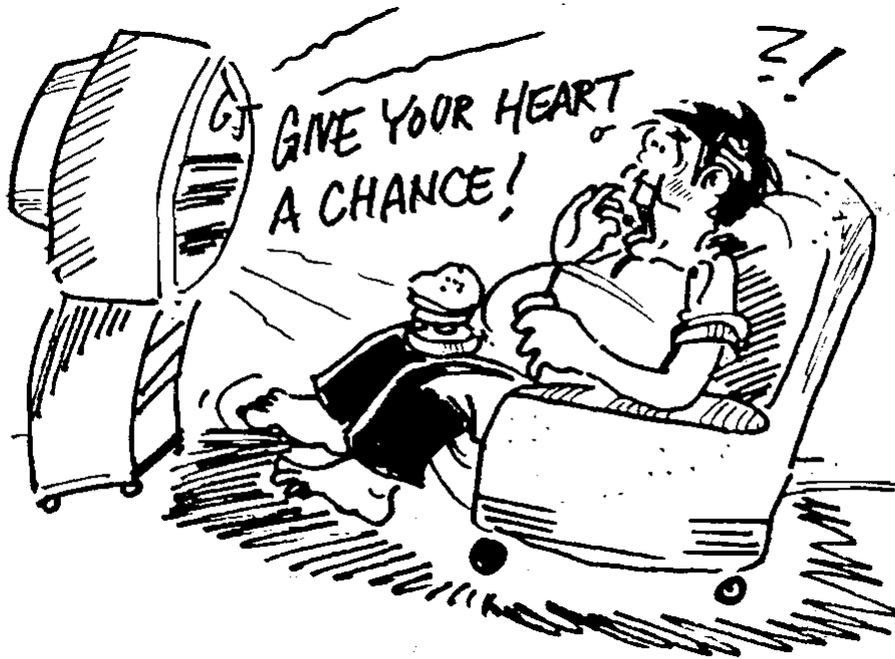REACT

1992

CHILDREN, ACTIVITY LEVEL AND
CORONARY HEART DISEASE

Review by
Helen Gilbey

WHY SHOULD SCHOOLS BE CONCERNED WITH CHILDREN'S PHYSICAL ACTIVITY

The Ministerial Committee on Obesity and Health (1991) reported that many Singaporeans today enjoy a lifestyle of overeating and underactivity, nurtured by an increasingly affluent and mechanised society. This is reflected in the fact that coronary heart disease and stroke are ranked among the top three killers in Singapore. Among Singaporean children there has been an alarming increase in the prevalence of obesity over the past 16 years. In 1976 only 2.2% of the school population aged 6-16 were classed as obese, whereas in 1989 this figure had risen to 12%.

Singaporeans today are experiencing health, lifestyle, disease and death patterns similar to those of other developed industrialised countries throughout the world. However, the government through the Ministry of Health and Ministry of Education is trying to redress the "lifestyle" balance, through its 1992 National Healthy lifestyle campaign and the Trim and Fit (TAF) campaign within schools.

1

THE CONCEPT OF HEALTH RELATED FITNESS.

Similar concerns in the United Kingdom have led to schools developing physical education programmes that are directed to the development of health related fitness. Such an approach is different to the 'old' style of drill programme which might typically involve putting children through a gruelling series of physical conditioning exercises but fail to involve their hearts or minds. Health related fitness seeks to develop the knowledge attitudes and skills that will assist and motivate children to take responsibility for their own activity programmes.

The major thrust of research in this area has been two pronged. Firstly, it has sought to analyse the healthy or unhealthy lifestyle behaviours in children which are likely to be maintained into adulthood. Secondly, it has focused on the "preventive" aspect and addressed the necessary lifestyle changes that are required to give maximum immunity against diseases caused by a harmful lifestyle.

1. Unhealthy lifestyle behaviours identified in childhood.

Coronary heart disease (CHD) is now recognised as a disease which begins in childhood, despite the fact that symptoms do not become apparent until much later in life (Vaccaro, 1989). The presence of fatty streaks in the *aortas* (major artery leaving the heart) of children as young as three years of age have been observed and fatty streaks have frequently been found in the coronary arteries of children aged ten. The presence of fat deposition is associated with adult *arteriosclerosis* (the progressive clogging of the arteries surrounding the heart muscle with fat and cholesterol). Risk factors for CHD in adults include, family history of heart disease, high Mood pressure. diabetes mellitus, smoking, elevated blood cholesterol and *triglycerides* (blood fat), obesity and inactivity.

