THE CLASSROOM RISKS OF MORE OPEN EDUCATION
 - IN AUSTRALIA, INDONESIA AND SINGAPORE

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Introduction
It is recognised that the functions of schooling, for
individuals, interest groups and societies, are many, varied and,
in parts, conflicting. This study was not intended to involve
considering all, or even many, of these but only a few. One is
the alleged need to educate people to be more active, creative,
problem-solving, innovative and thoughtfully flexible and the
other is the instrumental value put on schooling for the
competitive advancement of individuals and of a society. The
focus is on why teachers do not provide more openness in their
classrooms even when this is generally considered to be
educationally worthwhile. For example, are there considered to be
more risks than benefits?
My intention was to consider what factors might be influencing
how open or closed were classroom practices. This could provide
some illumination about what classroom risks there could be in
more openness.

'Open Education'
An early problem was to clarify what was to be meant by
'openness' in relation to education. An obvious place to look was
in more general definitions of 'Open Education'. Various
definitions used of this have been criticised by several
dictionary compilers as too vague, shifting and emotive to be
satisfactory, and in some writings the concept is run together
with' Open Plan' or 'Open Space Schools' (where more Open
Education was intended to take place). Nevertheless a couple of
attempts at satisfactorily clear definitions have been given by
Dejnozka and Kapel (1982) and by Barrow and Milburn (1986). The
former asserted that features of Open Education include: "small
group (frequently individualized) instruction, flexible

scheduling, an abundance of learning materials, numerous learning activities taking place simultaneously in open space classrooms, considerable self-directed learning, experimentation and an open relationship between teacher and learner. Students are encouraged to learn at their own pace and do so in a non-threatening environment." The latter writers claim, inter alia, that in Open Education "education is to be personalized, student choice maximised, evaluation individualized, curriculum non-graded, reinforcement positive, and the environment flexible." In both of these definitions there are several separable components, in which considerable amount of student choice about their learning is a common, definitive feature.

Method (Part 1)
The intention of the study was to look at the issue of student choice in classrooms as one element of openness. Students' questioning of the teacher was used as an index of the amount of choice. (It is not claimed that this is the only or the complete measure of openness but was considered to be a significant indicator.)

The material used for analysis has been collected over several years, from 1990 to 1993, in Australia, Singapore and Indonesia.

The initial collection and analyses were in an Australian school in 1990, as part of an intended study on the processes of authority in schooling - in particular the negotiation of authority between students and teachers in matters of curricular knowledge and of behaviour. The upper secondary grades were chosen as it was predicted that differences would be found related to whether subjects were to be more publicly assessed or school assessed. Some limitation in subject area was made as it was expected that there could be too much variety involved to be able to make any usable comparisons if all subject areas were included - with the area of Science being chosen as likely to

provide enough variety and because of its central place in claims about the need for knowledge, innovation and creativity in Australia's technological and economic development.
All the lessons were observed and recorded both on videotape by a camera on a tripod 'at the back' and on audiotape by a lapel mike worn by the teacher. They involved Biology, Physics, Applied Physics, and Computing - including classes studying publicly assessed and school assessed subjects with usually two, often double, lessons of each class observed. Several of the lessons were wholly or included sections during which students were involved in group activities, using equipment and/or books. Others, the Computing lessons involved students working individually or together at set programming tasks with one

computer per student. In one or two others although the teaching was whole class, the teacher 'at the front' was using equipment or other concrete ways to demonstrate various principles.

A particular focus was to be on the use of questioning by students of their teachers (including any challenging of the authority of the teacher).

Findings (Part 1)
However, it was found that there were very few questions asked of the teachers by students: 12 in a double publicly examined Biology lesson; 9 in another; 12 in a school assessed Biology lesson; 13 in another; 8 in a school assessed Applied Physics; 12 in another; 28 in a double Physics lesson; 12 in a single one; 40 in a Computing lesson; 17 in another; 15 in a double Computing one; 22 in another. (The Computing questions in particular included several statements of problems which apparently were intended and were responded to as 'What do I have to do now?' questions.)

Moreover, when the content of the questions were analysed it was found that most were in one of two classes:
SYMBOL 183 \f "Symbol" \s 12 \h   Procedural: teacher-set-task-oriented requests for clarification or permission to do something or about what was required or about the teacher's assignment-setting and marking or other administrative activities ('Can I marked our ...?', 'When will...?');
SYMBOL 183 \f "Symbol" \s 12 \h   Self-Educational: simple or more complex uses of the teacher as a walking encyclopedia (simple: 'What's this?', 'What's this called?', 'What's gone wrong?', 'What do I have to do now?' [both standard computing questions], 'Why do I have to put in a semi-colon there?', 'What does ...[words or abbreviations on the board] mean?'; and more complex: 'Where do the electrons go?', 'If ... would that effect it?'., 'If ... why haven't they done it yet?', If you've got two of these ... and .. what would happen?', '... when babies are in the womb do they actually sneeze or cry?', 'Why is it going upwards?', 'Why is it upside down?', 'Why don't they go through

It was noticeable that a significant proportion of the more complex questions were asked of the teacher semi-privately, as he or she was walking round a class which was working in groups or at the end of a lesson as people were leaving. Also, if they were asked during the lesson the teacher would be likely to commend and repeat them publicly then answer them to the class.
But there were few of these examples of students asking for information to answer questions they had thought of which went beyond what information and ideas had already been presented by the teacher or were not directly concerned with carrying out the tasks already set by the teacher.

It was noticed that almost all questions to all the teachers were
given considered, full and apparently respectful answers.

The existence of a pre-existing subject curriculum framing what
they were doing was continually reinforced by urgency in getting
through material ('Any questions? Quick John', 'Last question -
Andrew?', 'Hurry up and finish, there's only a few minutes to
go'), reminders of assignments due in or a stage in projects
that 'you must be up to' by an imminent date or, in one case,
reference to what a teacher (and, by inference, the students)
will be doing in the next year being the same as what the present
year above are doing now. Near or at the end of several lessons
were statements or reminders of required further work ('read
chapter 5', 'write up your notes', 'go through your results',
'finish the exercises') forming part of ongoing schooling
activity comprising the subject.

In contrast with the students, the teachers asked at least dozens
of questions each lesson and were clearly expected to already
know what the students were being lead through, be able to
provide any information to students about what the students were
being required to do and to learn, and be able to assess any
opinion relevant to the subject that students might want and/or
try to express.

A search for cases of challenges to teachers about information or
opinions or about direction or content of lessons found only a
couple of insignificant examples. In contrast teachers frequently
(in some lessons continually) challenged students' opinions,
responses or lack of them.

Towards the next stage
For a while nothing further was done with this material as time
and effort was being put into finding out more about the changing
use of technology education in schools, in particular its use in
providing for schooling to be more open.

 Implicitly or explicitly there were and are claims made through
advocacy of more and new versions of technology education for
radical changes in the structures, processes and content of
schooling. These claims are made about national schooling for
the general population in Australia, but also made in other
nations, such as Singapore, which are trying to change and
mobilise their economies and hence their education systems to
compete in international markets based on the production and use
of 'higher technology' in goods and services. This newer
definition of technology education subsumes a greater role for
problem-solving, more student learning in active ways, more

negotiated assignments, more group and individual work, more
genuine experimentation - all foundation components of more open
education.

Underneath the excitement and hype about new technologies,
equipment, demonstration projects and potentials there were
clearly important issues of innovation, equity and authority.

Method (Part 2)
Therefore, as a basis for gaining more understanding of what
would be involved in this, material was gathered, largely 'in-
country', about the practice of schooling in two of Australia's
neighbours, Singapore (population about 3 million) and Indonesia
(approaching 180 million), and more added to what was already in
hand from Australia (approaching 18 million).
Given the variety in the economic, geographical, demographic,
cultural and political characters of the three nations it was
felt that useful illuminations could be made from such a
comparative approach.

It is important to recognise that the materials from each country

were not in exactly matching form or nature. This is partly
because of differences in the opportunities available to collect
them and partly because of differences in the natures of the
organisation of schooling, politics and culture in the three
societies.
(Most of the oral opinions expressed and noted were part of more
wide-ranging discussions and observations, but in some cases
there was more specialisation and more systematically, and thus
consciously artefactually, structured information obtained from
individuals. Similarly it should be remembered that all
selections from written materials were taken from a context of
material written by a variety of authors with a variety of
intentions for a variety of expected audiences.)

[Note: This methodology of research raises several important
epistemological isses which will be brought up in the
presentation - together with the potential influences of a
computer-based qualitative analysis program like NUDIST in
assisting it.]

As before there was a limit set around curriculum subject areas,
initially Science but extended to Technology and, some,
Mathematics as these areas appear to be being moved to be closer
or overlapping as more active, applied, problem-solving and, in
general, constructivist and instrumentalist ideologies about
learning and about individual and societal needs gain priority in
educational debate.

All this gathered material (notes on visits, detailed classroom observations, interviews, notes and excerpts from reports, articles, curricula, ...) was word-processed. After reading and re-reading them these files were then analysed by use of the text search facility of NUDIST to find and display occurrences and contexts of chosen strings (words or part words). These were then indexed and put into designated 'nodes'. Given the variety in natures of the materials it was not considered justifiable to carry out more advanced indexing procedures.
The entire material was re-read to check whether any other obviously relevant references had been missed and, from this, a handful of other cases were noted.

Findings (Part 2)
In Indonesian schools, from observations and reports, the standard teaching/learning approach in science and maths was for exercises on pre-taught material (either new or previous homework) to be written up on the board, often by students, in front of the whole class and the teacher would then approve or correct these. New material would be expounded by the teacher based on a text, sometimes using only a board but quite often using demonstrations including some use of multiple or shared materials handled by students. What was demonstrated and what was intended to be done with materials by students was teacher-decided and directed. Most teaching was whole class (although some informal group learning was noticeable, and some home work was reportedly done in groups).

There was very widespread use of teacher-exposition with missing words and students, calling out and 'filling in the spaces' (sometimes by named individuals but more usually generally, usually, if enough were answering, in chorus). While the teacher is in direct exposition mode the classes are often lively with most students engaged whereas during the writing up mode many of the students quickly drop into a monitoring mode with other attention being quietly directed elsewhere (or apparently nowhere). The writing up mode is often a significant fraction of or even a whole lesson.

