Essay

Education Reform in Singapore: Towards Greater Creativity and Innovation?

by Jason Tan and S. Gopinathan

The beginning of the twenty-first century is an exciting time for education in Singapore. There is constant talk of the need to reexamine old ways of thinking and doing things and of the concomitant need for flexibility, creativity and innovation. Although education policy has been a prime instrument for the fostering of socioeconomic development ever since the ruling People's Action Party came to power in 1959, in the past decade the pace of change has greatly quickened. It is therefore not surprising that education policymakers, schools, principals, teachers and students are being swept along in a literal tide of newly launched policy directives.

This article poses questions about several ongoing and future challenges and dilemmas facing Singapore's education system as it moves into the twenty-first century. It focuses on the ways in which schools are being urged to foster creativity and innovation to enhance national economic competitiveness in the global economy. It examines several key policy initiatives such as *Thinking Schools, Learning Nation*, the *Masterplan for Information Technology in Education*, and revisions to university admission criteria. We also discuss the move toward the marketization of education, as manifested for instance in the push for intense interschool competition.

CALLS FOR GREATER CREATIVITY AND INNOVATION

The growth of the global economy has added urgency to calls to upgrade education and training as prime sources of national economic competitiveness. The Singaporean government can be said to have taken these calls seriously. Such efforts received added impetus in the wake of the 1985-86 economic recession. The Ministry of Trade & Industry's Economic Committee recommended the education of each individual to his or her maximum potential and the development of

creativity and flexible skills to maintain Singapore's international competitiveness in the global economy.[1]

A main thrust in the quest for creativity and innovation has been the growing marketization of education since the mid-1980s. The main manifestations of this trend have been increased school autonomy and increased interschool competition.

Beginning in 1988, several well-established schools were allowed to become largely independent of the Ministry of Education and were designated "independent schools." The inspiration for these schools arose from an official Ministry of Education visit in 1986 to independent schools in the United Kingdom and the United States. The Education Ministry gave these schools autonomy and flexibility in recruitment, deployment and reward of staff, finance, management, and the curriculum. They were to serve as role models for other schools in improving the quality of education. The government stated that these schools would also help to set the market value for good principals and teachers by enabling them to recruit personnel in a competitive market. Parents, teachers and students would be able to choose good schools with different management philosophies. Until now, eight (or about five percent of 163) secondary schools, all of which are well established and prestigious, have become independent.

Right from the introduction of the independent schools scheme there was strong public criticism over its elitist nature and the high fees charged by the schools. The government responded in 1994 by creating a new category, "autonomous schools." To date, 18 existing nonindependent secondary schools, all with outstanding academic results, have been designated as autonomous. These schools are being asked to provide a high-quality education while charging more affordable fees (and enjoying a lesser degree of operating autonomy) than independent schools. Parents and students are thereby supposed to have a wider range of choices.

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A second feature of the growing marketization of education is the stress on competition among schools. Besides improving the quality of education, competition is supposed to provide parents and students with a wider range of choices and to improve accountability by forcing schools to improve their programs. This competition has been fostered in several ways. For instance, all secondary schools and junior colleges have been publicly ranked on an annual basis since 1992, and the results have been published in local newspapers. The official justification is that parents and students must be provided with better information to make intelligent and informed choices. Secondary schools have been ranked on three main criteria. The first is a composite measure of students' overall results in the annual General Certificate of Education (Ordinary) Level examinations. The second measures schools' "value-addedness" by comparing students' examination performance with their examination scores upon entry to their respective schools. The third criterion is a weighted index that measures a school's performance in the National Physical Fitness Test and the percentage of overweight students in the school.

[1] Ministry of Trade & Industry (1986). *The Singapore Economy: New Directions.* Singapore: Report of the Economic Committee.

