

For discussion on 16 December 2002

Legislative Council Panel on Education

Academic Value-added Indicator

Purpose

This paper briefs Members on the development and proposed use of the Academic Value-added Indicator as well as other student performance indicators developed by the Education Department (ED). These indicators enable schools to more objectively evaluate the performance of their students as a whole in the academic and non-academic domains.

Background

2. In 1999, ED obtained support from the Quality Education Fund¹ to conduct a research project to develop performance indicator for measuring academic value-added performance of students. The purpose of developing the indicator is to provide information for a fairer and more scientific evaluation of the academic performance of students and schools. The indicator will form part of the School Performance Indicators system² which is the basis for both external and internal evaluation of a school's performance under the Schools Quality Assurance Framework.

3. The research project was commissioned to a consortium of the University of Melbourne and the Hong Kong Institute of Education. The project commenced in January 2000 and was completed in June 2001. A model for measuring academic value-added and a computer system "Schools Value-added Information System" (SVAIS) were produced. SVAIS is used to report value-added information to individual schools. The value-added information and SVAIS are now ready for release to schools.

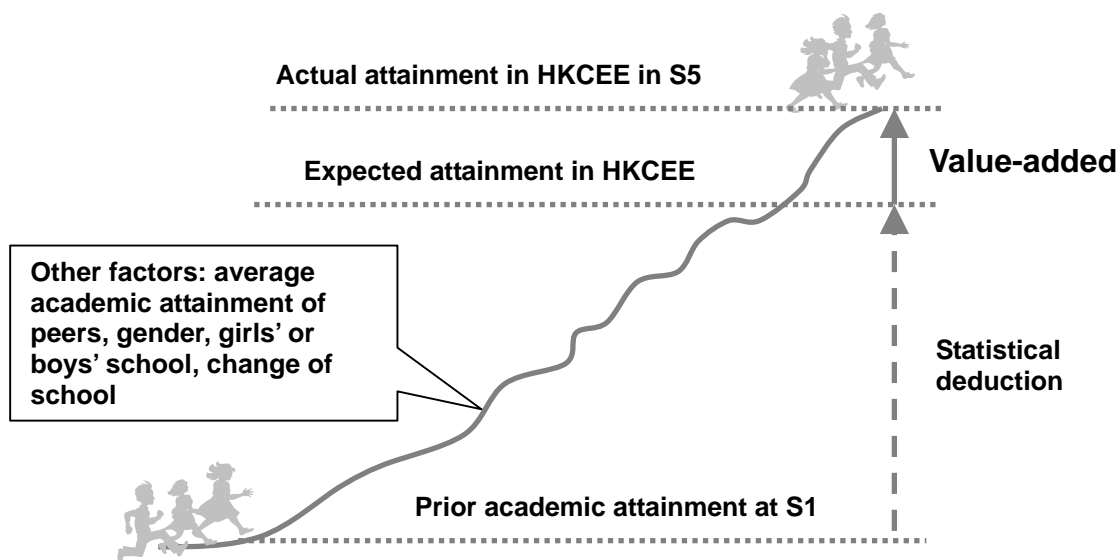
¹ A funding amounting to \$8,500,000 is obtained to develop two sets of indicators, Academic Value-added Indicator, and Affective and Social Outcome Indicator of students.

² The Schools Performance Indicators system is first produced in 1998 to support Quality Assurance Inspection. The revised version *Performance Indicators for Hong Kong Schools 2002* has just been published in October 2002. The indicators cover the work of a school under four Domains – Management and Organization, Learning and Teaching, Student Support and School Ethos, and Student Performance.

Value-added Indicator and SVAIS

4. The value-added indicator developed is based on a statistical model tailor-made to the local school context. In brief, the indicator measures the amount of academic achievement that is greater or less than expected given a prior measure of academic ability. For instance, for the learning stage from Secondary 1 to 5 (S1-S5), a student's prior academic ability will be measured by his/her "Secondary Schools Placement Allocation" standard scores³. From the "Secondary Schools Placement Allocation" standard scores of all students in the same cohort together with their results in Hong Kong Certificate of Education Examination (HKCEE), we can apply statistical method to deduce an expected HKCEE result for individual students. The difference between the actual result and the expected result in HKCEE will be the value-added for the S1-S5 learning stage. The average value-added of all students in a particular subject will be the value-added of that subject at school level.

5. Besides prior academic ability, other factors that could have affected academic performance have been taken into account in the model to adjust for their contributions. These factors include academic ability of peers in the school, gender of the students, type of school as to whether a girls' or a boys' school, and the change of school of the student during the five years of study. The value-added model can be represented diagrammatically below:



³ The "Secondary Schools Placement Allocation" (SSPA) standard scores are derived from school internal assessment results with adjustment using the Academic Attainment Test (AAT). The SSPA scores are found by the research team to be good predictors for most of the academic subjects of HKCEE.