One of its effects is to indicate that there is correct and incorrect information, that there are correct and incorrect answers and the teacher knows which is which and will point this out and, if necessary, explain it. Incorrect examples written up by students will be corrected by the teacher (directly or by use of a delegated subsequent student) while correct ones will be legitimated as such by the teacher publicly going through them and pronouncing them so.

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This public, whole class activity was not found in the Australian
sample (and, from other recent observations across primary and
secondary schools does not appear to be widespread here).
However, the noticing of this apparent legitimating or
authorising role of the teacher sent me back to the earlier
Australian material.
It was found that this teacher activity was being systematically
used in relation to students' answering in those classrooms too -
but also was used in relation to some of the students' questions
as well. In general, teachers would repeat students' questions
(sometimes with some slight modification, as with the students'
answers) thereby apparently coopting them as legitimate parts of
the authorised progress of learning if they were considered to
have more than individual relevance. It was interesting to go
over the transcripts and notice how often a teacher would repeat
a student's question before answering it.

A few published studies in Indonesia have indicated that,
according to teachers describing their own practice, there have
been some changes in the use of more active student methods but
observations in some upper secondary schools suggest that it was
being little used there .

Testing is continual, compulsory and in sundry standardised
forms, with end of semester ones set by the Regional and final
ones by the national Department of Education and Culture. (All
private schools also have to use the Departmental test system
except for some private schools which have been accredited as
being allowed to use their own tests instead in some cases.) A
very large amount of test results will have been accumulated by
the Department of Education and Culture, regionally and
centrally, but it is not clear what, if anything is done with
this data.
Student question-asking
In terms of question-asking by students of teachers one
difference between the Australian and the Indonesian classrooms
was that there were very few Self-Educational questions asked in
the former and almost none in the latter.

However, this absence of questions was not only of the Self-
Education varieties but almost of any questions from students at
all. It should be noted that this was not because of any obvious
teacher suppression of student questioning. In many of the
lessons observed teachers would quite often ask if there were any
questions or any problems, pausing and looking round in search of
any. It appeared that teachers were actively trying to get
questions from their students. (In subsequent discussions several
asserted that it is difficult to get students to ask questions.)

Again and again observation notes include such as: 'No questions asked by students'; 'Very lively from teacher - and children respond well (but unevenly, some do, some sit and watch) but no question asked by children, no extended answers, no comments from them'; Lively teacher and students involved but no questions or extended answers or comments by students - 'fill in the spaces''; 'No questions asked or comments made by children. Teacher is only

authority'; 'No questions from students'; 'No questions from students, no requests for help'; 'Teacher talks most of the time... largely expounds and ask questions, if student answers likely to ask further, clarification questions'. Out of the 12 schools and 30 lessons observed there were questions asked of the teacher in only two classes, both in a relatively expensive private school, with one student in a senior class asking a couple of questions (straightforward 'What? ones) and trying to ask several more, and two in another asking one each - one being a 'Why?' question about the topic, Magnetism. The former student was described as being exceptional, 'there's noone else like him', by the teacher. All were boys sitting at or near the back.

The only direct Singapore observation was of a primary science lesson that had been arranged as a demonstration lesson in one of the 'show schools' and was being watched by several visitors including a senior Ministry administrator, so its typicality could be doubted. During this active whole class lesson the teacher continually asked questions of students for information, and to stimulate, encourage and expand the public expression of student ideas as an essential element in the progress of the planned lesson. Students did not ask questions.

A recent review of Science Education in Singapore included in its conclusions that: 'there is a problem with low level learning recall for presenting information, is a cause for concern for all those concerned with outcomes in the educational enterprise. Teachers continue to fuel this practice in the course of obtaining exam performance results ... ; there is a problem of discrepancy between the implemented and the intended curriculum. Only low order skills are being practiced during lab sessions. This is a discrepancy between the implemented curriculum and that intended by the curriculum developers. There is a need for teachers to allow their students to confront problems requiring both hypothesising, planning and designing of hypothesis-testing experiments as intended by the curriculum developers. This discrepancy is an indication that it is not just the curriculum development aspect that is important but rather the implementation aspect that is crucial'.

Why should teachers make the effort?

A necessary but not sufficient element in more open education is that students should be more active in their learning, in the ways that they solve problems, search for and internalise or construct their 'knowledge'.

It seems accepted that teaching in more active ways with more active students is more difficult and requires more effort - except if enough students would otherwise not accept passivity and note-taking and cause trouble that would require more effort and stress to subdue. There were no signs or reports that Indonesian classrooms in general were approaching this latter stage (except perhaps in some areas of some of the big cities, which were commonly claimed, from elsewhere, to be becoming worse than anywhere else). In fact several lessons were observed in which the level of inactivity would probably not have been acceptable in, at least, many Australian classrooms.

There were no reports of any widespread occurrence of such a situation in Singapore schools, where 'discipline' is not generally remarked on as a 'problem'.

However, several claims were made about a need to keep Australian students active and involved. So, in at least some Australian classrooms there would be risks in not using a more active approach (although this does not necessarily require other components of openness, such as more student initiation, direction and pace setting).

Incentives?
One of the questions that need answering is: If it is more effort to run an active classroom, why should teachers do it? Leaving aside for the moment intrinsically motivating beliefs about what is 'better education', there could be extrinsic motivations, incentives provided by the system which would encourage active learning methods and not (or discourage) passive, transmissive, ones.

However, in Indonesia, there was universal denial, among teachers, student teachers, university teacher educators and overseas advisors, whether 'on site' in classrooms or staffrooms or 'off-site' in other settings, that the way a teacher teaches has a positive influence on his or her salary or promotion. State school teachers, as civil servants, are paid according to the normal civil service salary scales with grade, thus salary, dependent on qualification and years of service . There are now some changes reported 'from the top' as going to be introduced to the promotion system (to replace what many 'lower down' claim to be criteria of personal connection, of 'who you know', and to provide more credit points for (eg.) more open, creative teaching) and some more training courses linked to these but this had not yet apparently trickled down into the prevailing culture

of schools.

Private school teachers' incomes vary from similar to State ones
(with perhaps even some bonuses or extra assistances in
reportedly relatively few cases), to being much lower, including
many being paid on an honorarium or a lessons-taught basis.

The situation is much improved in the nearly 30 years since the
later years of the Sukarno period when teachers' salaries covered
only a fraction of living expenses each month but still a large
(and officially unknown) proportion of school teachers have at
least two jobs, often teaching at a State school in one session
and a private one in another (there being a morning and afternoon
session in many areas and the normal school day being from 7 to
midday in any case). It was found to be widely accepted that
teachers need to do this to live at all decently. The extra time
needed to prepare and assess that more active methods require
would therefore compete with potential income-earning activities.

In neither Singapore nor Australia is it accepted that full-time
teachers need to be working at more than one job to be able to
'make ends meet' or even to be able to afford to have an
appropriate family lifestyle.

Teachers' educational level?
The more generally educated teachers are, the more likely it
could be that they would be and feel competent at being able to
follow and support student-initiated open enquiries.
Primary teachers in Australia have now mostly had at least three
years or equivalent of teacher education after completing high
school. However, in Singapore this became the case in the early
'80s, and in Indonesia, where primary teacher training was
changed from being three years on top of primary schooling to
being on top of primary plus junior secondary by the '60s
(leaving 'hundreds of thousands' of teachers in schools with the
former training), the closing of the upper secondary equivalent
teacher training schools and moving all primary teacher education
into universities or similar post-complete secondary schooling
institutions was done in the early '90s. A senior Departmental
administrator pointed out that most primary school teachers have
had only 3 years post-junior secondary education so there will be
a big inservice task (but 'resources are limited and so only
30,000 a year can be catered for').

The secondary teacher situation is rather more complicated in all
countries, including differences between teachers teaching the
more traditionally 'academic' and other subject areas, in the
levels of university and other pre-teacher education they have
had, in the pre-requisites at different times in the past, in

whether teacher education was concurrent or consecutive, in their occupational biographies before starting in teaching, (etc). Hence it is not possible to make clear comparisons without far more investigation.
Also, there have been differences between the political histories of the countries which are likely to have influenced who has remained or entered teaching - but there is not adequate evidence at hand to justify any assertions about these.

'Quality' of intake to teaching?
A possible influence on capability to use a more open, or even just a more questioning, approach could be the general relative 'academic quality' of teachers relative to other professionals. Salaries and other conditions or employment (and post-employment) have market relevance largely by comparison with other competing employment opportunities.
In Indonesia teachers' incomes etc, though relatively low by Australian or Singapore standards, are far better than the majority of the population. There would have been few comparable opportunities for most of the teachers when they were considering entering the profession. However, in current career choice terms the more relevant comparison is with the more recent occupational opportunities opening up in business, particularly businesses linked with overseas interests (including in tourism). Qualifications in business, economics, some technologies and, especially, English provide potential access to jobs that are more rewarding and more urban than, for many, is teaching. There are some reports of a dropping in applications for teacher education courses in favour of these other areas, especially for those who have the family background and income to be able to choose more comfortably.
This is a product of the development of the Indonesian economy providing more opportunities for many of the 'better students' who would previously have gone into the schooling system as teachers.

Similarly, in Singapore, it was claimed in 1990 that there is a 'problem of attracting quality students to the Institute of Education, especially in the face of strong competition from other sectors. The Ministry of Education has been making a great effort to attract school leavers and university graduates to the teaching profession, by such means as having prime time television commercials and conducting career talks. But as long as the salary structure and promotion prospects for teachers are seen to be relatively less attractive than those of other services, these efforts are unlikely to exert a strong impact on the choice of teaching as a career. The apparent lowering of prestige of teacher education in Singapore in terms of a hierarchy of training institutions may be another factor. ... the tendency has been to regard [the Institute of Education] as

another TTC, ie, a branch of the Ministry of Education. However, more recent developments to upgrade teacher education to a tertiary level have been partly aimed at rectifying this anomaly. school teachers (However, a contrasting account at least in relation to some graduates and secondary teaching, was given by a senior Design teacher who claimed that 'Teachers, since the review in the early '80s, do get good conditions. There are good prospects as teachers for engineers - if come in and do well will progress very fast. Many teachers are now senior and there'll be promotion opportunities when they retire.')

