For discussion on 13 June 2005

LegCo Panel on Education

Small Class Teaching – Progress of the Pilot Study and the Way Forward

Purpose

This paper reports the progress of the 3-year longitudinal study on small class teaching (SCT), and sets out our proposal to extend SCT to primary schools with a high concentration of disadvantaged students.

Background

2. The Administration is in principle supportive of SCT. We do not dispute the general belief that, all things being equal, a smaller class size would theoretically provide teachers with a better setting to cater for individual differences among students. But in consideration of the huge long-term financial commitment and competing demands for funds, the inconclusive findings of overseas studies on the effect on student learning[1], and scarcity of local experience, we believe the implementation of SCT should be strategically planned to ensure that the expected outcomes are achieved.

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[1] Speaking at a recent conference on *Learning Effectiveness and Class Size* organized by the University of Hong Kong, Professor E Hanushek of Stanford University is of the view that class-size reduction is generally ineffective when the financial input is measured against students' outcomes. He asserts that "quality improvements require substantial changes in teacher quality". Another speaker, Professor J Hatti of the University of Auckland, after examining about 300,000 researches, concludes that the average effect-size of class-size reduction is only about 0.12, which means a difference of one or two scores in a test with a full score of 100 and standard deviation of 15. These studies include the measurement of students' academic and non-academic achievement (e.g. self-concept, motivation, engagement), with close to zero effects for motivation and self-concept. The effect of class size on pupil attainment and behaviour is far less significant than other strategies such as giving quality feedback, teacher professional development etc. He comments that "there is a gap in existence between what teachers felt about small class teaching and what actually took place". When speaking about his research project at the conference, Professor P Blatchford of the University of London finds that "there is evidence that the Reception Year gains were still evident at the end of Year 1 in literacy", but there is "little evidence of a relationship between class size and mathematics attainment in Year 1", and "no evidence of a relationship between class size and either mathematics or literacy attainment in Year 2". In the second stage of study, there is no evidence that small classes lead to better progress for Year 4 to 6 pupils. The project also concludes that teachers being able to adapt their teaching strategies, such as group work, to maximize small-class "classroom context" is a pre-requisite for effective learning.

3. To this end, we have launched a three-year longitudinal Pilot Study on SCT at P.1 and P.2 levels in 37 primary schools, starting with the respective P.1 cohorts in the 2004/05 and 2005/06 school years. The purposes are to assess the benefits of SCT in the local context in terms of both academic and affective outcomes; and to identify the teaching strategies and support necessary for maximizing the benefits of SCT. The final report will be available at the end of 2008 and there will be yearly interim reports between 2005 and 2007. The findings will provide useful reference for the Administration to consider the long-term way forward for SCT.

Progress of the Study

4. The Study is progressing according to schedule, with the assistance of Professor Maurice Galton of the Faculty of Education at the University of Cambridge as consultant, and under the overall direction by a Steering Committee comprising experienced academics and frontline educators.

The Study Framework

5. We have, under the guidance of Professor Galton, designed the evaluation framework, developed and tried out the relevant tools to collect data for evaluation purpose, and trained a research team to use the tools. The following indicators will be used to gauge the relationship between class size and learning effectiveness, as well as 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 self-esteem and learning motivation); and
(c) school and classroom environment including key aspects of curriculum, assessment and pedagogical practice.

6. We are now collecting qualitative and quantitative data related to the above indicators to assess the learning process and outcomes for the first cohort of P.1 students admitted in the 2004/05 school year. The qualitative data being collected include students' background and disposition as gleaned from two sets

of questionnaires completed by parents and students respectively. In addition, we have conducted systematic classroom observations of 143 lessons covering all participating schools to record the frequency and nature of classroom interactions. As regards the quantitative data, it is primarily a measurement of students' academic performance as revealed in two rounds of standardized tests (in October 2004 and June 2005) in Chinese, English and Mathematics specially designed for the Study. Professor Galton has closely monitored the data collection process to ensure that the data collected is generalisable in respect of its validity and reliability. All the data collected this year will serve as base-line references for monitoring the progress in the coming two years.

Professional Support for Participating Schools

7. Most studies consistently point to the need for corresponding changes in teaching and learning strategies in order to maximize the benefits of SCT. Indeed, all the 37 schools participating in the Study have indicated their readiness in trying out SCT as reflected in their knowledge and experience in curriculum development and participation in initiatives/projects related to teaching pedagogy. This notwithstanding, to bring out and evaluate the maximum effect of SCT in the local context, we have deployed a team of some 14 professional staff on either a full-time or a part-time basis to provide professional training and support to the participating schools, especially the teachers taking up some 170 small classes at P.1 level among the 37 participating schools. The support aims at raising teachers' awareness of and equipping them with the different teaching strategies that can be employed in small classes, and helping them develop appropriate school-based and context-apt teaching pedagogies to maximize the effectiveness of SCT.