6. Similar measurement can be done for the learning stage from Secondary 6 to 7. This time we can use the HKCEE results and Hong Kong Advanced Level Examination (HKALE) results of the same cohort of students to deduce the expected HKALE results of individual students. The difference between the actual results and the expected results in HKALE will be the value-added for this learning stage.

7. The statistical model used for value-added measurement is by far the most valid model available in the field. It had been subjected to rigorous testing within ED and tryout in pilot schools. The model had also been presented in international conferences and gained much support from overseas educators. Similar models have been adopted in the United Kingdom and Australia by government bodies or educational organisations.

8. Each year after the release of public examination results of HKCEE and HKALE by the Hong Kong Examination and Assessment Authority, ED will generate value-added information using the model. The information will then be stored in the web-based computer system SVAIS where individual schools can, with the use of a password, securely access their own information.

9. Value-added information now available is based on the 2000, 2001 and 2002 HKCEE and HKALE results. In SVAIS, the information will be provided according to subjects or subject groups at a school level. Value-added performance of schools in the same district or schools with similar student intake will also be provided to schools for reference and comparison.

Using the Value-added Information

10. The value-added information will be used by schools for self-evaluation⁴ and improvement. Value-added measurement takes into consideration the academic ability of students and other factors that contribute to academic performance, thus giving a fair account on how well the students of a school perform in academic subjects. Using value-added information, schools will be able to better assess their work in the learning and teaching of the subject, and subsequently implement suitable strategies for improvement. Schools will be

⁴ School self-evaluation refers to the various processes used by a school to review the quality and effectiveness

requested to report value-added information in their annual reports as one means of holding schools accountable for the academic performance of their students.

11. ED will consider value-added information as one key indicator for assessing a school's performance. The Quality Assurance Inspection teams will make reference to the information in external school evaluation. At the system level, ED will monitor the value-added performance of schools, and take supportive or intervention actions where appropriate when a school is consistently performing poorly in this area.

12. The indicator also provides useful information for reference by policy makers. Value-added performance can be analysed on different school samples as and when needed. Such analyses are helpful in evaluating the effectiveness of certain educational policies such as those advocated in the Education and Curriculum Reforms.

Use of other Indicators

13. Value-added indicator alone could only inform about the academic performance of students and schools. To obtain a full picture of the performance of students and schools, a balanced use of different indicators covering various aspects of a school's work⁵ is needed. In this regard, ED has developed at the same time Affective and Social Outcome Indicators and tools for measuring students' performance in the non-academic area. The above two sets of indicators and tools will be made available to schools at the same time enabling schools to know better the whole person development of their students.

14. The Affective and Social Outcome Indicators measure the performance of students of Primary 3 to Secondary 7 on aspects such as self-concept, attitudes to school, attitudes towards learning, values and interpersonal relationship. The information will be collected through questionnaires administered by schools. A computer programme will be provided for schools to analyse their students' performance and compare against local norm data.

of its programmes so as to achieve continuous improvement and development.

⁵ The work of schools can be categorized in four domains under the *Performance Indicators System* mentioned in paragraph 2.

Views from Schools and Educational Bodies

15. During the development of the Value-added Indicator and the Affective and Social Outcome Indicators, schools of Hong Kong had been widely consulted during seminars and meetings. The schools in general are positive and supportive on the provision of student performance information for their self-evaluation.

16. The models of the indicators and functions of the tools had also been presented in different occasions to the Education Reform Liaison Team, the Advisory Committee on Quality Assurance Inspection, major school councils and sponsoring bodies, as well as School Management Committee Chairpersons and Heads of government schools. On the whole, the indicators and tools were well received on all these occasions.

Releasing the Indicators and Tools to Schools

17. The two sets of indicators and tools will be made available to schools in early 2003. Briefing sessions will be held for school heads in December 2002 and subsequently a series of training programmes will be organised for schools to familiarise them with the knowledge and skills for interpretation and proper use of the indicators and tools.

Way Forward

18. ED will continue to provide secondary schools with value-added information on a yearly basis. Affective and social outcome information will be collected from primary and secondary schools in a planned and systematic manner. Training seminars and experience-sharing sessions will be organised regularly to provide training and opportunity for sharing on the use of the indicators.

19. More tools and data on other key indicators will be produced to help schools better understand their performance and progress of development in different areas, and to help the government know better the performance of local schools as a whole.

Education Department
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