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# **Remaking the Singapore Curriculum: trends, issues, prospects**

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## **Introduction**

Just as the unique nature of national education systems are determined by the interaction of political, socio-cultural and economic factors, the curriculum as an indispensable part of the schooling process is likewise determined. Issues like the medium of instruction, how the historical experience, especially the colonial period, if any, and the struggle for independence, are portrayed, portrayals of society, social and development issues, the emphasis on science, mathematics and technological subjects, links, especially in examination arrangements, in which ties to metropolitan institutions are often maintained, are all influenced profoundly by pressures at the national level. And yet, it is also true that in an increasingly interdependent, globalizing world, a world where convergence tendencies are accentuated by advances in communication and information technology, an extra-national dimension is also apparent. Scholars such as Meyer, Kamens & Benavot, (1992) have sought to demonstrate the convergence of national curricula, and the similarities in many national proposals for curricula reform suggest that both national and global forces in determining the shape of curricula ought to be considered.

How are the issues of school curriculum best studied and understood? There are many competing traditions ranging from the functional (Tyler, 1949), the descriptive-analytical (Marsh and Morris, 1991) to the critical (Apple, 1979); some studies offer insights from an instructional perspective, others locate curriculum analysis with analysis of the development of the educational system while yet others use a political-economy/sociological perspective to ask questions about the privileging of certain types of knowledge within the curriculum, access to certain types of curriculum for certain groups of students, etc.

The perspective used for the analysis of the curriculum scene in Singapore locates itself within a critical paradigm. The considerable reforms enacted over the past one and a half decades point both to a capacity to reform and to the very real problems that prompted the reform. By focusing on the structural problems I hope to show that even well managed systems of schooling cannot escape the dilemmas

and the contradictions that accompany curriculum development in modernizing societies.

### **Singapore: Curriculum's history**

At the end of the decolonization period in the late fifties, Singapore inherited a four language medium stream of education, of unequal development and significance, hostility towards prevailing language policies, a largely academic curriculum modeled on British grammar schools and an examination system that served as a gatekeeper to higher and more desired forms of education. The curriculum was intended by the colonial power to produce manpower for the civil service and the professions and was largely irrelevant to the twin challenges that Singapore faced, the challenges of promoting economic growth, and of promoting social cohesion. The latter required building up relations of trust and a Singapore-centric curriculum. These were provided for first, by the *1956 All Party Report on Chinese Education* which promised equality of treatment in terms of language policy and which was to lead to the bilingual education policy that so dominates schooling in Singapore, and indigenised history, social studies, civics and moral education syllabi. The other seminal document of the 50s is *Spring Source of Our Nation*, a document issued by the People's Action Party, Singapore's dominant governing party which argued for a school system that would promote economic growth and hence the need to emphasise mathematics and science, key subjects of modernization (Gopinathan, 1974).

In 1965 following Singapore's acrimonious separation from Malaysia and emergence as an independent state, the issues of economic growth (separation meant the loss of an essential economic hinterland) and social cohesion continued to dominate curriculum policy. The Ministry of Education was engaged continually in developing and refining curriculum while building schools to cater to a growing population and integrating difference language streams. Expanded access to English, desired as an economic tool and a link language aroused fears of a process of deculturalisation. Thus there were many efforts till the late seventies to use the vernacular languages as the medium of instruction for history in the primary schools and to use English for science and mathematics at all levels (Gopinathan, 1988). In retrospect, curriculum planners got the science and mathematics syllabi well developed and largely well taught but found the language and the affective curriculum problematic. From a political perspective the government has to tread carefully to avoid alienating the 'Chinese ground' as a consequence of its education policy; and it had to deliver on its promise of equality of treatment. From an instructional perspective the challenge of mastering English and Mandarin for ethnic Chinese pupils, who mostly came from dialect speaking homes, proved far

more difficult than planners had envisaged. This was in turn to lead to a review, and the resultant *Report on the Ministry of Education* (The Goh Report) introduced streaming (tracking) at primary and secondary levels and thus a shift from a common curriculum to a differentiated one. The effects of this academic tracking at both primary and secondary levels is compounded by ethnic segregation, as students inevitably learn their mother tongues in separate language classrooms. As the official rationale is that the mother tongues strengthen ethnic identity, these curricular policies also tend to emphasise differentiation. This curricular response to the need for strengthening ethnic identity was taken a step further in the eighties with the introduction of Special Assistance Plan (SAP) schools in which the student populations are overwhelmingly Chinese. These steps suggest that while some curriculum decisions are inevitably political, using curriculum policy to address political and social problems is itself likely to lead to other problems.