The major risk factors exhibited by children are elevated cholesterol. obesity *and* inactivity. However the most important element on which to focus is "activity level". as it can have a positive or negative effect on the majority of the other risk factors. Since the early 1950's physiologists have been aware of the inverse relationship between physical activity and the incidence of CHD, and it is also recognised that children and adults who exercise regularly for sustained periods of time, are able to control their level of body fat and exhibit more favourable blood cholesterol ratios.

2. Necessary lifestyle changes to provide protection against CHD factors.

But do children today habitually engage in the appropriate amount of physical activity which is required for coronary disease prevention? Simons-Moreton a al. (1988) recommended that appropriate physical activity involves usage of large muscle groups for 20 minutes or longer, three or more times per week, at an intensity sufficient to raise the heart rate to 140 beats per minute or higher. This level is not very intense and can easily be achieved through a brisk walk at 6-7km/hour pace.

OUTDOOR EDUCATION FOR THE 'RUGGED SOCIETY'

Review by
Malcolm Gilbey

INTRODUCTION

Outdoor Education in one form or another has been a part of the educational scene in both Secondary and Primary schools in the United Kingdom for over 30 years. Similarly, here in Singapore, schools have undertaken programmes of activities for some rime. Recently, however, as a result of the Prime Minister's comments about the need for society to become more 'rugged' greater emphasis has been placed once more upon the role such activities can play within schools. The U.K. has recently introduced a new national curriculum involving much debate amongst teachers and education professionals. Outdoor activities have become a compulsory component of that curriculum within the physical education programme. The recommendations of the working party have recently been published and are presented here for consideration as to their implications and relevance for Singapore.

THE NEW UNITED KINGDOM NATIONAL CURRICULUM.

For each subject in the National Curriculum attainment targets have been set. The Educational Reform Act 1988 defines an attainment target as:

*the knowledge, skills and understanding which pupils of different
abilities are expected to have by the end of each key stage.*

The four consecutive key stages cover the years of compulsory education from 5 -16 years of age.

PHYSICAL EDUCATION IN THE NATIONAL CURRICULUM.

Six areas of activity have been recommended for the programmes of study in physical education. They are:

* Athletic activities
* Dance
* Games
* Gymnastic activities
* Swimming
* Outdoor and adventurous activities

One of the key recommendations is the inclusion of Outdoor and Adventurous activities in all four key stages. Until this report, whilst it has been common practice for schools to run such programmes it has never been an obligatory part of the Physical Education curriculum.

DEVELOPING THE PROGRAMME IN OUTDOOR AND ADVENTUROUS ACTIVITIES

In kev stage 1,(age 5-8 years) the recommendations are that pupils should :

- explore the potential for physical activities within the immediate environment;

- undertake simple orientation activities; and

- apply physical skills out of doors on climbing frames and other playground equipment.

In key stage 2 (age 8-11 years) pupils should:

- learn the principles of safety in the outdoors and develop the ability to assess and respond to possible hazards in a variety of contexts and conditions and how to avoid danger;

- experience in the course of the key stage at least one exciting and challenging activity in an unfamiliar environment; and

- be taught the skills necessary for the activity undertaken and how to avoid danger and minimise risk, including the correct use of appropriate equipment.

In kev staee 3 (age 11-14 years) pupils should:

- experience at least two outdoor and adventurous activities;

- be taught the techniques and skills which are appropriate to the activities undertaken;

- be taught to recognise and adapt to potentially hazardous or changing situations;

- appreciate and respect the environment in which the activity takes place and learn the appropriate codes of practice; and

- experience a variety of roles in each activity including officiating,leading, being led and sharing.

In key staee 4 (age 14 -16 years) pupils should:

- be taught the effects of exercise, fitness training, nutrition and climatic conditions on the body through the activities underfaken;

- be taught more complex techniques and safety procedures appropriate to the activities underfaken, how to use the appropriate specialist equipment, clothing and materials and how to adapt their skills to different types of weather and terrain;

- be given the opportunity to plan, prepare and underfake safely a journey encompassing one or more activities in an unfamiliar environment; and

- be given opportunities to develop their own ideas by creating challenges for others.

HOW PUPILS PERFORM UNDER COMPETITIVE, COOPERATIVE AND INDIVIDUALISTIC CONDITIONS?

Review by
Katherine Yip

HOW DO REWARDS AFFECT PUPIL LEARNING?