An Australian equivalent is indicated in the Speedy Report's claim that 'The problem is exacerbated by evidence of a decline in quality of students entering concurrent courses in maths and science. ... The Panel draws attention in the Report to the persistent criticism of schools and teachers as mostly misinformed and clearly counterproductive in terms of attracting well qualified people into the profession. This is compounded by the relative unattractiveness of salary, school working conditions and career opportunities. The Panel makes recommendation on matters related to attracting well qualified people to the teaching profession as such and into maths and science in particular' .

Teacher education?
A possible, intended, influence on teachers in what they are confident about or consider too risky is their teacher education. There were several claims in Indonesia that teachers, when learning to be teachers (especially if in institutions, courses or subjects other than that of the speaker), would have not experienced much if any open methods themselves. A sweeping and now somewhat dated assertion was that 'Instruction is invariably conducted with the traditional teacher-centred method and students are rarely requested to read any material outside of the lecture notes prepared and sold by their instructor' and there have been changes in many places since then. Nevertheless there was a scattering of opinions that teacher education did not provide much direct experience of other than closed methodologies and with little expectations of reading. These included opinions from student teachers, staff in three faculties or institutes of teacher training and teachers. 'Teachers aren't prepared for CBSA, problem solving, ... programs in faculty are not preparing student teachers to use this approach.' (Lecturer in such a faculty). However, there are now exceptions, particularly in urging and claiming that this is being brought into courses. In general, there appears to be much student activity-based methodology and practice included in Australian teacher education courses. No material was gathered on the situation in Singapore.

Inservice?
One way of providing support for a change to a more open approach
could be through the provision of inservice education for
teachers.
In all three countries the need for more inservice to be provided
for teachers if new methods are to be expected was mentioned as
an absolute need. However, what is considered to be 'enough' (or,
the more meaningful, 'not enough') seems to be very much a
relative and slippery construct.

There is not a strong inservice system set up in Indonesia. The
Department of Education and Culture provides a centre in each
area for teachers to go to (eg) at weekends but, by report, only
to talk among themselves as tutors or materials are not provided.
The Open University was broadcasting and sending out some written
course material with some enthusiasm at its base in Jakarta but
this was reportedly not being widely received or made use of in
the wider field. There was also a report of an irregular program
on the radio for teachers which might be broadcast for some weeks
and then stop, and was in the morning during school time.
There are several teacher upgrading centres to which teachers can
apply for residential courses. It was claimed (by a university
staff member involved in science education, including inservice
extension activities) that 'teachers don't read inservice and
similar material, for example they send out copies of science
education material to schools but they don't get beyond the
principal's desk, or a cupboard - not read - there's no
incentive'.

In conversation two teachers claimed there is no significant
inservice development provided through the state-controlled
teachers union (only 'political', influences teachers who to vote
for as in coming elections, not involved in teacher development)
nor the Department.
There is considered to be a need to provide incentives for
teachers to involve themselves in inservice activities.
There is not a strong research and publication culture in
universities nor, in general, in unpaid extension, including in
Education in universities, so not much provision of support for
innovation and rewards for teachers, principals or administrators
are based on that system. (There is also some resistance among
university staff to go out of central areas eg. Java to teach or
work for short periods in the more remote areas, although the
amounts made available in some overseas aid schemes does help in
this.)

 In contrast, Singapore has rapidly moved into this 'academic
world' and thereby continued connecting between the development

and advancement system of the Ministry of Education and the now-National Institute of Education with its pre-service, in-service and post-graduate courses and research in its new role as part of the Nanyang Technological University. (The size and transport efficiency of Singapore provides for in-service monitoring and courses very easily and inexpensively.)

Inservice in Singapore is provided essentially when and how the MOE (Ministry of Education) decides it is necessary, through combinations of the MOE, the National Institute of Education and the governmental Curriculum Development Institute of Singapore. There are continual small scale activities provided and facilities provided at the CDIS as well as the major inservice activities. An example of these major formally organised activities is that prepared for the planned change from the previous Technical Studies to the new Design and Technology course (based on an English model, involving problem-solving, designing, constructing and appraising). Another example is the introduction of the new Primary Science strand (which, according to the information published for teachers about the 'Implementation of the Syllabus for the 1990s' is intended to include 'large and small group discussions, experiments, investigations, demonstrations, games/simulations, field work/field trips, project work, independent study, science camps, science fairs, learning centres'. It was to be introduced in grade 3 in 1992 and successive grades in subsequent years 'with teachers teaching science in this level to attend inservice training' in the year before each step.

Teacher inservice in Australia is very mixed, with a reported decline in what is provided directly by Departments and more reliance on, sometimes subsidised, activities by subject and other professional associations. In general involvement in inservice activities is voluntary although the institution of a specified minimum of 'student-free days' for whole staff activities, sometimes on set topics and with Departmental or similar input of personnel and/or materials, is an exception to this.

Compared to Singapore there are somewhat similar but more elusive and fragmentary relations between Australian teacher in-service and university Education systems. In terms of formal courses, however, in 1989 an official review asserted that 'overall current provision [of post-initial teacher education] is scattered and inadequate. ... This is only partly due to resource problems in higher education. There are, at the moment, few incentives or rewards to encourage classroom teachers to further their education in subject areas, hence the demand for courses is

relatively small'.

More generally, many teachers and others in Australia claim that
there is nothing like enough 'inservice' and/or 'professional
development' provided, although a wide range is provided, some in
and much out of school hours. For example, in the specific case
of primary science and technology education: 'Teachers felt the
most important 'problems to be overcome, in order, were 1)
teachers' lack of confidence, 2) inadequate support structures,
including specialist teachers or consultants, inservice
professional development and release time, 3) teachers' lack of
sufficient background knowledge, and 4) poor access to
information about teaching strategies and resource materials.'

Cultural influences?
An obvious potential influence would be the interpretation of
questioning in general and specific relationships in the
contextual culture of the schools as well as in those comprising
them. There are also many other elements of culture that could
be involved.
It has been claimed that, in Indonesia, "Physics is an unpopular
and poorly taught subject in schools. The reasons for this are
largely cultural. 'Form' is considered more important than
'content'. Even educated parents pass on non-rational ways of
thinking rather than an ever-questioning modern rationality. Non-
empirical mathematics presents far fewer problems than the
empirical sciences physics and chemistry. So physics is often
taught as 'maths with pictures'. Failure to appreciate the
independence and rationality of material world becomes clear from
the underuse of expensive laboratories all over the country.'
There were other authoritative comments on a need to press
teachers to use the equipment that had been provided.
Some simple claims about the culture of the Javanese, the largest
and politically dominant ethnicity in Indonesia was given in
booklet intended to help acclimatise overseas university staff ,
including 'The Javanese tend to put community before individual.
They are basically conformist at heart, and those who stand out
are frequently the object of talk, teasing and social pressure.
guard their personal relationships with others, avoid conflicts
at all costs, refrain from startling and offending others, and
use indirect means to get their point across'.
Other claims made included: Students don't ask questions because
they get this 'from their parents, hit if children ask. This is
from history, 300 years of Dutch domination - from above
producing a culture of authority/acceptance/not asking questions
being gradually pushed down' (University staff member);
Questioning, students looking for their own answers is 'difficult
in our culture - if ask people in authority - rude - just not
done. Same with teachers coming here to upgrade' (staff member of
teacher upgrading centre); 'Some teachers (for example on a
recent trip to the Moluccas) when asked about why not

question/more open, say they feel inadequate, with some students
knowing more than them, having materials at home (richer than
teachers) and so know more so don't want to appear ignorant in
front of students - so don't allow questions' (academic involved
in inservice work); 'The course is 4-5 years - in the first 3-4
years obedient, learn, don't ask questions, won't, group pressure
to not - perhaps have a group meeting and decide to ask a
question! - compared the US, Australia, more individualistic -
but then in their individual Final Project some marvellous,
innovative work, it's the first like this in this in their 16
years of schooling - a flowering?' (expatriate university staff
member); Lack of students questioning 'is a problem, not in our
culture (especially in Java), don't question, especially those in
authority - would be improper, others would think it rude. Trying
to change that in new curriculum [from 1994]. ... Will be

problems with new emphasis on more open approach, will be a shock
to many teachers!' (Senior Departmental administrator); (Not just
in the Government, also in some of the churches, very
conservative.) 'If say young people should ask more questions -
the old men wouldn't like that, so suggest that the young should
search for the answers!' (senior administrator).
It was claimed at the beginning of the '80s that, 'A number of
empirical studies also observe that the schools teach
intellectual conformity. They find that teachers think their job
is to stamp the curriculum into a sea of inert brains. ...
Students are rarely given the opportunity to ask questions, to
present their opinions before the class, to discuss issues with
classmates, or to work on problems of their own interest.'
'At [this teacher education institution] try to get student
teachers to ask, look for answers, do some environmental testing
Biology Education at a State university)
'Difficult to get teachers to move off the "right answers"'
(lecturer in Biology at a private university)
(Another reason for students not asking questions was suggested
by a university staff member as applying in schools as well at
university - 'some teachers ... are too clever, ask questions
that students don't understand so keep their head down, don't
want to appear foolish!'
According to another lecturer involved, an open approach
(including students posing questions and following them up) that
has been introduced into part of one university science course
'is new and a shock to students, not all cope with or want it, so
it's not compulsory.)

In Singapore, it was considered that students asking questions as
part of the new approach of 'Technology across the Curriculum'
'would be difficult here - adult-child relationships, compared
with in the West, more deferential' (senior educational

administrator); while to a comment that 'a questioning approach
will be a shock to Australian teachers' the response was 'it will
be an even bigger shock for ours here! Teachers here are used to
a different adult-child relationship than in "the West"' [The
dichotomised distinction between 'Western' and 'Asian' is part of
an ideology widely used in Singapore] (another administrator)

In Australia it is generally not considered to be quite so
difficult to elicit questions from children in general, although
apparently (see above) there are limitations on this in classroom
situations.

