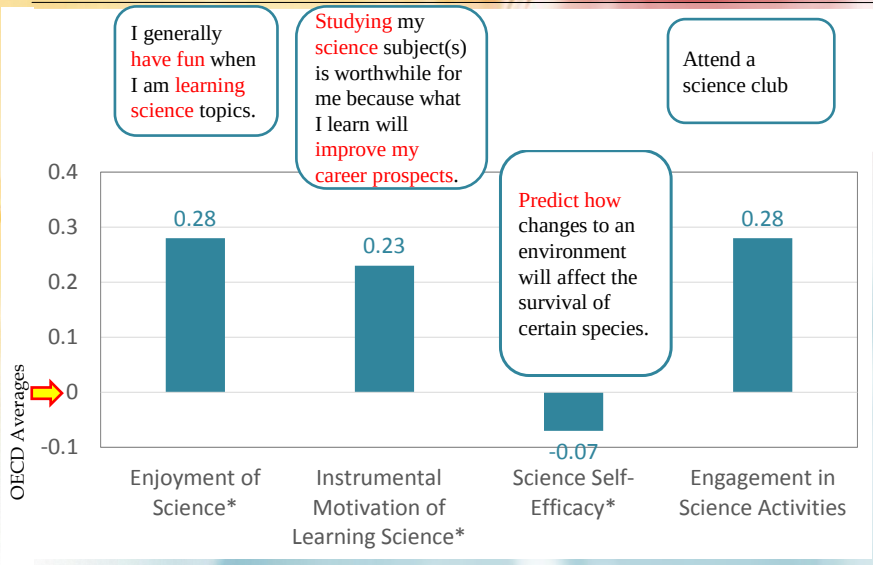
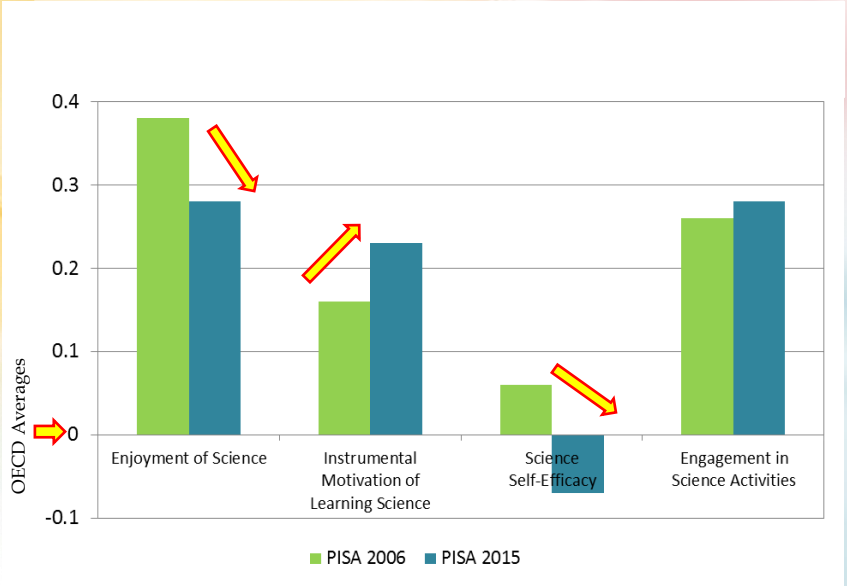
OUTLINE

- Briefings of PISA 2015 findings on students' affective learning outcomes
- Implications of the findings on different stakeholders

INDICES OF SELF-RELATED COGNITION AND ENGAGEMENT IN SCIENCE ACTIVITIES OF HONG KONG STUDENTS (2015)



INDICES OF SELF-RELATED COGNITION AND ENGAGEMENT IN SCIENCE ACTIVITIES OF HONG KONG STUDENTS (2006 VS 2015)



ANALYSIS OF INDICES OF STUDENTS' MOTIVATION TOWARDS LEARNING SCIENCE (2006 VS 2015)

Index	PISA 2006		PISA 2015	
	Mean	S.E.	Mean	S.E.
Enjoyment in Learning Science* (JOYSCIE)	0.38	(0.01)	0.28 ⇩	(0.02)
Instrumental Motivation* (INSTSCIE)	0.16	(0.02)	0.23 ⇧	(0.02)

- Hong Kong students tend to have a higher level of enjoyment in science and instrumental motivation than the OECD average.
- Hong Kong students have increased in instrumental motivation but decreased in enjoyment of science.

DESCRIPTIVE ANALYSIS OF STUDENTS' SELF-BELIEF IN SCIENCE (2006 VS 2015)

Index	PISA 2006		PISA 2015	
	Mean	S.E.	Mean	S.E.
Self-Efficacy*	0.06	(0.02)	-0.07 ⇩	(0.02)