The above account of difficulties must be seen in the context of considerable achievement. Literacy levels (93 percent) are up as are biliteracy levels (56 percent). Singapore's additive model of bilingualism has given its Chinese population two economically and culturally significant languages in English and Chinese. Achievement levels in a wide range of subjects is impressively high for a significant majority of students. The percentage of young Singaporeans with university qualifications is 30 percent and rising; well over 50 percent have post secondary qualifications. Singapore students have also done well in international comparisons for literacy (IEA Study of Reading Literacy Achievement and Instruction in Thirty-two Systems) and for mathematics and science (Third International Mathematics and Science Study). The Minister of Education has said "we have a strong and robust education system, that has been a key source of competitive strength for Singapore" (2004).

Given the many accounts of slippage between the intended and the realized curriculum, the scaffolding that the system provides (including the notorious tuition system that is so prevalent in Singapore) is instrumental in contributing to the high levels of student achievement. In Singapore the high levels of realization of curriculum objectives is made possible by the alignment of teacher training, instructional strategies, assessment etc. An effective teacher training programme, the repertoire of well tried instructional strategies, an insistence on student effort and accountability for learning, a culture of frequent assessment and recognition and reward for academic success, among others, has made the Singapore curriculum a credible one. (Wong, Chiew, Gopinathan and D'Rozario, 1998). Indeed, Singapore's mathematics textbooks are used in some US school districts.

## **Remaking Singapore education**

It is fashionable these days in Singapore to speak of remaking Singapore. While the developmental state ideology is no longer so dominant, it is clear to planners and politicians that globalization and the new international economic system poses new challenges for Singapore, both in the economic and social spheres. Singapore has had to move decisively into a post-industrial phase in its development and while manufacturing remains important, it is high-end high value-added manufacturing. The knowledge-based economy requires a new type of worker-citizen, one capable of taking risks, working independently or in teams and one with good communication skills. It is these attributes, it is believed, that will lead to the innovation and invention necessary to drive the knowledge based economy. Singapore's well educated citizens are part of the global movement of talent and it is feared that attachment to Singapore may be loosened as a result. Policy makers now acknowledge that Singapore needs a freed up, flexible, post-industrial style education system and curriculum that allows for choices, and attention to processes rather than results.

Singapore has now witnessed about fifteen years of curricular reform, both structural and curricular. (Wong, 1991). Among the structural are the introduction of independent and autonomous schools, decentralization and the school cluster scheme, and adoption of a School Excellence Model as part of a thrust to turn schools into learning organizations. In 1997 the Prime Minister launched the 'Thinking Schools, Learning Nation' initiative, asking schools to use strategies that would foster creativity and initiative. (Tan, 2002; Sharpe & Gopinathan, 2002). Changes to curriculum content include content reduction, revisions to language syllabi, new social studies curricula, renewed emphasis on citizenship via National Education, and greater emphasis in the sciences via Life Sciences. Underpinning these changes is a major and expensive initiative launched in 1997 to provide schools with computers, software and teacher training to exploit the power of information and communication technology to aid learning. Following the acceptance of the recommendations of the JC-US Review Committee in 2004 more significant structural and curricular changes were introduced. Up to 10 percent of the top students in the PSLE are now able to follow an integrated programme that will allow them to skip the 'O' level examinations. Some junior colleges now have expanded to take in students at Year 9 while other secondary schools have linked up with junior colleges to offer the integrated programmes. Various models of integrated programmes exist and the Anglo Chinese School (Independent) will for the first time in Singapore's 'A' levels dominated system offer the International Baccalaureate. The government has also agreed to the establishment of a small

number of private schools; though many will prepare students for the 'O' levels greater curriculum diversity can be expected.

Singapore is now embarking on a further set of initiatives. As always the political elite sets out the rationale. Minister Shanmugaratnam has argued that the key to future educational success in Singapore "is respect [for] all talents and for all talents and to nurture diversity. We should value people with irregular strengths, not make them regular. It is the irregular and unusual talents and ideas that give most great cities their energy and vitality". "Respect for diversity not only made for economic strength but, in his words "diversity is also about the cultural channels we occupy...for the wave of rising Asian prosperity" requires Singaporean students to be culturally adept. The future requires students 'with minds that will keep inquiring, and a desire to use their energies to create a better society, ... encourage our children to question as they learn, and to experiment with new ways of doing things. The Minister said the Ministry would seek to encourage change in three broad areas, one, reduce the emphasis on examinations, two, give students more choice and three, support teachers with resources to bring about the desired pedagogic change (Shanmugaratnam, 2004).

Earlier in the year the MOE had established the Singapore Examinations and Assessment Board as a statutory board to enable it to have the freedom to innovate and create newer and alternative assessments, and to market Singapore-style examinations in the region and internationally. Further, the MOE will now give more secondary schools the freedom to select 10 to 20 percent of students on their own criteria, independent of the PSLE.