Political constraints?
The influence of beliefs that a more open approach could lead to
trouble with the authorities was not actively enquired into,
although it is known that there are various topics,
interpretations and opinions that are not acceptable as curricula
in Indonesia or as publicly expressible outside schools
(including aspects of the organisation of society and the
economy, some religious issues and various differences between
people in Indonesia). There were only occasional references to
political constraints in discussions although there were and have
continued to be increasing numbers and clarity of comments in
print within Indonesia.
There were several claims that there is more freedom to question
in some of the private universities than in State ones with some
anecdotal evidence used. It was also claimed, in separate
situations, that at some universities students might lose marks
if they question, as this would be taken to imply doubting staff
and/or the student didn't understand.

There were also occasional comments in passing: 'Have to be
careful in what and how say in what I write - don't want [this

magazine] closed down'; 'Of course there are some things that
can't be said directly and I don't want to be put in jail but
there are ways of making the point'; 'There are ways the
newspapers use to report things which you have to read between
the lines to recognise'.
It is also apparent that there are some liberalising tendencies
away from all significant decision-making being kept within the
central government, including some complicated developments of
national culture. However, how this influences education in
general and schooling in particular is not yet apparent in any
systematic way.

There are suggestions that there are some but fewer restrictions
in Singapore but these were also not pursued.

There are not believed to be any restrictions in Australia apart
from those legally banned under various anti-discrimination codes
(although the codes themselves can be openly discussed).

Instrumental priority among clientele?
A major deterrent to attempting or sustaining a more open
approach would be that the various clienteles would, neutrally,
not want such an approach or, even more, oppose it as it is
interpreted as handicapping the potential attainment of desired
instrumental goals for the provision of or involvement in
schooling.

It has been claimed that, in Indonesia, 'Education is generally
just a means of achieving two targets: a position in the
bureaucracy and/or money. Such an orientation of values does not
come from the West, but from a feudalistic cultural mentality
which is unconsciously maintained'.

 In the mid-'80s it was claimed that, in spite of changes in
texts and curricular intentions, 'the emphasis in village schools
remained on rote learning of facts. Many children, including in
the sixth class, still have difficulty reading, particularly in
comprehending a lengthy passage. Almost no books exist in the
community, where they have no priority, so that while both
parents and teachers would agree that children should study their
textbooks, undirected reading is regarded as a waste of time. ...
The most persistent problems arose from the conservatism, the
ignorance and the poverty of most of the village people.
Nevertheless, the reaction of the villagers to the educational
opportunities offered to them by the Government shows that deep-
seated attitudes can alter and that even poor people will make
economic sacrifices to achieve changes they regard as possible
and desirable. In this village the success of some bright
children from ordinary farming families was the factor that
motivated many of the most conservative parents to become more
interested in schooling for their children. ... Recently parents
have begun to link education with social and economic advancement
and therefore to encourage their children to stay on at school.
Both parents and children now regard schooling as opening
opportunities for employment outside the village agriculture and
so for an escape from the economic insecurity which constantly
overshadows their lives. The importance of an instrumental rather
than intrinsic value, for personal/family advancement, being
attributed to schooling is clear. (It could also be noted that
in various of my discussions it was claimed that the majority of
homes do not have any but school books and the general public
'does not read'.)

There were several references from the higher levels of the
Indonesian education system of the need to educate students for

the expected take-off of the country to be an industrial nation

(so the current situation where students memorise is not
appropriate). This assumes one instrumental function of
schooling. Others mentioned, for example by writers on education,
include developing what is considered to be appropriate national,
including political consciousness.

A government-sponsored study of youth in Singapore reported that
'Students are generally examination oriented. They study in order
to pass exams, to get good grades, and to obtain necessary paper
qualifications. There is a general lack of curiosity for
intellectual pursuits. ... It is inconceivable that one studies
not for examinations. They would question: what is the point of
studying then? ... The younger youth generally did not indicate
that they aspire for long term goals. They work for immediate
goals of passing examinations in order to move up to the next
level of educational development. There is a lack of vision or
initiative. Being pragmatic Singaporeans, they plan a move one
step at a time,. ... They have been brought up in a system in
which most of the important decisions have often been made for
them. Many probably do not know how to plan.'

The more societally oriented instrumental role for education is
carried implicitly or explicitly in many of the public analyses
and recommendations about economic, political and thus
educational development in Singapore (with its '2M' philosophy of
'Multi-racialism and Meritocracy'). One significant element in
this, forming a basis for opposition to a more open approach in
favour of a more closed and other-than-student-planned one is
indicated in selective use of 'the West' in general or the United
States in particular in expressions intended to exemplify the
dangers of individualism and a preference for an easy life to the
progress and prosperity of a vulnerable society like Singapore
with its people as its only resource.

An example of an Australian account of the pressures for economic
instrumentalism, based on material collected about some secondary
schools in the late '70s, was given by Connell. These pressures
have clearly increased during the '80s and '90s, as indicated by
a series of government reports and programmes for developing
competencies relevant to planned workforce demands and changes
and the introduction of programmes aimed at reducing violence,
discrimination and poor health. The rapid increases in number and
variety of students completing some sorts of upper secondary
schooling has been accompanied by economic instrumentalist
intentions for direct individual and societal benefits.

Curriculum?

Prescribed curricula are obviously going to be influential on openness, by proscribing it or by not discouraging it (perhaps even advocating it) but not providing 'space' for it.

There was complete agreement in Indonesia, from student teachers, teachers, university staff and people involved officially in preparation of the 1994 curricula, that the current and previous curricula have too much in them.
This was also often commented on in such as books proposing improvements in teaching methodology. For example, 'Our experience with syllabuses, book on elementary school Science while upgrading teachers shows that the elementary school syllabus is not appropriate (level too high), far too crowded, too much stresses factual material that must be memorised with disregard of exercises in process skills and reasoning activities, and is not appropriate to the stage of development of the students. apparently the syllabus and books are also not appropriate to the mastery of the Science teachers. Things of the same type exist at other levels of education, at middle and

senior high school.' There are also reports that the prescribed contents will be reduced, for example that the Director-General wants only a 'thin document - just the guidelines, the skeleton'.

Nevertheless, although the Department is allegedly intending to reduce the amount specified in curricula it was claimed by an advisor involved in researching and advising on some curricula that 'if ask in the schools, will be told "curriculum too detailed, too full" but if asked if want to have it much more loose and they can work it out and design it themselves - will respond with "Ah, well! Not yet! Not sure how to go about it".

It is also regularly tested -   These tests are regular several times a year and, from conversations with teachers and others who referred to them in describing their school or class or the general socio-economic milieu of their students' families, it appears they are used in their private assessment of relative standards of their students and their school.
Another 'consequence ... (is) that at senior high schools this leads to training towards the largely multiple choice entry-to-higher-education test, not including problem solving, or any considerations of applications/implications/ethics that are not explicitly included in the curriculum' (lecturer in Biology and involved in inservice teacher education). Similar comments about the influence of the multiple-choice or similar question mode were made by others about levels other than upper secondary.
Another pervasive consequence is the importance placed on teachers getting children through the periodic examinations set by the Regional and National Department offices.

There is a top-level intention that the changes in the 1994
Curriculum will include testing as well as content. A senior
Departmental administrator commented this intention 'to use a
wider range of testing, tell teachers should use more active
methods to require students to work out more for themselves,
explore, discover, find out (not all of course, some material
might be best taught by lecture - but more so than at present) -
mainly is 'from the text and memorise' now'.

Several Indonesian teachers agreed among themselves that teachers
can choose methods but not topics - all must be covered.'
Similarly, two lecturers involved in teacher education in
different universities separately claimed that, although a
curriculum might offer a choice between more than one topic,
teachers will generally try to cover them all, as otherwise
students might have more problems with the centrally set tests.

However, it is important to note that 'the official curriculum
does not emphasize intellectual conformity; rather it urges the
development of a scientific attitude, a critical ability, a
willingness to solve problems, and so on'. This assessment was
made in 1981 but a perusal of more recent curricula documents,
such as in Science shows that the 'Methods' proposed include many
examples of 'question and answer', 'experiment', field trip',
'demonstration', 'discussion', 'set tasks' as well as 'lecture.
Varying somewhat with the subject these methods are often linked
directly to specific of the set topics.
The topics to be covered are usually specified in detail, for
example, in the primary school curricula, listing each activity
to be done in each semester of each year with the number of
'hours' (= 40 minute lessons) to be taken, overall aims, specific
aims of instruction for each section of several hours, the
activities, the hours, the methods, the sources of information
and/or equipment to be used, the standards/tests to be used - and
'Notes'.
There are also published documents of details of how to organise
progression through topics in upper secondary schools, give

credit and their weighting for different tests, career advice and
counselling frameworks and report formats, including the form and
method of student grading for each semester, plus such as
instructions about how to work out Grade Point Averages, how long
students should study out of school hours and how many credits
should be allocated to field practice activities. What subjects
have to be chosen and what choices can be made at each grade are
also specified across the nation's schools.
It could be noted that, in general, teachers did not appear to
make reference to the published curricula themselves, but to the
textbooks produced on the basis of them. Most of these texts are

commercially produced, with the imprimatur of a Departmental official in a foreword. They vary in publishing quality and cost but essentially all cover the same topics in the same order. (It is claimed that often, if the cover is torn off it is not possible to differentiate between them.) Regular little magazines/booklets of extra material, quizzes and test items closely related to the primary curricula are produced commercially and there is some use of these in some schools by teachers and, in some cases, children.

Similarly, in Singapore, at least the new 1990 Maths and Science curricula emphasise active learning and problem-solving, first-hand experiences and practical investigations, including comprehensive lists of process skills.
In these documents, 'Teachers are advised not to follow the syllabus too rigidly but to exercise their professional judgement in implementing it. ...(They) are encouraged to adopt a variety of approaches in their teaching and to incorporate ideas and materials from various approved sources, ... '. ('Preamble' to Science Syllabus). 'This syllabus is a guide for teachers to plan their mathematics programmes. Teachers need not be bound by the sequence of topics presented here but should ensure that the hierarchy and linkage are maintained. Teachers should exercise flexibility and creativity when using the syllabus' ('Introduction' to the much more detailed maths syllabus).
It is not yet established how widely teachers use this discretion to be more closed in their implementations.