Understanding what motivates pupil learning has been the concern of psychologists and educationists, and currently there *is* much interest in cooperative learning. A lot more can be learned about motivational processes through a comparative study of how pupils explain and feel about their achievements, that is, their *achievement attribution and affect*, under different conditions of learning. For example, pupils may attribute their success or failure to their ability. to effort or to the ease or difficulty of the task.

Such a comparative study has been done by Ames and Ames (1984) and Dweck (1986). All three have found statistically significant differences among students in terms of performance, achievement attributions and affect, depending on what the goal *structure* of the classroom was, goal structure having been defined as "how students are evaluated in relation to each other and to a goal" (Ames and Ames, 1984). Three types of classroom with different goal structures were studied:

1. competitive (students work against each other towards some goal or reward);

2. cooperative (students work with each other for a common goal);

3. individualistic (students work towards independent goals).

WHAT WAS FOUND IN THE COMPETITIVE CLASSROOM?

1. Children focussed on their ability to win - the "bottom line is whether one is a winner or loser" (Ames and Ames, 1984). Evaluation of personal ability would fluctuate depending on what the outcome was. This in turn affected feelings and levels of self-esteem. In other words, when children are successful, they feel capable and this enhances their self-esteem, and the opposite happens when they encounter failure. Reward and personal satisfaction came only with winning.

2. Winners and losers were differentiated solely on reward and personal ability. Other important factors, such as effort or task characteristics, were ignored.

3. Children seldom analysed the mistakes of past performance, and did not learn from previous experiences.

WHAT WAS FOUND IN THE INDIVIDUALISTIC CLASSROOM?.

In contrast, under the individualistic (non-competitive) goal structure where "the criteria for success are defined in relation to some absolute standard" (Ames and Ames, 1984):

1. Children tended to focus on effort and tried to do their best because they believed that trying was valued.

2. Reward and personal satisfaction were linked to effort, self-improvement and progress.

3. Children used thinking skills or cognitive strategies (eg. self-instruction, self-monitoring) that helped them to achieve success.

4. Children "seemed less negatively affected by a failure".

HOW DO TEENAGERS RELATE TO OSE ANOTHER?

Review by
Cecilia Soong and
Angeline Khoo

Peer relationships are important especially to teenagers. The school provides many opportunities for students to interact. What are the factors that facilitate or hinder these interactions? This article summaries the research on self-esteem, interpersonal attraction (friendship and love) and problems related to these. How can teachers help teenagers to be aware of and cope with these issues?

DOES SELF-ESTEEM AFFECT STUDENTS' RELATIONSHIP WITH OTHERS?

Pelham and Swann (1989) have shown that high self-esteem is based on positive feelings about oneself, how one sees one's strengths and weaknesses, with the tendency to judge strengths as being more important. One's self-esteem affects one's thinking, feeling and behaviour. Generally, people with high self-esteem develop better social skills and therefore function well in interpersonal situations. People with low self-esteem are less confident and are more concerned with and affected by how people judge them.

Individuals with low self-*teem explain difficulties in their relationships in terms of their own lack of ab lity, something they have little control over. Therefore, they feel discouraged and may give up on establishing relationships. Some of these self-explanations may be based on irrational or unrealistic thinking. On the other hand, those with high self-esteem explain it in terms of their lack of effort. Hence, they feel more confident in doing something about the problem such as improving their social skills.

Thus. whether a student gets along with others or finds a person attractive is not just because of qualities in the other person but also because of how he or she sees himself or herself. In other words, one's relationship with others is dependent on one's self-esteem, social needs and the way one views people.

Generally, studies have shown that one's self-esteem is largely determined by the social environment. How we describe ourselves is basically a reflection of the information provided by people close to us, namely, members of our family, friends, teachers and other people who have an impact on our lives.

WHAT ARE THE QUALITIES THAT PEOPLE LOOK FOR IN OTHERS?

A person's relationship with others is also based on the desire ru establish and maintain rewarding relationships (need for affiliation), and to develop warm. close and trusting personal relationships (need lor intimacy). McAdams and Bryant (1987) who conducted a study on intimacy and mental health. found that individuals who have strong needs for intimacy are more trusting and enjoy a greater sense of well-being in comparision with those whose needs for intimacy are lower.

One theory of interpersonal relationships is based on *complementarity* - in other words, opposites attract. You look for qualities in other people which you lack; for example, if you are dominant, you tend to look for someone who is submissive. in the area of achievement, we prefer to associate with those who succeed in areas different from ours so that we do not feel threatened. However, birds o i a feather do flock together. People who live near each other or work close to one another tend to like each other. Sharing the same environment provides opportunities for people to come to know and grow to like each other. People with similar personalities are also more attracted to each other. Perhaps they share the same perspectives and interests and this strengthens the understanding between them. When people interact, they often express their attitudes as they talk about such things as school, work, hobbies and politics. The more similar their attitudes,.. the greater the tendency for them to like each other.