On the curricular front, three major initiatives have been launched since 1997 in a bid to foster greater creativity and innovation in students. Government statements make it clear that these initiatives are crucial to national efforts to remain economically competitive amid the transition to a knowledge economy. The first of these, *Thinking Schools, Learning Nation*, was launched by the prime minister in June 1997. It focuses on developing all students into active learners with critical thinking skills and on developing a creative and critical thinking culture within schools. Its key strategies include (1) the explicit teaching of critical and creative thinking skills; (2) the reduction of subject content; (3) the revision of assessment modes; and; (4) a greater emphasis on processes instead of on outcomes when appraising schools.[2]

The second initiative, the *Masterplan for Information Technology in Education*, was also launched in 1997. It is an ambitious attempt to incorporate information technology in teaching and learning in all schools. The government has been generous in its pledges of support both for physical infrastructure and for pre- and in-service training. Whole-school networking is to be installed in all schools: the target is one computer to be available for every two students and one notebook for every two teachers. This initiative specifies a target of up to 30 percent for the use of information technology in curriculum time for all subjects by the year 2002.[3]

The third and most recent major initiative focuses on university admission criteria. The Committee on University Admission System recommended in its 1999 report that the admission criteria move beyond considering only the results obtained in the General Certificate of Education (Advanced) Level examination. Instead, students' results in the Scholastic Assessment Test (I), their results in

[2] Ministry of Education (1997). *Towards Thinking Schools*. Singapore.
[3] Ministry of Education (1997). *Masterplan for IT in Education*. Singapore.

project work at school, and their participation in extracurricular activities will also be considered in regard to applicants at the Advanced Level. Applicants who have a polytechnic diploma will be assessed on their results in the Scholastic Assessment Test (I) and in their performance in extracurricular activities. The committee hoped that the revised criteria would promote "desired" qualities such as curiosity, creativity, enterprise, and teamwork. The revised criteria were also supposed to complement the *Thinking Schools, Learning Nation* strategies being implemented in primary and secondary schools.[4]

WHAT ARE THE PROSPECTS FOR GREATER CREATIVITY AND INNOVATION?

When one considers the various strategies and initiatives that have been employed by the Education Ministry in order to foster creativity and innovation, the sheer scale of these ambitious plans is striking. All schools, principals, teachers, and students have been included in these plans, and now that these plans have been put in place in schools, it might be worth considering the rationales and implications for the system of such sweeping reforms. For instance, to what extent will these ambitious strategies and initiatives result in a genuine flowering of creativity and innovation in schools and students? Are there any deep-seated dilemmas that need to be addressed?

Until now, the results of increased school autonomy have been mixed. The principals of independent schools have indeed enjoyed greater flexibility in decision making in such matters as curriculum and teacher recruitment; demand for places in these schools remains high. In some other respects, however, the degree of choice and diversity is still limited. The government maintains a great deal of influence over the secondary school curriculum. The imposition of national curricular requirements and the pressures imposed by common national examinations at the end of the 6th, 10th, and 12th years of schooling restrict the scope for curricular innovation. No independent school or autonomous school has moved from a subject-based curriculum. Moreover, the range of subjects offered in these schools is largely identical to that in nonindependent, nonautonomous schools. Independent schools seem to have stuck to offering enriched curricular experiences within a nationally mandated curriculum. As long as principals are held accountable for their schools' performance in national examinations, they cannot afford to stray too far from the mainstream curriculum.

The introduction of explicit measures to promote competition among schools has aroused a great deal of controversy and criticism, both from within and from outside the governing party. It is highly contestable whether fostering competition does improve the quality of education for all students and promote greater choice and diversity. First, competition among schools does not take place on a level playing field because the terms of competition are to a large extent dictated by the government. For instance, the number of independent schools and autonomous schools is determined by the government, and nonindependent schools enjoy less flexibility than independent schools do in determining their own enrolment figures or the number of teachers that they wish to employ.

In other words, nonprestigious, non-academically selective schools are simply unable to compete effectively with well-established, academically selective schools. The former group is caught in a vicious cycle: because they are unable to attract high academic achievers, their academic results fall far below those of the well-established schools. This means that they remain unable to attract high academic achievers. An analysis of the ranking results for secondary schools over the past eight years reveals that most of the top 30

[4] Committee on University Admission System (1999). *Preparing Graduates for a Knowledge Economy: A New University Admission System for Singapore.* Singapore: Ministry of Education.

secondary schools have remained in this category throughout the eight years. It is therefore questionable to what extent increased competition actually helps to improve standards in all schools.

The government has claimed that the independent schools and autonomous schools will serve as role models for other schools in improving educational standards. This begs the question of whether what proves effective in these well-established schools can in fact be transplanted to other schools. The government's reasoning also ignores the part played by a selective student intake in schools' academic success. It is therefore not clear to what extent the experience of independent schools and autonomous schools can be valid lessons for the bulk of Singapore's secondary schools, struggling with less-than-ideal student abilities and motivational levels.