Australian curricular documents also stress activity, problem solving, processes and at least some elements of more open education (such as in a 'democratic curriculum') , but, as indicated above, there are significant differences between curriculum statements and curriculum implementation.

Central control of the curriculum?
As mentioned above, there is a nationally centralised specification and testing of the curriculum for schools across Indonesia.
(The relatively easy marriage possible in fitting a conventional teacher-centred methodology into the externally tested regime of the schooling system is indicated in the remark (by a lecturer in English in a teacher training institution) that, in general, English teachers 'wouldn't do much or any preparation, for example just give an oral class then just repeat, would rarely do any marking of set work (students have homework etc to do but this is not marked) - and only tests set by the school - which they do have to then mark'.)

All Singapore schools must use a quite detailed curriculum set by the MOE, and, perhaps more influential, a system of approved text

books, mostly produced directly or indirectly by the CDIS,
together with a system of external and specified internal
assessment. (The results of this continual testing are kept for
monitoring, analysing and planning purposes by a central section
of the MOE.) Also streaming in schools is carried out on the

basis of schools using test items from a MOE Item Bank

After a 1986 speech by the then Minister of Education there were
questions and comments by the audience, several about claims of
over-planning and control in education, and inadequate attention
to creativity. His responses included 'I think whenever we have a
syllabus revision - once every six or seven years ... (we have
just finished a whole series of syllabus revisions in science,
mathematics, home economics, ...) we always ask ourselves: What
can we do better than we did before? How can we make it more
open-ended, more problem-solving oriented? How can we get the
teachers to become a new kind of teacher that can teach this way?
So a lot of workshops and endless dissemination programmes have
to go on between CDIS and teachers. So there is an endless hive
of activity as far as curriculum development and new text books
and new teaching methods are concerned.'
In a semi-official account of the changing organisation of
schooling in Singapore, it was mentioned that 'Central control of
schools by the MOE has brought about many benefits including the
maintenance of minimum standards. However, the uniformity in
curricula which central control imposes has the disadvantage of
discouraging initiative and diversity.'
'The Minister acknowledged that our system was a highly
centralized one. It had come about as a result of history, the
only intention being to ensure that all schools maintained proper
standards and contributed to the well-being of the country. The
end result was that schools tended to develop into stereotyped
units, activating themselves on instructions from the central
authority, with limited flexibility and freedom to strike out on
their own, capable as they were of this. It was hard to tell one
school from another. This state of affairs was likely to prevail
as long as schools were rigidly bound to a centralised system,
and even schools which had come to establish a certain standing
for themselves would be penalised and denied the prospect of
greater achievements.'

However, central control, including a careful and powerful
Inspectorate, does not necessarily imply a more closed approach
to the delivery of curriculum.
This is indicated in the official Ministry handbook which, inter
alia, delineates the formal roles of the inspectors, and also
gives other detailed insights into the formal authority structure
of the MOE . 'Our efforts [as Inspectors] should result in

improved instructional programmes and teaching strategies in the
classroom. We must motivate teachers to move away from conducting
structured, passive lessons to more activity-based and process-
oriented ones. Children should be active learners, equipped with
thinking and problem-solving skills. a classroom environment to
nurture creativity must be encouraged. We are more than mere
facilitators in the classrooms. We must be change-agents.'
An expression of that attitude came from a senior administrator
who, after observing a demonstration primary science lesson in a
well equipped science practical room in which a teacher had
firstly set up a task in which groups had to separate iron
filings from sand without the filings sticking to a magnet and
then moved onto providing supportive comments and questioning to
students who had been 'showing the class their inventions',
presenting and explaining the quite elaborate and ingenious small
group projects they had made for home work involving the use of
magnets, commented privately that she had given them too much
advice and information about the task, 'there is a tendency for
teachers here to spoonfeed too much'.

The situation in Australia of relations between more centralised
and more decentralised controls over curricula (including at the
schools or individual teacher level) is currently complex and

changing, apparently being changed to having more general topics
(information and skills) outlined from a central authority
(regional State or Federal State level) and methodologies
prescribed at the school (or less, teacher) levels. It is not at
all clear yet what differences this will make in the degrees and
kinds of openness for students.

Legitimised government control over curricula?
In both Singapore and Indonesia there is a unitary State which is
dominant in the provision and major decision making about
schooling to the exclusion of other possible sectional and/or
community interest groups. In Singapore in particular there is a
strong acceptance of an economic imperative that must guide
social, including educational planning and administration. An
administrative ideology (of a 'bureaucratic-elite managed state')
largely rules how and which changes will be made to the
organisation of schooling, and the curriculum required in schools
(all schools are directly or effectively State schools).
In relation to social planning it has been stated that 'the
rationale of major policy decisions is articulated by political
leaders, quite often by the Prime Minister himself, while the
consequences for the implementation of such decisions are usually
articulated at the ministerial or lower levels. Consultation with
specialists is done on a confidential, ad hoc and piecemeal
basis.' Also, in terms of educational reform in Singapore it has

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been claimed that 'Politicians made the policies. They decided
what was best for education in the context of what they perceived
to be national needs. Proposals for reform have reflected the
ideas and suggestions of special interest groups. Little
consideration was given to evidence that a proposal is
practicable and will accomplish what is claimed for it. More
often than not, reports of the committees and commissions have
proposed far more than any school can do and the proposals have
also been inconsistent with one another.'
'...social control is exercised .. (at one level)...by having a
monopoly on reasonableness and the correct definition of reality
and to which any alternative systems are expected to be
subservient, a situation reinforced by the government's also near
monopoly over the processes of social classification...,
symbols..., the mass media, censorship, immigration, housing,
trade unions, and its ability to define the rewards system in
terms of its own values. There are in many ways very nearly a
coincidence of physical and symbolic power.'

In Indonesia there is an equally strong nationalist ideology
which, inter alia, prescribes a centralised schooling system
including curricula and testing systems for the whole
archipelago.
In both societies the national government derives much legitimacy
from its demonstration of economic development and massive social
improvements made under its auspices and ideology (with easy and
dramatic comparisons made with the previous colonial or other
regimes). The provision of a schooling system and the
opportunities for individual economic and social advancement this
has made possible are strong parts of this. Legitimising of the
central government's role in setting what should or should not be
done in schools includes elements of threat to continued progress
that could follow from allowing others to have too much (or any)
influence.
In both societies there is a general portrayal of the broad
Government policy outlines, such as about education, being not
questioned, only details of implementation including, in
Indonesia, individuals' misinterpretation, incompetence or
corruption in mis-implementing correct Government policies.
Given (a) the acceptance (irrespective of how convinced) of a
generalised 'the government knows best' influence over schooling

and (b) the widespread priority in interpreting schooling in
instrumental terms (for the society's development and/or for the
individual's economic advancement) it is perhaps not remarkable
that students and their advocates are satisfied to attend to be
taught what has been decided is necessary and correct.

For a mixture of largely historical factors related to

nationalism, including a lack of a struggle for independence or a recognisably radical change relatively recently after colonial domination, in Australia there does not appear to be have been such a strongly or widely held legitimising of governmental control over curricula. The background and processes of having a federal rather than a unitary State with regional governments controlling public schooling has been an additional influence in this.

Material Resources?
There are obviously very great differences between the material conditions for teaching and learning available to schools in the three societies.
In general Singapore schools appeared to have fewer resources than did Australian schools but certainly well within the range of what would be recognised as 'adequate' or 'normal' here, particularly in higher quality materials. (There has reportedly been a large increase in electronic, including computer, equipment put into schools more recently. As is usual in Singapore schools, the standards between schools would not vary as much as might be the case between Australian ones. Also the small area of Singapore (much smaller than Adelaide, for example) and its efficient transport network provides a more even access to out-of-school resources than does Australia or Indonesia. (There is no such thing as a 'remote school', or even a 'country school' in Singapore!).

Indonesian schools in general have far less and there is a very wide variation between schools and areas.
In Indonesia there is a problem for some students in getting or being able to get texts. There is wide variety in this with some being too poor and/or too far away from book suppliers to be able to get even minimal texts while others have ample (in some cases having or having access to more or better resources than have their teachers). Similarly extreme situations were not mentioned as problems in Singapore or Australia - although differences between families' access to a breadth of curricular-relevant materials were recognised as pervasive.

As a matter of policy schools in Singapore are usually large, in many cases much larger than Australian schools (and without the large proportion of small schools), while Indonesian ones include similar ranges to Australian ones, with secondary schools often smaller as they are divided into junior and senior secondary schools.

The distribution of class sizes did not appear greatly different although Australian schools seem to have, on average smaller and more small classes and Singapore, in general, larger and more evenly sized ordinary classes. (There was a large variety in

class sizes in Australia and Indonesia, with the latter not being apparently related to the apparent relative affluence of the school).

Variation among students?
In all classes it was clear there was a great variation among students in their apparent abilities and willingness to work at set tasks, irrespective of whether they were supposed to be working in group or in whole class teaching/learning

relationships. Also clearly in all Australian (and the single Singaporean) and in most but not in all Indonesian classes teachers would be trying to keep as many as possible engaged in at least the thinking activities that were intended to be crucial parts of the lesson. It can be inferred that the teachers were acting on the presumption that at least some of the students would not 'work' if they were not monitored and directed by the teacher. (In discussions with some teachers this was explicitly mentioned.) The more that teachers dropped their directing roles and allowed more student control of what happened the more risks there would be of a mixture of a slowing down or stopping of progress through any recognisable curriculum and an increase in the differences already present between students

This could be less of a problem in Singapore where a 'meritocratic society' and consequent appropriate differentiation with the streamed schooling system is explicitly justified ideologically, but would be in Australia where such differences in ability are normally ignored in public discussions of education. (The related equity considerations did not appear to be a major issue in considerations of development of education in Indonesia as yet.)