HOW DO PEOPLE BECOME FRIENDS AND STAY FRIENDS?

When two people find that they have many things in common, it is likely that a friendship will develop. They begin to share their thoughts and feelings and become more willing to reveal more intimate or personal information to each other. This willingness to relate to the other person beyond the superficial level is known as *self-disclosure*. Self-disclosure is essential for the development of close relationships.

The importance of selfdisclosure and feedback in developing interpersonal relationships is illustrated in the Johari Window (Figure 1), named after Joseph Luft and Harry Ingram (1970). There are four segments in the Window - representing the Free Self (facts that are known to the self and others), the Blind Self (facts that others can see in us but we ourselves are not aware ot), the Hidden Self (what we do not want to disclose to others) and the Dark Self (things unknown to ourselves and others). As the relationship develops, there is a shift in the window panes. The Free area grows bigger while the Dark, Blind and Hidden areas decrease in size (Figure **2).**
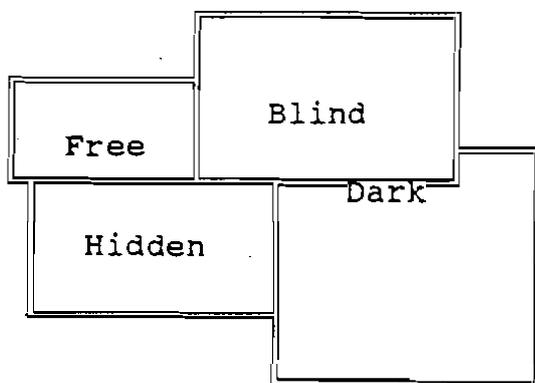

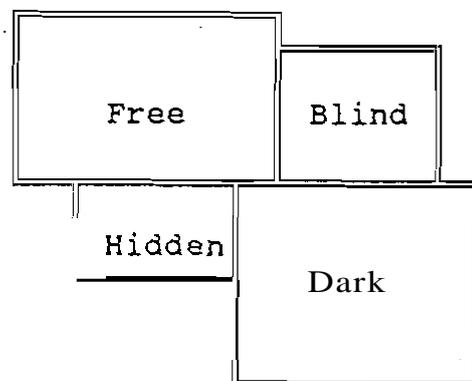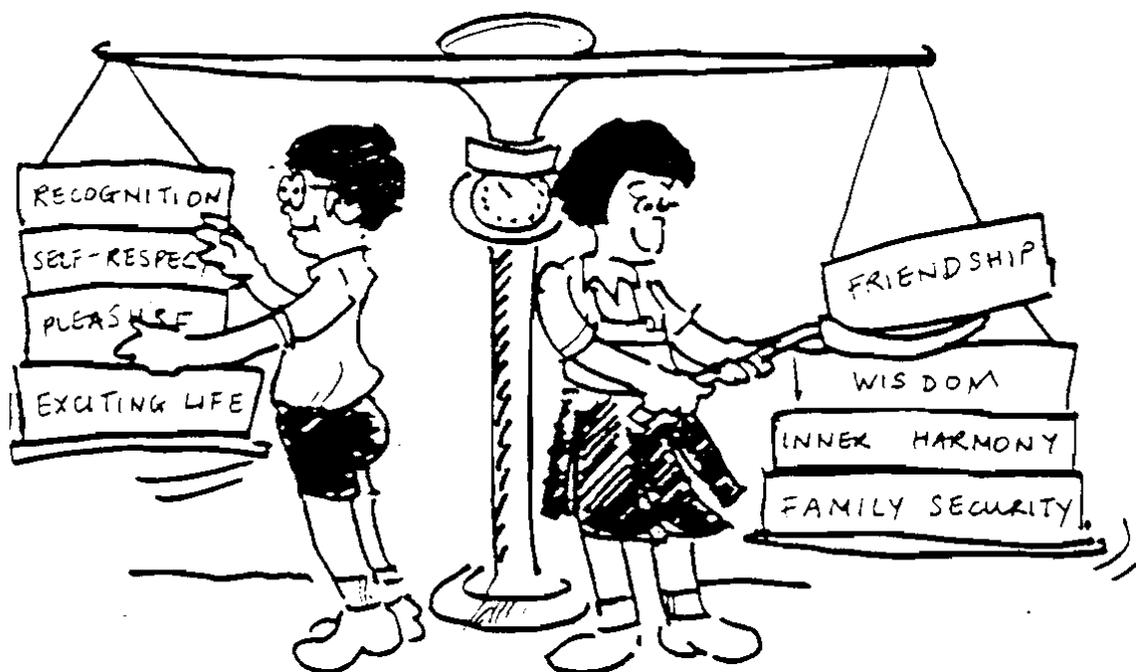Figure 1   Figure 2

WHAT DO SINGAPORE YOUTH VALUE?