8. So far, we have organized a number of briefings, seminars, workshops and a study tour to Shanghai (Annex A). These activities have facilitated sharing of local and overseas experience among the 37 schools. To provide school-based support, the research team has kept close liaison with participating schools through series of school visits. An average of three to four visits have been made to each participating school (with actual number of visits ranging from two to nine) to better understand their training needs as well as to give advice on the implementation strategies in the context of individual schools.

For 16 participating schools which have requested more intensive on-site support, the research team has been working together with the teachers concerned in collaborative lesson planning and has run school-based workshops on cooperative learning for the teachers. Professor Galton has also visited some of the schools to gather first-hand knowledge about the schools' implementation of SCT, shared his observations with schools and discussed with teachers their current pedagogical practices. The schools in general have responded very positively to our support measures, with teachers generally committed to experimenting different strategies to enhance teaching and learning.

Preliminary Observations

9. Judging from the experience of working with the schools and preliminary analysis of the empirical evidence from the first year of Study, the research team has the following observations -

- Classroom teaching is exceptionally effective and highly interactive in several schools which have enlightened school leadership, strong collaborative culture and a team of very professional teachers. These schools are of the view that the improvement in their teaching and learning effectiveness is to a marked degree the accumulated effect from other curriculum reform initiatives implemented by the schools in recent years.

- Some schools see participation in the Study as a good opportunity to focus attention on teaching and learning to bring about paradigm shift among teachers. They tend to adopt a whole-school approach with full support from the school heads. Improvement in teaching pedagogies is more prominent for these schools.

- We have noted a change in the concept of SCT among teachers. At the beginning of the project, many teachers considered intuitively that small class would mean easier classroom management and more chance for students to answer questions. There was a lack of awareness that different teaching strategies should be adopted to

maximize the benefits of SCT. After some practical experience in attempting to enrich students' interaction and engagement as well as trying to cater for learners' diversity, they realized that small class setting would not automatically bring about more teacher-student and student-student interactions. Nor could individual differences be automatically catered for. Realizing the need for corresponding changes in teaching strategies, teachers have begun to ask for specific professional support to address the learning needs of their students and have become more involved in exploring and developing appropriate teaching strategies to optimize the benefits of SCT.

- There are great variations in the effectiveness of teaching in the same small class setting. The key is the professional competence and subject expertise of individual teachers. It is apparent that teachers who stand out among the group would be equally effective in teaching large and small classes and can flexibly adopt different teaching pedagogies in different class settings. However, some teachers still need time to master the skills and pedagogies of SCT. For example, some teachers did group students for some learning tasks but there was a lack of genuine group interactions.

- All teachers involved in the project are working seriously and making efforts to try out different teaching strategies to enhance SCT effectiveness. With school-based support, there has been some successful experience, for example, in addressing students' learning difficulties. However, it takes time for teachers to try out, reflect and consolidate their experiences.

10. It should be emphasized that the Study is only in its first year. We have yet to assess the effect of SCT on the same cohort of students over a period of time, and whether there is any lasting impact on students' attitude to and ability for self-learning. We also need to accumulate more experience and make further systematic observations before we are in a position to delineate the teaching strategies which best complement a small class setting.

Extension of SCT

11. While the Study is in progress, we plan to extend SCT to a number of selected schools which have a high concentration of disadvantaged students, as a means to help those children, and, in so doing, to support the Government's pledge to alleviate inter-generational poverty. This Scheme takes into account overseas research studies (Annex B) which indicate that SCT has more significant effects on students with weak family support and in their early years of schooling. Although we have not yet come to a conclusion on the cost-effectiveness of SCT in the local context, we believe implementing SCT for disadvantaged children is a worthwhile investment to ameliorate the lack of family support.

Implementation Plan

12. Starting from the 2005/06 school year, we plan to implement SCT in selected schools with a high concentration, say 40%, of their P.1-P.3 students receiving Comprehensive Social Security Assistance (CSSA) or full grant under the Student Financial Assistance (SFA) Scheme. Similar to the case of the 37 schools in the Study, the selected schools will be provided with additional resources in the form of a cash grant of $290,000 per annum for each additional class to enable them to split students into small classes of 20 – 25 pupils for Chinese, English and Mathematics lessons. Participation will be by invitation in order to forestall the possible labeling effect on eligible schools. Neither will the Government disclose to the public the names of the participating schools.