In the area of curriculum he promised further reductions of content and the opportunity for students in secondary schools to take a non-native mother tongue ie Chinese students can now offer Malay or Tamil. Other curricular changes were aimed at better aligning the Normal (Technical) curriculum with the Institute of Technical Education curriculum to provide a seamless pathway to post-secondary education, greater opportunities to take subjects currently offered in the Normal (Academic) stream. The Normal (Academic) students were to have opportunity to offer new subjects and for schools to develop examination syllabi in these new subjects with examination authorities.

The most significant announcement was that relating to resources for it is often the case in most reform initiatives that teachers are asked to do more, or to do things differently without additional resources. The Minister promised primary schools an additional 1,000 teachers and 1,400 teachers more at the secondary level; this expansion is to be done over a six years period. He also announced that all schools

would be allowed to recruit as adjunct teachers former trained teachers; schools would presumably be provided with funds to do this. The Ministry would also give primary schools funding of up to S\$100,000 a year to build strengths in such areas as character development, aesthetics and alternative teaching approaches.

### **Assessing the curriculum**

Singapore's experience with the school curriculum indicates that it is possible to have at one level an effective, well managed, well resourced school curriculum and yet the curriculum can be found wanting if non-functionalist criteria is applied. At a functional level the curriculum works; over the last three decades there has been no major upheaval in curriculum even though socio-economic change has been dramatic. The bilingual education policy, emphasis on science and mathematics, and the values education curriculum continue to be the main pillars of the curriculum. To be sure there have been frequent changes in the syllabus for the various subjects, a greater emphasis on processes, use of ICT, changes to assessment etc. but these have essentially been refinements rather than radical reconceptualisations of the curriculum.

Is the Singapore curriculum then to be regarded as an unalloyed success? If one sets aside examination scores and looks to deeper realities, then there is cause for concern. If we look first at instructional effectiveness, we have to accept that the cost in both the monetary and non-monetary sense is high. Singaporean families spend several hundred million Singapore dollars annually on private coaching at all levels of the school system. Singapore students spend more time out of school in school-related activities, especially academic, than children in other countries. Relatively large classes and a culture of frequent assessments favour a content dissemination pedagogy with students having to complete numerous worksheets weekly. The mother tongue syllabus appears to be demanding (in spite of numerous revisions to the syllabus) and it is not unusual to find otherwise high achieving students failing their mother tongue examinations.

In terms of the criteria of a well rounded curriculum experience for students, something clearly specified in the Ministry of Education's Desired Outcomes of Education statement, the curriculum is weighted in favour of languages, science and mathematics. The humanities, PE, service learning, values education, character development etc. are not missing from the curriculum but are widely perceived to be less important. For instance, concern has been expressed over the declining number of students choosing Literature as an examination subject at the 'O' levels. The Ministry agrees that "our schools spend less time on achieving other more

holistic outcomes, such as cultivating strengths of character, moral education and life skills” (2004 Work Plan Seminar).

At a broader level the system is also vulnerable to the criticism that even though it is meritocratic, it has not been able to significantly reduce the differences in achievement between the majority and minority ethnic groups. Tan (2002) has noted that in 1997 while 77.7 percent of Chinese students obtained a minimum of 5 ‘O’ level passes, the corresponding figures for Malays and Indians were 46.0 percent and 59.1 percent respectively. These figures mean that options for post-secondary education will be unequally distributed. Quite apart from the strains such persistent underachievement will impose on economic opportunity and on social and ethnic relations, Singapore can ill afford the wastage in human potential these figures represent; it is not that no post-secondary options are available as Singapore has excellent technical and polytechnic education but that many feel a sense of failure and do not pursue further education and training.

There has been an on-going debate on how to deal with issues of differences in student ability; broadly speaking, one camp argues for comprehensive schooling, for keeping students together for as long as possible while the other argues for tracking and differentiated curricula. Singapore’s policy makers are firmly in the latter camp and have claimed instructional effectiveness and reduction of attrition. (Soon, 1988). The last two decades have witnessed increased structural and curricular differentiation as a result of the tracking policy. Recent research points to serious unaddressed consequences of such a policy. Firstly, proportionally larger numbers of Malays and Indians are found in the Normal (Academic) and Normal (Technical) classes which make up about 40% of the secondary cohort. Secondly, since tracking begins early in the school system, the end of grade 4, tracking tends to lead to a lowering of expectations for further education and training and a resigned acceptance that they are of low ability. Thirdly, even though the system allows for lateral movement from one stream to another, in practice, curricular differentiation and teaching makes it very difficult for ‘N’ level students to successfully complete the ‘O’ levels in their fifth year (Kang, 2004).