(A revealing suggestion of how a more open approach was fitted into Australian differentiations in schooling is provided in the report of the Australian part of the IEA's Second International Science Study. Using data collected in the early '80s from over 9000 10 and 14 year old students across about 450 schools produced, among much else, the finding that 'The strongest of the school factors linked with achievement measured the extent to which students initiated activities in the science classroom; for example by project work and by suggesting topics to be studied in their science lessons. But this relationship was negative. ... There was also a tendency for the lower ability students to carry out more student-initiated activities. ... (Also at the lower secondary level) lower ability students indicated they engaged in more student initiated activities, with consequential lower science achievement.' It appeared that a more open approach was acceptable more frequently in educating those students for whom

'getting through the curriculum' was considered to be less
likely.)

Lack of integration between subjects
One common opinion in Indonesia and Australia, and from
inspection of curricula in Singapore also true there, is that
there is little integration between what are still largely
discrete subjects in secondary schools. There is some integration
in primary schools in Australia, varying between individual
teachers and schools, but not apparently in Indonesia or
Singapore with the centralised and discrete subject curricula
used across the schools in those societies. In general it
appeared to be assumed ('of course') there would be little or no
integration as the curricula and texts which are used to teach
from and to are separate and do not refer to each other.
The more teachers stay with teaching students through a set
subject-bounded curriculum the less integration would be
necessary. The less integration is necessary the narrower could
be the range of what teachers would need to be an authority in.
The more they choose to narrow the range of being convincing as
an authority the less integration would be intended. The less
integration teachers intend there to be the more risk there
would be in allowing students to initiate or choose to follow
questions which could cross subject boundaries so the more
restrictive or suppressive teachers would have to be to constrain
such possibilities. As more openness would require more
integration, teachers concerned about their authority would not

allow or construct and put subject boundaries around openness in
level and direction of inquiry.

Teachers in control?
A potentially crucial issue in the continual negotiations of the
social relations in classrooms is that of control, linked to that
of authority.
An Indonesian lecturer in science education asserted that
teachers usually claim there isn't enough time to cover the
curriculum if spend time on allowing and answering questions so
suppress them but she thinks there are other reasons, for example
teachers don't know enough (and realise this) to allow more
openness so suppress questions, don't want to admit they don't
know, also true here. In response to the suggestion that many
teachers in schools are not happy with a more open approach as
they could lose control if they don't already know the answer,
she agreed and added that 'it is true not only in schools but
also here'.

There were several opinions expressed in Indonesia that 'teachers
are afraid of questions outside the curriculum, as "not ready"
(or similar meaning with different wording). This is one reason
why they use 'demonstration' (another being lack of materials).

In several readings and discussions about obstacles to making
science and technology teaching in Australia more open the lack
of confidence many teachers have about the extent of what they
know relative to what they believe they would have to know came
up.

These appear to be linked to an implication of the results of an
analysis of the lesson observations. This revealed that, in all
cases, the teachers were always in control of defining what was
to be counted as acceptable (that is, both appropriate and
correct) public knowledge in the classrooms. It included what
were acceptable questions, directions or processes of enquiry.
The frequent requests for students to answer teachers' questions
and for the teacher to be allowed to evaluate and comment on the
students' answers can only operate if it is accepted that the
teacher has the appropriate knowledge for these evaluations to be
of benefit.
This involves accepting the assumption that the teacher does know
what is right, what is best, what is needed, what is required -
for successful progress through the curriculum that is believed
to exist and which has some economic instrumental value to the
individual students. The teacher has to be accepted as an
authority on this, to be in control of what is appropriate
knowledge.

One crucial element of this authority is needed where there is
believed to be some systemic testing regime which has
consequences for individual students. For the teacher's authority
to be legitimised it must be accepted that it includes relatively
greater expertise in how to succeed in this regime than that
possessed by potentially competing other authorities, such as
students' opinions.

An implication of this is that teachers would, if they could, not
choose options, such as more openness, which could reduce this
authority in teaching which has some consequences for tests. One
simplified version of this would be that the teacher is
considered to be able to successfully 'teach for exams'.

The influences of this are likely be complex and pervasive,

forming a general climate opposing openness (unless the results
of a more open approach are clearly testable and rewarded in the
testing regime). Indications of this could be discoverable in a

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very wide of activities, with perhaps many initially not
considered to be likely indicators.
For example, one of the elements of a non-open climate was
indicated in the Singapore report that, in terms of the
development of television and video programs for schools, 'in
spite of the programmes being closely matched with the
curriculum, teachers still complained that they did not fully
match the schemes of work in the classroom. Adaptability and
creativity were not the strong points of many teachers. The
majority of teachers were text book bound which was
understandable in an examination-oriented system. Clearly, to
make teachers use more audio-visual media, the materials would
have to be closely linked to the textbooks being used and fully
integrated into the weekly schemes of work'.

As another example related to Singapore, in the concluding
chapter of a recent book on the organisational development of
education there, largely using a celebratory perspective, the
editors (directors of the Ministry and of the Institute of
Education) commented that 'At present the educational system
seems to be overly concerned with Intellectual needs and less
concerned with Industrial, Intrapersonal and Interpersonal needs.
Even in the case of Intellectual needs, the major pre-occupation
is still with preparing for examinations which tend to emphasise
recall and comprehension rather than critical and creative
thinking.'

Some concluding comments
Although there are differences between Australian, Indonesian and
Singaporean societies there are also similarities in the relative
lack of openness in what happens in their classrooms. There might
be differences in student activity and in the amount of materials
being used but in most cases what is being worked on is being
decided, legitimated, evaluated and paced by the teachers.
There may be more or be less use of active methods, but active
methods are being used as more effective ways of getting students
to learn what their teachers intended them to learn. More active
methods are not more open, in terms of student choice about
content, style or pace of learning.
Given the differences in historical formation, political
environments, economic provisions, teachers' financial comfort,
training, systemic requirements and provisions that could have
major influences but appear to have only modifying ones it is
tempting to look for the major influences in the basic structures
of schooling itself.

If schooling is being seen as primarily economically instrumental
then this will determine the framework within which curricula are
designed and, more importantly, how teachers choose to work. A
curriculum is inherently a map with one or more paths of intended

progression. Students are supposed to be moving along these paths and teachers are, inter alia, held responsible for this moving. How, how tightly and publicly the movements are assessed and monitored might vary (in Singapore and Indonesia this is done more tightly and more externally than has been usually the case in Australia but the changes here are in that direction).

There might be, and are likely to be, different versions of 'curriculum', that formally specified by a central part of the organisation or that actually constructed more or less tightly from that and implemented by teachers in the schools (and likely to be more textbook or other materials based). If there are some measures linked to that formal curriculum which produce records

associable with individual students then it does not matter much whether the 'curriculum' being implemented is closely prescribed by it or not. The influential feature will be the report that 'getting through it' makes possible on each student - the instrumentalism for participation in schooling required by the various clienteles needs reporting on 'how well did he or she get through it'. The 'how well' will involve a relative element, providing for comparison with others, to provide for the individual advancement function (which has a competitive component, as a counter to other possible non-schooling-credential-based criteria for advancement). Also the records of interest are not only those used directly in awarding summative credentials but also the continual formative ones throughout schooling which are used to inform and decide about 'progress' towards the summative ones. The overt or underlying interest and pressure towards economic instrumentalism can be from members of the schooling organisation, governments, employers, families and students themselves. 'There is a curriculum and a teacher's job is to get students through it' is the underlying and pervasive reason why teachers do not generally choose more openness in their classrooms. It seems likely that they will, in general, continue to choose this, irrespective of what is provided and urged, unless the curriculum - in relation to which they and their students are evaluated, specifically and unavoidably requires it. This is in the nature of schooling in societies which provides both opportunities and requirements for at least the great majority of successive generations to advance or maintain themselves through schooling and in which schooling is being deliberately used as an essential component for economic, in particular, technological, progress in an international marketplace.

Further research could usefully concentrate on the degrees and ways there are external and internal pressures to 'get students through the curriculum' - and how far a curriculum which

explicitly demands and tests for openness will change the actual openness of classrooms in which circumstances.
As Connell claimed in the mid-'80s about Australian secondary schooling, 'These developments [in which the definition of content and method has become less settled] give more responsibility to teachers. In the new situation it is much less clear what is the teacher's fault and what is not. Teachers are pushed to take more responsibility for the kids' learning, and have more to fear if it goes wrong - in terms of their self-esteem if nothing else. Teachers, in short are made more vulnerable. That vulnerability is a strong motive to resist further change in these directions.' R Connell, Teachers' Work, George Allen and Unwin: Sydney, 1985. p80

 Dejnozdka E and Kapel D (1982) American Educators' Encyclopedia. Greenwood Press: Westport, Conn

 Barrow R. and Milburn G. (eds) 1986 A Critical Dictionary of Educational Concepts: An Appraisal of Selected Ideas and Issues in Educational Theory and Practice. St Martin's Press: NY

 Total corpus analysed: 30 science lessons in 12 schools in Central Java (from lower elementary to upper secondary), 12 science and computing lessons in a South Australian school (upper secondary), a Science lessons in one Singapore school and a visit to another, writings about society and about schooling in Indonesia, Singapore, and Australia (the latter largely about science and technology education), notes of discussions with teachers, education administrators, university staff and some others in Indonesia, Singapore and Australia in 1990, 1991 and 1993.

 There is an empirical problem of deciding whether an utterance is or is not a question. Some that have the shape and sound of questions are actually statements, in particular, dissenting

opinions. Others that might initially appear to be statements, including answers, are actually queries about the correctness of the statement. Whether some utterance is a question can be defined by what the speaker would expect to be an appropriate response: if it is expecting further information from the person to whom it has been addressed - it is a question; if it is intended to provide some information required by the other speaker - it is an answer. However, there are obviously problems in someone else knowing what is being expected by a speaker, and also an utterance can be intended to be both an answer and a question! It was decided that these classification decisions would be passed over to the interacting speakers as it would be they who were actually negotiating and constructing the discourse - an utterance would be classified as a question by the response it received - if this appeared to be an appropriate answer to an interpretation of an utterance as a question it would be classified as such. (Occasionally an utterance was initially not

responded to as a question but was then immediately repeated or rephrased until it was - hence it would be counted.) So, a question is something that is treated as a question.]