13. We plan to implement SCT in the eligible schools on a progressive basis, starting from P.1 in the first year and extending to P.2 and P.3 in 2006/07 and 2007/08 respectively for the same cohort of students. The progressive implementation from P.1 to P.3 takes into account experience from the Study which has confirmed the need for teachers to be given time and support to adapt their teaching strategies and lesson design for a small class setting.

14. Making reference to student profiles in the 2004/05 school year, we estimate that some 75 primary schools with P.1 classes will meet the 40%

threshold. Where a school has to operate additional classes in order to bring the class size to around 20-25 students per class, additional subsidy will be provided.

15. The number of small classes an eligible school may operate is subject to its annual student enrolment of P.1 to P.3, and is capped by the number of vacant teaching rooms available. It is therefore possible that the requirement for the additional subsidy may change from year to year. As regards possible changes in student profile over time, a 10% margin of variation between cohorts will not affect the school's eligibility for SCT.

16. Curriculum adaptation and changes in teachers' pedagogical practices are crucial to the actualization of the benefits of SCT. Schools accepted into the scheme will be invited to professional development workshops and required to include their SCT initiative, together with a mechanism for evaluation of effectiveness, in their annual school plans and school reports. Externally, the effectiveness of the scheme will be evaluated, based upon the framework developed for the present Study. The scheme will be reviewed in the light of experience and the evaluation data, taking into account also the findings of the Study.

Financial Implications

17. Assuming that half of the 75 eligible schools would join the study and would have to operate one additional class each at P.1 to P.3 levels, we estimate that recurrent expenditure of $32 million per year would be required. There will also be additional expenditure, in the order of $650,000 per annum in the initial years, for the hiring of additional staff for providing school-based support.

Advice Sought

18. Members are invited to note the progress of the Study on SCT, and advise on the extended SCT scheme for poverty alleviation.

Education and Manpower Bureau
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Annex A

Workshops and Sharing Sessions for Schools Participating in the Study on Small Class Teaching in the 2004/05 School Year

Time of Delivery	Content
July 2004	A two-day seminar cum sharing session on local and Shanghai experiences in small class teaching by front-line educators both in Shanghai and Hong Kong
November 2004	One and a half-day seminar by the consultant, Professor Galton, on how to maximize the effectiveness of small class teaching, and how to effectively conduct student grouping and group work, as well as school-based and system evaluation
December 2004	Two identical one-day workshops on cooperative learning
January 2005	Half-day workshop on how students' work can feed back on teaching
March 2005	A study tour to Shanghai to visit exemplary schools practising small class teaching
June 2005	In-service teacher education and training day to share Shanghai experiences, and for Professor Galton to wrap up this year's experience

Annex B

The Effect of Small Class Teaching on Disadvantaged Children – A Summary of Some Research Findings

Research Study	Year	Brief Description of the Research Study	Relevant Findings
Project STAR (Student-Teacher Achievement Ratio) Tennessee, USA	1985 - 1989	• 4-year longitudinal study • From Kindergarten to Grade 3 • Study conducted on 79 public schools, 300 classrooms and 7,000 students	• The positive effect of smaller classes on minority students was double of that on the majority in the first two years, and then was about the same.
Project Challenge Tennessee, USA	1990 - 1993	• An extension project of Project STAR • Focused on class reduction for the socio-economically disadvantaged students from 19 poorest counties of Tennessee	• These students in small classes as a whole were moving above the state average in reading and mathematics. • They also manifested relatively fewer behaviour and discipline problems.
Project SAGE (Student Achievement Guarantee in Education)	1996 - 2001	• Reduced class size systemically to 15 from Kindergarten to Grade 3 • Targeted at schools	• By the end of Grade 3, minority students, who are usually from poorer families,

Wisconsin, USA		which admitted considerable numbers of students from low-income families	had closed the achievement gap between themselves and the white SAGE students.
CSPAR (Class Size and Pupil Adult Ratio) Project University of London, UK	2000 – 2002	• Study conducted on 220 state schools over 10,000 students in Reception class to Year 4	• Small classes appear to work best in literacy for children who are most in need academically and have the most ground to make up (e.g. children with relatively weaker family support).
Study Commissioned by the Welsh Assembly Government Wales, UK	2003	• Study conducted on Welsh primary schools	• Pupils who lived in areas of high social and cultural disadvantage benefited most from small classes.