Other aspects of structural reform do not seem to have produced the intended results. The “independent” schools were created in the late eighties in the belief that flexibility and school autonomy would result in enriched curricular experiences for students, and that the development of new and innovative curricular strategies developed by these schools would flow down the system. The results are decidedly mixed, principally because the imposition of national curricular requirements and the pressures imposed by the GCE ‘O’ and ‘A’ level examinations restrict the scope for curricular innovation. The range of subjects offered remains the same. Because



the independent schools are the elite schools in the system both in terms of quality of student intake and resourcing, their creation has not sparked instructional innovation elsewhere in the system. (Tan and Gopinathan, 2000).

In the final analysis the prospects for real change in the environments children learn in, and how well they learn, which is after all the best measure of successful educational, and especially curricular reform, must depend on the ability of teachers to change. Will the pedagogic culture change sufficiently to enable pupils to discover a love for learning, increase their motivation and be more innovative and enterprising while maintaining high academic achievement? It is perhaps not sufficiently well realised that real change will not occur without a transformation in teacher beliefs leading to changes in teacher behaviour aided by the provision of resources (Deng and Gopinathan, 1999). Forty years of successful educational development has left Singapore with a standardised content-heavy curriculum reinforced by frequent assessment and high stakes examinations. Drill and coaching is the dominant response and that is going to be devilishly hard to change. Teachers have to unlearn many deeply held beliefs and assumptions, question their status as experts and engage with students who are no longer docile. If they do not, teacher behaviour will tend to range from unwilling compliance, sabotage, adoption of some minor change rather than a full embrace of the newer pedagogic possibilities. And resources are important, too. Singapore schools are extraordinarily well resourced especially in technology. However, teachers seem to lack time and class sizes are large. Teachers have multiple responsibilities which leave them with too little time to learn collegially how to teach differently, to build and share appropriate instructional resources and to engage in activities that would develop and sustain a school culture of innovation. If class sizes continue to be large what is likely to happen is that innovative practices like project work will be stripped to their essentials and become standardised and routinised. Thus, we will have project work in schools but it will not deliver on its intended outcomes.

The newer initiatives announced by the Ministry will help to address some of these concerns. The provision of additional manpower, additional cash to try out innovative pedagogy in primary schools, a call to reduce schools' emphasis on continual and semestral examinations, and the encouragement to document students' work through portfolios to capture the quality and range of students learning experiences and students all round development, the encouragement given to secondary schools to develop new subjects which can be offered at the 'O' levels are all welcome measures and should free up schools and encourage curriculum and pedagogic diversity.

It would be naive to believe that policy change will automatically bring about pedagogic change. There is undeniably ground up curricular and pedagogic change and a welcome diversity is emerging. But more bold steps to weaken the hold of the high stakes examinations like the PSLE and ‘O’ and ‘A’ levels is necessary for alternative pedagogies to flourish. Far too many teachers believe they will be judged by examination results alone, notwithstanding policy rhetoric to the contrary. How to use examinations to promote and reward deep learning while not being a straight jacket is an important policy challenge.

The new initiatives also lay down challenges to teachers and schools. They are to be more than implementers of Ministry directives but [teachers] are to use the time, space and support “to improve the quality of interaction with their students”. Schools are challenged to expand their knowledge base and “encourage a culture of sharing between school leaders and teachers”. The challenge then is how “desired changes can be effected on the ground, in transforming the day-to-day interactions in and out of our schools”.

The challenge that this represents should not be underestimated. Though schools have been freed up since 1987 and even greater autonomy is promised it does not follow that all principals will know how to use the additional resources well; most schools have unspent funds and though schools are organised in clusters there is not yet much sharing of best practice. The call to innovate could end up in schools choosing to be different rather than follow up on a promising innovation elsewhere.

Substantial changes in teacher pedagogy will be real test of the success of these bold initiatives. At one level it implies the need to rethink prevalent assumptions in teacher training and professional development – teach less, learn more may be a good maxim to begin with. How to provide relevant new knowledge and skills while at the same time preparing teachers for their new roles will be a major challenge. Too much of a teacher’s week is spent moving from one class to another, fretting about test setting and the marking to be done, on meetings, on workshops, dealing with parents rehearsals, planning for remedial or enrichment classes. How schools will use the additional resources to reduce the pressure of work intensification will be a major factor in the success of the initiatives.

Singapore’s experience with curriculum development and renewal demonstrates that, in instructional terms, it is possible to develop effective curricula and raise achievement levels across the board. It also demonstrates the paradox that in using the curriculum to achieve socio-political ends the system is less successful. Requiring all students to be bilingual by the end of ten years of schooling, an admirable objective in a multilingual society, has made school a frustrating

experience for many. Languages, science and mathematics, deemed vital for economic modernization, have pushed humanities and aesthetics to the periphery. Catering to differing abilities via streaming has led to a labeling culture, positive for high achievers but leading to declining self-concept among others. And ethnic underachievement persists. Singapore's experience demonstrates the limited power curriculum (and schooling) has to overcome deep-rooted societal inequalities.

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