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Another criticism is that competition leads some schools to focus narrowly on outcomes that are relevant for public ranking and that may be useful for attracting students and parents. This criticism is especially relevant in a society such as Singapore where performance in competitive examinations is still a major determinant of educational and social mobility. There has been press coverage of how several reputable secondary schools have decided to make the study of English literature optional rather than compulsory for their graduating students. This is because English literature is perceived to be a subject in which it is difficult to do well during national examinations. These schools have been wary of the potential consequences that students' performance in English literature might have on their positions in the annual ranking exercises. It is especially ironic, then, that these strategies were being employed even as the Minister for Information and the Arts at that time was extolling the virtues of the subject to students. Even physical education has not been exempt from the adverse effects of ranking exercises. Some schools have overemphasized preparation for the National Physical Fitness Test at the expense of the acquisition of skills in sports and games. The growing stress on school accountability and the use of narrowly defined, easily quantifiable performance indicators have clearly had a detrimental effect on some schools. Far from promoting choice and diversity, heightened interschool competition and rivalry may work against these goals.

Even though an external review team commissioned by the Education Ministry has heavily criticized the detrimental aspects of the practice of school-ranking exercises,[5] the Education Ministry has refused to consider scrapping them. Its response has been instead to broaden the range of indicators on which schools are to be assessed through the use of its "School Excellence Model." It remains to be seen if this model still results in some schools using more of the same covert strategies they have been using thus far—this time in a wider spectrum of school processes and activities—to increase their schools' performance in as many as possible of the aspects being assessed.

Amid this climate of continuing risk-averse behavior, what then are the prospects of wide-

[5] External Review Team (1997). *Learning, Creating, and Communicating: A Curriculum Review*. Singapore: Ministry of Education.

ranging and sustained change as far as the teaching of critical and creative thinking skills, the incorporation of information technology into teaching and learning, and the promotion of project work as a form of assessment? Government leaders are united in lamenting the apparent lack of creativity and thinking skills among students and members of the workforce. In a sense, it is ironic that the government is aggressively promoting wide-ranging changes in the schools even as it basks in Singapore's success in the Third International Mathematics and Science Study—a study that reportedly was "not made up of typical examination questions that our pupils are familiar with. [The test items] assessed them on creative problem-solving skills and their ability to respond to open-ended questions."[6] A cursory glance at the subject syllabuses published by the University of Cambridge Local Examinations Syndicate (the body that organizes the bulk of the secondary and preuniversity examinations for Singapore students) reveals careful attention to the cultivation of higher-order thinking and analytical skills. These include selection, organization, and interpretation of data, the recognition of patterns and deduction of relationships in data, critical reading, detecting logical fallacies in arguments, evaluating the reliability and accuracy of material, and applying knowledge to problems presented in a novel or unfamiliar manner. It would appear that teachers have become adept in drilling and coaching their students to answer these higher-order questions very skillfully.

Policymakers will need to realize that it is likely that new requirements, including the SAT (I), will be viewed by many teachers, parents, and students as yet more hurdles or hoops to be cleared by employing yet more of the same strategies that have worked, namely, intensive and repetitive coaching and practice. These concerns have in fact been raised in Parliament. The intense competition among schools will see to it that a number of principals and teachers try their best, employing educationally suspect means on occasion, to ensure maximum success for their students even after the revised curricula and assessment modes have been put in place.

A more fundamental issue is whether it will be possible to bring about changes in teachers' beliefs, values, and attitudes concerning such matters as epistemology, the roles of teachers, and the nature of teaching and learning. Such changes are crucial to the meaningful implementation of initiatives such as *Thinking Schools, Learning Nation*. The international research literature is replete with cautionary advice about the difficulty in bringing about sustained and fundamental changes.

The larger problem for Singapore's educational reform initiative is that Singapore's nation-building history resulted in an omnipresent state that cherishes stability and order. A desire for true innovation, creativity, experimentation, and multiple opportunities in education cannot be realized until the state allows civil society to flourish and avoids politicizing dissent. Singapore is a state that has accomplished a great deal in terms of economic development, often against seemingly overwhelming odds, over the past four decades. The reform of education to meet the perceived needs of the twenty-first century poses a new and major hurdle to be overcome.

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[6] Chiang C. F. (1999). "Education: New Directions." In G. L. Ooi & R. S. Rajan, (eds.) *Singapore: The Year in Review 1998*. Singapore: Times Academic Press. pp. 65-76.