 Exceptions being the one or two which were interpreted as 'stirs' ['Weren't you trying to make it bigger?' to a teacher quickly demonstrating the application of a formula and changing inserted figures to produce a desired result was given a denial, an explanation, then a mock of the student who ' has suddenly woken up to what we're doing. It's taken him long enough!'']

 Two sustained examples of this were a teacher leading students in small groups through text-book exercises on the scientific methodology involved in evolutionary models by challenging successive answerings on the grounds of incorrectness or imprecision and another lesson which mainly comprised individual students naming their rough intended topic for a major required project, suggesting, when challenged, one or other approach, test or technique that had been previously used in a class exercise then being lead/told/provided by the teacher with information about what and how to do it, what resources and tests would be appropriate and offers made to find and provide reference material and necessary contacts. This process involved the teacher sequentially challenging for the next step then providing it when what was provided was considered to be an inadequate.

 Some proponents of the place of new versions of technology education have pointed out that 'in recent years definitions of technology education have become increasingly broad. This reflects a shift from a physical and practical skills emphasis to include the more intellectually demanding processes of identifying needs, designing, problem-solving and appraising (K-12 Technology Curriculum Map. A report to the Australian Educational Council. Curriculum Corporation. August 1990, para 2.1), and advocate a constructivist view of learning, in which learning is regarded as a personal process in which learners construct meaning for themselves as a result of interaction with the world, students are encouraged to become independent learners and problem-solvers; learners are encouraged to link disparate knowledge thorugh a curriculum containing areas of study which cross traditional subject boundaries...; students and teachers negotiate some aspects of the curriculum ... . The constructivist view[of technological education] would seem to provide a more fruitful ideology [than a transmissive one] and is consistent with the current demands by industry for people with broad, generic skills. (P Gardner, C Penna, K Brass (Faculty of Ed, Monash), 'Technology Education in Australia: Meanings, Developments, Issues and Challenges', paper presented at 1989 AARE Conference, Adelaide, pp37-38) 'Technology is concerned with meeting human needs and and purposes. It involves the application of various forms of knowledge to the use of resources to exercise control over the environment. It involves creative processes that

require imagination, judgement, critical appraisal, synthesis and communication to achieve the best solution to a problem at a particular time and place (T Stead, 'Technology Studies in Primary Schools', booklet produced at Coromandel Valley Primary School, 1991). Technological capability includes skills and knowledge and adds to these the ability to make decisions, to act on then and to get things done, with regard for the conseqences of the outcomes of that action. (K Boston, Technology in Education', paper presented at meeting of conference of Directors-General of Education, Sydney May 1991)

For example, a formal summary of his opinions as to reasons for why there is not more active student learning (CBSA) in Indonesian schools was written out at the end of a discussion in Indonesian about just this topic and given me in 1993 in an office by the dean of a faculty of Education in a university in an Eastern province, Nusa Tenggara Timur (NTT) [translated from Indonesian]:

'I. Seen from the point of view of culture and tradition in Indonesia/NTT:1. Written culture is not familiar to the community in NTT. Therefore the community, including students - is only accustomed to learning from listening; 2. The Indonesian society, including in NTT, generally follows a 'seniority system' in the social relationships forming the life of groups : - With the 'seniority system' therefore there is a moral/ethical requirement that young people must listen to people who are older. - In schools, students are young people and teachers are old people who must be heard. So, as those who are old, teachers feel obliged to inform about something (information, sciences) to students - as young people who are obliged to listen and follow. 3. The custom of reading or being 'reading minded', is not yet entrenched in the Indonesian public, with the result that the duty to read - as one of the aspects of CBSA, is extremely difficult to be make happen. 4. The custom of discussion exists only in the realm of adults - especially inside Indonesian families children and young people are never allowed to join in family discussion for taking decisions.

II. Seen from the point of view of teachers: 1. Knowledge and mastery in a technical-scientific sense about CBSA that must use 'multi-methods' and 'multi-media' is still extremely lacking. 2. The lack of media and teaching sources that support the carrying out of CBSA in schools, especially libraries and laboratories. 3. The total of teaching subjects that are too many in Sekolah Dasar that teachers lack time for carrying out CBSA where teaching time must be made appropriate to the capabilities of the students. 4. Finally, teachers prefer to teach for the achievement of the target curriculum through lecture methods (one way traffic communication) in class.

III. Seen from the perspective of students: 1. The influence of the local/mother language, very much hampers student

communication-interaction in class in the CBSA framework - where
students must use Indonesian that is standard. 2. The influence
of custom in family and community where children (students)
cannot join in discussions (deliberations) for decision-making.
Children (students) are only listeners in relationships with
their parents.
In a serious, out of school, discussion in 1993 which moved
through many other topics, in response to the same question, an
experienced (in both State and non-State schools) male teacher
gave a simpler, though similar listing: Students don't have
books; Students won't read; Students are lazy; Teachers don't
have enough materials; Teachers not active; How teach doesn't
influence employment/promotion.' (my translation). A much briefer
version, also in 1993, from a recently graduated female teacher,
as part of a lighter discussion about schooling during a 2 hour
on a crowded bus, was 'Teachers are not professional'.
 The strings searched for included those in words such as

question, query (both from 'que'), answer, ask, incentive,
salary, wage, problem, active, promotion - in English and their
Indonesian equivalents (such as percobaan [experiment, trial] or
pertanyaan [question], plus CBSA, Cara Belajar Student Aktif
[Active Student Learning],the widespread acronym for more active
learning/teaching methods [CBSA should include group work,
teaaching aids, good dicsussion about the lesson. Questions
should go to not only active students but also to those still
passive with teachers giving opportunity to students to ask
questions, to form questions que 4]). [The 'finds' were then
edited to remove what were considered to be irrelevant ones and
those in which the shortened search strings used had picked up
unwanted words, such as consequence, mosque, unique or technique,
task, probable, probability.] Some of the material
originally in Indonesian was left as such and some I translated
(lesson observations were often a mixture).
 eg. U Husna Asmara, 'Penerapkan CBSA Sebagai Salah Satu Dalam
Pembinaan Aktivitas murid', Jurnal Pendidikan - Universitas
Tanjungpura, 1(1) 1990
 See report of research in Majalah FKIP-UKSW No. 7 Th. IV 1990
about a study of use of CBSA in Geography carried out in 3 senior
high schools. The main methods used were lectures varied with
question and answer, with teachers stating the opinion that there
is a lack of support for learnig/teaching activity and that there
is too much in the curriculum to remember in the limited time.
  Toh Kok Aum et al, A State-of-the Art-Review of Science
Education in Singapore. Institute of Education, 1991
 Although, as well as solving problems, open education involves
students defining problems, constructing their own questions that
consequent active learning will be intended to answer.
  And it should be recognised that all teachers with whom this

was discussed claimed that active methods are better
educationally.
 In constrast there were some claims that there are likely to be
less rewards for innovation than problems if 'out of line' or
'disturb', including one that there could be complaints about
'quality' ,about being a 'good teacher', if more active student
methods were used.
 However, successful completion of some official paid upgrading
courses such as several month residential ones run by teacher
training upgrading centres does provide for some, capped,
acceleration through the scales.
  Only a small minority of Indonesians are eligible for an age
pension, usually at age 55, and civil servants and other tenured
government employees, make up most of these.
 A similar situation applies to university staff as well,
especially in the larger centres where other teaching,
consultancy or business opportunities are more readily available.
 This is also a problem for extra-curricular activities
(including a national Scouts organisation, but relatively little
sports and other activities, partly due to relative lack of
facilities). This means that the curricula of the schools are
usually only what appears in the formal lesson time-table,
without the added informal, possibly more active and student-
centred strands of education that occur in the strong Extra-
Curricular Activities component of Singaporean (like Japanese)
schooling.
  Another relevant point is the consensus, among staff at a
university faculty of Education that the first intake of post-
school students into the new primary teachers' diploma course,
set up as a pilot as the previous upper secondary level courses
were being closed down, were generally of a much lower 'quality'
('from the village') than the expected general level for the
other university courses.
  Sim Wong Kooi and Ho Wah Kam, '25 Years of Teacher Education',
Chap 7 in John Yip Soon Wong and Sim Wong Kooi (eds) Evolution of

Educational Excellence: 25 years of Education in the Republic of
Singapore. Longman: Singapore, 1990, pp180-181]
 G Speedy (Chair) Discipline Review of Teacher Education in
Mathematics and Science. Dept of Employment, Education and
Training, AGPS: Canberra, 1989, pxx.
 W Cummings, 'Notes on Higher Education and Indonesian Society',
1981, op cit
  Sutriyono, 'Pentingnya Laboratium dan Workshop Matematik dalam
Program D2PGSD', Majalah - FKIP-UKSW No. 9 Th. V 1991
 It could be suggested that 'need more inservice, not enough is
provided' will normally be among factors claimed when there are
assessments that some intended innovation is not yet perfected,
apart from in exceptional situations involving only more teacher

and material resources wanted in schools.

   For example, as indicated by the rector of a private university who remarked that there was a plan to move into inservice, postgraduate provisions, away from pre-service education, although a cost-benefit analysis would be needed of this. He was pushing the faculty of Education that way. There was a precedent of post-graduate work some years ago provided for Christian school principals (through distance and week-end work, etc). For a while this became a pre-requisite for appointment to principal positions, but has since lapsed. There will have to be work done on setting this up, linking, developing a promotion/incentive system for teachers rathen than, for example, expecting/exhorting teachers to be more open and creative if it only demands more effort with no more recognition and reward.

