

Legislative Council Panel on Education

Supplementary Information on Design and Methodology of Study on Small Class Teaching

Background

During the discussion on the progress of the Study on Small Class Teaching (the Study) at the Panel meeting on 12 February 2007, we undertook to provide in writing additional information on the design and methodology of the Study. This paper sets out additional information for Members' reference.

The Study Framework

2. The first and second cohorts of P.1 students admitted in the 2004/05 and 2005/06 school years are tracked up to P.4 (P.1 to P.3 in small classes and P.4 in regular classes) and P.3 (P.1 to P.2 in small classes and P.3 in regular classes) respectively. Schools participating in the Study are given additional resources to re-group the respective regular classes into small classes of around 20 to 25 students for the teaching of Chinese, English and Mathematics.

3. The following indicators are used to gauge the relationship between class size and learning effectiveness and to ascertain the variables that are likely to mediate between class size and the identified learning effectiveness:

- (a) students' academic performance;
- (b) students' disposition (including a combined measure of self-esteem and learning motivation);
- (c) school and classroom environment as manifest by the observed modes of pedagogic practice; and
- (d) support measures to enable teachers to develop and sustain effective small class teaching.

Methodology

4. We have been using the following instruments to collect both qualitative and quantitative data to assess the learning process and learning outcomes. In constructing these instruments, relevant items from other studies on the effectiveness of small classes have been incorporated for comparative purposes:

- (a) Student Questionnaires – These are administered at the beginning and end of each school year to collect data on students’ self-esteem, motivation and subject attitude. The questionnaires are developed by the consultant of the Study and have demonstrated reliability.
- (b) Parent Questionnaire – This is administered in the first and second years of the Study to collect data on the parents’ background and the ways in which they support their children’s learning. The questionnaire is developed by the consultant.
- (c) Teacher Questionnaire - This is administered to teachers of small classes in the second and the last year of the Study to collect their views on implementation of SCT in their schools during the Study period. These cover, inter alia, their feedback on effects on students, their classroom practices, factors that influence their capacity to deliver effective SCT, the support they receive versus their perceptions of what are required, effective strategies to use when catering for learner diversity, etc.. The teachers are also invited to identify any problems that may have arisen during the implementation of SCT under the Study. The questionnaire is developed by the consultant.
- (d) Principal Questionnaire - This is administered to all principals of the participating schools in the third year of the Study to collect principals’ views on pedagogical practices and support required to optimize the benefits of SCT based on experience during the Study period. The questionnaire is developed by the consultant.
- (e) Standardized Tests in Chinese, English and Mathematics – These are administered at the beginning and end of each school year to measure the academic performance of the students. The tests, one each for Chinese, English and Mathematics, are constructed by professional staff of EMB. The contents are based on the curriculum guides of the relevant subjects for local mainstream primary schools and the level of difficulties is generally in line with that for other internal assessments conducted by the schools. The Chinese and English papers for all the four grades contain a listening test and a reading and writing test.
- (f) Systematic lesson observations – These are to record the frequency and nature of classroom interactions (for instance, use of challenging questions and statements, feedback, extended dialogues and pupil-pupil interactions). The observation instrument was developed from that used in the original ORACLE (Observation and Classroom Learning Evaluation) study, which even today is still the

largest survey of English primary classrooms (Galton, Simon and Croll 1980). The instrument has been used in numerous other studies. It has proven reliability as measured by the overall agreement between different observers when observing the same lesson (inter observer agreement) and in the capacity to recognize particular categories of behaviour across several lessons (inter item reliability). Observers from EMB have been trained in the use of the instrument by the consultant. Systematic lesson observations are carried out in all the participating schools from March to May each year. A total of 143 and 134 lessons have been observed in the 2004/05 and 2005/06 school years respectively and we envisage that about 120 lessons will be observed in the 2006/07 school year. About 74% of these lessons are in small classes and the remaining in regular classes. We observe teachers in the first year of teaching small classes as well as those in the second and third years. The data is intended to provide some indication as to whether teachers may change their teaching pedagogy when they have more experience and training in small class teaching.

- (g) Case studies – These are conducted to explore in greater depth the factors which either help or hinder the teachers in their attempt to modify existing classroom practice in ways that maximize the advantages of SCT. Six case study schools, out of the 37 participating schools, have been chosen after inspection of the data collected from the first year of the Study so that they represent the widest possible range of circumstances and responses to a reduction in class size. In this regard, factors like relative pupil progress and school management styles, etc. were taken into consideration. Interviews with the school heads, teachers, students and parents are conducted by local researchers from a tertiary institution in Hong Kong commissioned by the consultant. The first round of interviews took place in February and March 2006 and are being repeated in early 2007.

Control groups

5. To control for between-school differences, we mainly use data collected from the regular classes of the participating schools for comparisons. In this regard, the control groups are as follows:

- (a) P.2 cohort of the participating schools in the 2004/05 school year
- (b) P.1 cohort of the participating schools in the 2006/07 school year

The 2004/05 P.2 cohort will be tracked until the students finish P.4 in the 2006/07 school year and the 2006/07 P.1 cohort up to P.2 in the 2007/08

school year. The same questionnaire surveys and attainment tests used for small classes are administered to these students.

6. In addition, the Study includes a further control in the form of 15 additional schools (hereinafter called the reference schools). These reference schools have been selected from the same districts as the 37 participating schools. They have comparable student academic performance but the class sizes are larger than 30. Standardized tests and student questionnaires are administered to the P.1, P.2 and P.3 students of these schools in the 2006/07 school year, and again in the 2007/08 school year when they are promoted to P.2, P.3 and P.4 respectively. Parent questionnaire survey is also conducted for the parents of these students. To facilitate comparisons, the tests and questionnaires are the same as those used for the respective cohorts of students in the Study.

Data Collection and Analysis

7. The consultant has closely monitored the data collection process to ensure that the data collected is generalisable in respect of its validity and reliability. He visits all the participating schools at least once, with eight of them repeatedly on an annual basis during the Study period to gain an impressionist view of year-on-year progress to validate the findings from the systematic lesson observations conducted by the observers. During the school visits, the consultant observes lessons and recommends strategies for the improvement of learning and teaching. He also interviews principals and SCT coordinators to discuss their support for teachers teaching small classes.

8. The analysis makes comparisons between pupils in small and regular classes and between cohorts across a range of variables including attitudes, attainment and the observed classroom behaviours of both teachers and pupils. Both raw scores and adjusted progress scores are used as and where applicable, the latter taking account of information collected from the parent questionnaire to eliminate as far as possible the influences of parental socio-economic status on a child's initial attainment.

Main Outputs

9. With the completion of the Study in 2008, it is envisaged that main outputs pertaining to the following will be available:

- (a) an evaluation of the benefits or otherwise of SCT for the relevant classes in pupil attainment and attitudes;

- (b) evidence of the sustainability of these effects by means of a longitudinal study of the pupils' progress from P.1 through to P.3 or P.4 as appropriate;
- (c) a comparison of the 2-year and 3-year small class effect; and
- (d) identification of pedagogic strategies that contribute to the success or failure of SCT and recommendations on the teaching strategies, support and resource deployment necessary for maximizing the benefits of SCT in Hong Kong.

Final Remarks

10. Members are invited to note the above information on the design and methodology of the Study, which supplements the discussion on the progress of the Study at the Panel meeting on 12 February 2007.

Education and Manpower Bureau
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