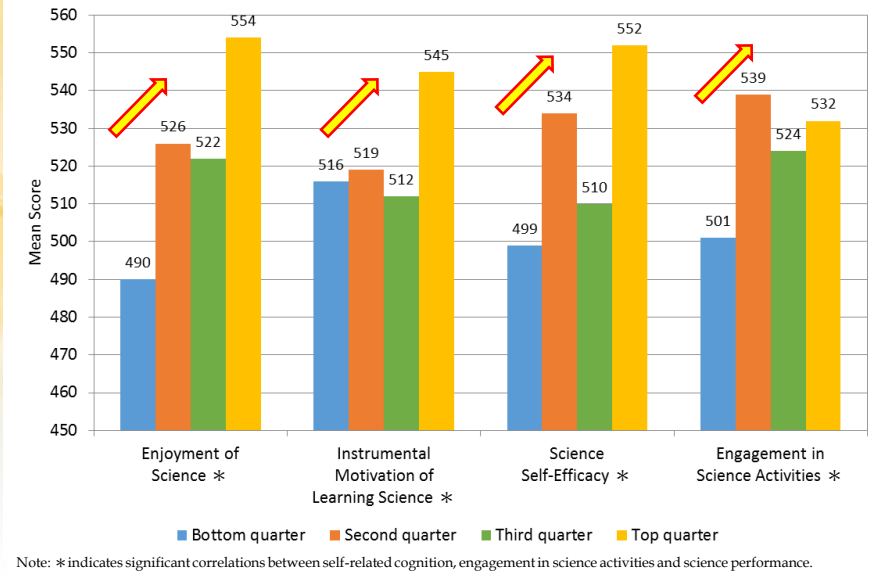
- Hong Kong students' self-efficacy is lower than the OECD average.
- Hong Kong students' self-efficacy have declined in general from 2006 to 2015

DESCRIPTIVE ANALYSIS OF INDEX OF ENGAGEMENT IN SCIENCE ACTIVITIES (2006 VS 2015)

Index	PISA 2006		PISA 2015	
	Mean	S.E.	Mean	S.E.
Engagement in Science Activities (SCIEACT)	0.26	(0.02)	0.28	(0.02)

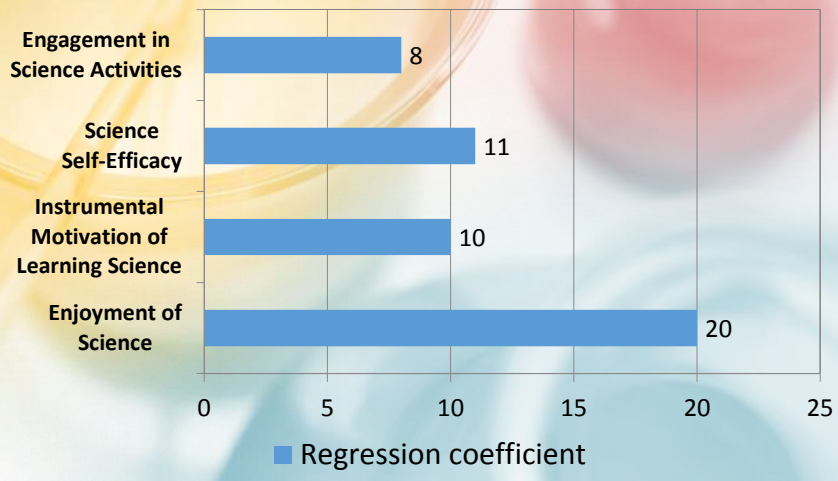
- Students' participation in the science-related activities in Hong Kong is higher than the OECD average in both PISA 2006 and 2015.
- The mean index of HKPISA2015 is slightly higher than HKPISA2006.
- Caution: The two indices were not measured by identical items and there are only 5 items are common.

RELATIONSHIP BETWEEN STUDENTS' SELF-RELATED COGNITION, ENGAGEMENT IN SCIENCE ACTIVITIES AND SCIENTIFIC LITERACY PERFORMANCE



Note: ∗ indicates significant correlations between self-related cognition, engagement in science activities and science performance.

RELATIVE ASSOCIATION OF STUDENTS' SELF-RELATED COGNITION AND ENGAGEMENT IN SCIENCE ACTIVITIES WITH SCIENTIFIC LITERACY PERFORMANCE



LEARNING POINTS FOR TEACHERS, PARENTS, POLICY MAKERS AND SCIENCE EDUCATION RESEARCHERS

IMPLICATIONS FOR TEACHERS

- Many school teachers MIGHT
  - place extra effort on drilling public examination materials.
  - overlook the issue of students' diversity in science affective development.
- Enjoyment in science learning is the most influential factor.
- Science teachers can help to improve students' enjoyment in science by
  - bringing more science activities & hands-on laboratory experiences and projects with real life context into daily lessons.
  - adopting different teaching strategies.

CONTEXT-BASED SCIENCE-TECHNOLOGY-SOCIETY

- Context-based science-technology-society (STS) instruction approach can cultivate positive attitudes toward science (Bennett, Lubben, & Hogarth, 2007).
- E.g. Multiple disease outbreaks such as Avian Influenza in 1997, Severe Acute Respiratory Syndrome (SARS) in 2003 and Swine influenza in 2009, can serve as the context to arouse students' interest.

IMPLICATIONS FOR CAREERS TEACHERS

- Have time and space to acquire more accurate knowledge about science and technology –related professions and career prospects.
- Inform and encourage students to consider science and science-related careers.
- increase exposure of students to science-related experiences.

IMPLICATIONS FOR PARENTS

- encourage their children at early age to participate more in science-related activities.
- act as a positive science role model and teach their children science by reading science literature and watching or listening to science programmes with their children.
- discuss what they have learnt from these activities.

IMPLICATIONS FOR SCIENCE EDUCATION RESEARCHERS

- focus more on the implications of current science curriculum or NSS structure at the school implementation level on the

➢ development of students' affective learning outcomes and

➢ career-orientation towards science-related future studies and careers

THANK YOU