   Through this planned measures were taken to change teachers' attitudes and skills. 'Problems (Changes necessary). 1. Attitudes - many teachers are set in their ways because of teaching the old programme for many years. Task at hand: Teachers must be convinced to accept change. 2. Skills - new content - new teaching approaches/strategies - project work (design process - teacher-based assessment. Changing skills is a slow process. Subject Inspectors have been talking and explaining to Heads of Departments and Senior Subject Teachers as well as teachers during school visits, zonal meetings, school-based workshops as well as informal meetings. The whole process started in 1984 - 3 years before the programme was implemented in 1987. For skills inservice courses, both full and part-time were identified by Subject Inspectors and subsequently conducted by the Institute of Education' [notes from a Senior Inspector). Initially a 270 hour course, over 10 weeks full time, was mounted for the 600 technical teachers in the schools, followed by specialised courses on the developing technologies. Also, relevant experts were brought in to teach and advise inservice from other institutions, such as a polytechnic, or from Britain, and curricula, curricular materials and a newsletter produced. Among other activities, practising SIngapore designers, a Trade Development Board-run Young Designers Award and a private foundation funded Young Inventors' Award (with quite lavish prizes) were organized in continuing support of the new course.
 G Speedy (Chair) Discipline Review of Teacher Education in Mathematics and Science. 1989 op cit, pxix
 'In May 1991 the Australian Academy of Science and the Australian Science Teachers Association held a Science Education Focus Group to gather ideas from primary school teachers for improving primary science and technology.' The proceedings were published as First Steps in Science and Technology: ... . Focus on Science and Technology No. 1. Australian Foundation for Science: Canberra, 1992
 J Drost, SJ. 'Pengajaran Fisika di Sekolah Menegah', Kritis,

5(1) Juli 1990
 Satya Watcana Christian University. In a nutshell: A guide for overseas staff. 1990

 There are many other claims about the traditional deference part of the concern with correct relations in Java and other long-standing areas of Dutch colonial control. Some claim more direct and separate influence from Dutch rule, others that the Dutch system only utilised and modified pre-existing feudal local political traditions.
  W Cummings, 'Notes on Higher Education and Indonesian Society', Prisma No. 21, June 1981
 Eg. ''Indonesia seems to be in the process of evolving from an exclusionary to a more inclusionary style of corporatism. Though, unquestionably, the state remains pre-eminent in Indonesian politics, some of the corporatist structures which previously obstructed demand-making are now being turned around by their client groups. The pace and extent of this change should not be exaggerated, for even in the case of corporatist bodies primarily concerned with middle class interests, it remains true that a majority are probably still only of limited effectiveness in promoting constituent interests. Moreover, rarely are they actually encourgaed by the state to become more active and assertive. However, as business groups in particular have shown, organizations determined to project their concerns in a more effective and professional manner now enjoy greater likelihood of success. These developments do not ... imply that Indonesia is moving towards liberal or bourgeois democracy ... . neither the necessary institutional arrangements nor the political will is present for a change of that magnitude. ... there is little evidence for any widespread enthusiasm for a fully fledged participatory democracy. Setting aside the obvious govenrment opposition towards such an idea, it is far from clear that even the new middle-class groups who have been behind the current changes seriously desire mass participation in political life. popular sectors with considerable ambivalence.' A McIntyre, 'Corporatism, Control and Political Change in 'New Order' Indonesia', in R May and W O'Malley (eds) Observing Change in Asia: ... Crawford House Press, Bathurst, 1989. See also McIntyre's fuller account in his Business and Politics in Indonesia. ASAA Southeast Asia Publications Series, Allen and Unwin: North Sydney, 1991, R Tranter and K Young (eds) The Politics of Middle Class Indonesia. Monash University, Centre of Southeast Asian Studies: Clayton, Vic, 1990 and Arief Budiman (ed) State and Civil Society in Indonesia, Monash Papers on Southeast Asia No. 22, Centre for Southeast Asian Studies, Monash University: Melbourne 1990
 Eg. See K Foulcher, 'The Construction of an Indonesian National Culture: Patterns of Hegemony and Resistance', chapter 12 in

Bagoes Wiryomartono, 'Modernizing Technical Education', Prisma
No. 38, December 1985

A Pryosusilo, 'Schooling in a Javanese Village', Prisma, No. 38,
December 1985

[E Kuo (Consultant) A Study of Singaporean Youth: Their
Perceptions and Aspirations. Research Section. Management,
Information and Planning Division, Ministry of Community
Development, June 1988]

Eg. As explicitly defined and used as the context in Wan Hussin
Zoohri, The Singapore Malays: The Dilemma of Development,
Singapore Malay Teachers' Union,:Singapore, 1990

A clear example is the response by the Minister of Education in
a public meeting in 1985 when he was challenged about the amount
of planning the Government does in education. Among other points
he cited the American 'Nation at Risk' report and criticised the
American system for not stressing the academic, producing a
system with no goals or goals to which students could work. It
had become a very relaxed system, the trauma level in an American
school child was quite low and he went through school quite
happy. Parents didn't mind as there was no stress. However the
price was that the standards were very varied and, on average,

dropping to unacceptable levels, with American students dropping
behind those the Japanese. 'In the Sixties there was a lot of
advocation of low stress, let children enjoy, let them learn by
discovery, minimise exams and therefore let them learn by
projects, discovery and so on ... today we know the results ...
SAT consistently going down ... Americans looking at the Japanese
system - which goes to the other extreme much more exam-oriented
than we are.' 'Some Issues and Problems in Education: A
Dialogue' in Commentary 8 (1 & 2). 1989, p19. It should be noted
that there is much official stress in the role of examination
scores as indices of relative success in alternative
arrangements in schooling.

R Connell, Teachers' Work, 1985 op cit, especially chap 7, 'The
Curriculum'.

My translation from E Van den Berg (Ed) Miskonsepsi Fisika dan
Remediasi: ... UKSW: Salatiga, 1991, p128

Eg. See A Pryosusilo, 'Schooling in a Javanese Village: Some
observations', Prisma, No. 38, December 1985

W Cummings, Notes on Higher Education and Indonesian
Society',1981, op cit

However, as an experienced teacher educator remarked, although
'the method says 'experiment', or 'discussion', ... but in fact
teachers mainly teach 'the truth' and students try to memorise
it'. Teachers don't know enough, tests are only for memorise then
multiple choice'.

The basic curricular documents are the Garis-Garis Basar Program
Pengajar (GBPP), The Basic Guidelines for Teaching Programs, with

usually one book or set for each subject in primary, middle and upper secondary school. The particular listing was taken from the Kurrikulum Sekolah Dasar

(Basic/Primary School Curriculum) for Olah Raga Kesehatan (Sport and Health), a book which covers all 6 primary grades, but comparable detail is in such as the curricular books for each grade for Ilmu Pengetahuan Alam (Science) which includes the range of methods associated with the specified time allottments for each topic mentioned above.

In the Departmental publication Pentujuk Pelaksanaan dan Pengelolaan Kurikulum 1984 SMA

In Pentujuk Pelaksaan Sistem Kredit Kurikulum 1984 SMA

With some exceptions, such as on more sensitive subjects like history or when new areas or supplementary material with an unproven commercial market are being introduced

Science Syllabus (Primary) and Mathematics Syllabus (Primary) both Curriculum Plannng Division, Ministry of Education, Singapore, 1990

There has recently been a pilot extension of schooling down a grade to 'Prep' classes and quite tightly timetabled teaching/learning material for this had been produced and supplied to the pilot schools (1991 observation).

Tay Eng Soon 'The Ends and Means of Education', Commentary 8 (1 & 2) 1989

Soon Teck Wong, Singapore's New Education System: Educational Reform for National Development, ISEAS: Singapore, 1988

 Towards Excellence in Schools: A report to the Minister of Education, MOE, Republic of Singapore, Feb 1987. p2

In the Preface to the Curriculum Planning Division handbook, MOE, Singapore 1990.

Eg. see S Gopinathan, 'Education', Chap 12 in Chew E and Lee Edwin (eds) A History of Singapore, SE Asian Studies Program, ISEAS, Singapore, OUP: Singapore 1991.

E Kuo and B Jernudd, Language Management in aMulti-Lingual State: The case of planning in Singapore, Dept of Sociology, National University of Singapore, Working Paper No. 95, 1988.

Betsy Lim, 'Educational Reform in Singapore - thoughts on Decentralisation and Independent Schools', Commentary 8 (1 & 20 September 1989.

J Clammer Singapore: Ideology, Society and Culture. Chopmen Publishers; Singapore. 1985 p167

The entire curriculum is modified nationally every few years linked with changes in the Basic Law on Education discussed and passed by the central parliament. In the forthcoming new curriculum, Kurrikulum 1994, for the first time prescribed fractions will have to be of 'local' content.

nArief Budiman (ed) State and Civil Society 1990, op cit.

M Rosier and D Banks, The Scientific Literacy of Australian

Students:... . ACER Research Monograph No. 39 ACER, Hawthorn,
Vic: 1990 pxxi, also see chapter 9. The authors took a
conservative line in continuing: 'These results may simply
reflect good teaching practice, with teachers presenting their
science lessons to capitalise on the current interests and ideas
of the students, especially for lower ability students. The risk
in an approach where the students determine the decisions about
the content of the science lessons is that, at the end of the
course, the students have failed to receive a systematic coverage
of topics from major areas of science. A student initiated
approach to the learning of science should only be employed in an
overall context of clearly specified achievement and attitudinal
outcomes.'
 Tan See Lai and Chen Ai Yen, 25 years of Educational Technology
Utilisation', in John Yip Soon Kwong and Sim Wong Kooi (eds)
Evolution of Educational Excellence, 1990. op cit
 John Yip Soon Kwong and Sim Wong Kooi (eds) Evolution of
Excellence: ... 1990, op cit p197
 The example of the teacher's explicit and detailed coaching of
students into what to do in their 'student projects', which are
described and to be assessed as 'own work' in the curriculum (see
fn. 7), indicates some of the problems involved in implementing a
required openess in curricula - which teachers are believed
responsible for 'getting their students through'.

R Wiseman - 'The Classroom Risks of More Open Education, In
Australia, Indonesia and Singapore' -AARE Conference Nov, 1993

nsti Sekolah Menegah', Kritis, 5(1) Juli 1990
 Satya Watcana Christian University. In a nutshell: A guide for
overseas staff. 1990