Review by
Soh Kay Cheng

It is a truism that all school systems, irrespective of their diverse cultural backgrounds and political ideologies, are explicitly concerned with the inculcation of the 'right' kind of values in young people. This is the means by which the nation re-constructs or preserves itself to ensure continuity and stability culturally and politically. Hence, the study of youth values is not only of academic interest but, perhaps more importantly, has significance beyond education as socialization. Such a concern is evidenced by studies which appear one after another, though intermittently, over the past decades.

WORLD YOUTH SURVEY

The most recent World Youth Survey involving 11 nations is the fourth in a series of youth surveys (Youth Affairs Administration, 1989). This study compared young people's attitudes towards and opinions on various life areas. The survey covered 1,000 young people aged between 18 and 24 in each country. Some of the findings relevant to Singapore youth are summarized here:

- Singapore youth ranked fourth among those of other nations in satisfaction with home life (71.2%), after Sweden, Brazil and USA. And hence, as would be expected, the proportion of them who had real clashes with the parent was rather low (13.2%).

- Singapore youth ranked third in satisfaction with school life (56.0%), after USA and UK. Good friendship was mentioned as the highest gain (83.9%) in the schooling experience, followed by gain in general basic knowledge (76.8%). As for the factors determining success, personal abilities (67.6%) were considered more important than personal effort (57.9%).

- Although Singapore youth ranked fourth among those of other nations in satisfaction with life at work (52.8%), after Brazil, USA, and UK. there was a much larger proportion finding satisfaction with 'life outside job' (54.0%) than with the job itself (33.7%).

- Singapore youth held the nation in high esteem for her standard of living (82.3%), level of education (67.6%), social stability (60.1%) and potential for future development (54.3%). A commendable 69.8% responded affirmatively to the question whether they would be sacrificing their own interests in serving the nation, thus placing Singapore youth at the top of the list of the nations surveyed.

- As for their goals in life. Singapore youth placed the highest value on *To* live *as I* like (57.2%), followed by To get rich (19.0%), To *work* on *behalf of* society (10.4%), and *To acquire social position* (10.3%). The concern for personal freedom (To live *as I* like) placed Singapore youth at the sixth highest rank among those in the nations surveyed, after Sweden, Australia, USA, West Germany, and Korea.

- With regard to worries and concerns among Singapore youth, the highest proportion was for money (24.5%), then school work (21.2%), work (17.8%), personality problems (11.2%), and getting a job (11-94), in this descending order.

- All in all, Singapore youth were satisfied or more or less satisfied with friends (97.0%), home (96.0%), society (94.8%), school (94.2%), and work (87.1%). These compare very favourably with the responses of the youth of other nations involved in this international study.

STUDIES OF SINGAPORE YOUTH

In Singapore, the Ministry of Community Development commissioned a study of Singapore youth's perceptions and aspirations (Singapore, 1988). The project team used the focus group discussion technique for collecting information from thirteen different groups from a total of 115 informants. The 10 'A' Level students (four males and six females) who participated in the discussion were characterized thus:

- The students regard going to school as something they had to do; something required of them in order to fit into the adult world of careers and other responsibilities,.

- But what came through clearly was the importance of companionship during their leisure, especially with those with whom they shared interests.

- The students appeared to be very vague and unsure about their own aspirations. Several mentioned wanting to go into business when they finished school.

- They talked a lot about their expectations of the country and government, especially the latter.

In a more recent study (Soh, 1990), 120 male and female students from one pre-university institute indicated their life goals (or terminal values) and the path to these goals (or instrumental values). There were 18 terminal values and 18 instrumental values for the students to rank in terms of importance to them. Although the sample is not necessarily representative of Singapore at large, the findings nevertheless provide a glimpse of the young people's value system.

IMPORTANT ASPECTS OF QUESTIONING IN SCIENCE LESSONS

Review by
Goh Ngoh Hang
Chia Lian Sai
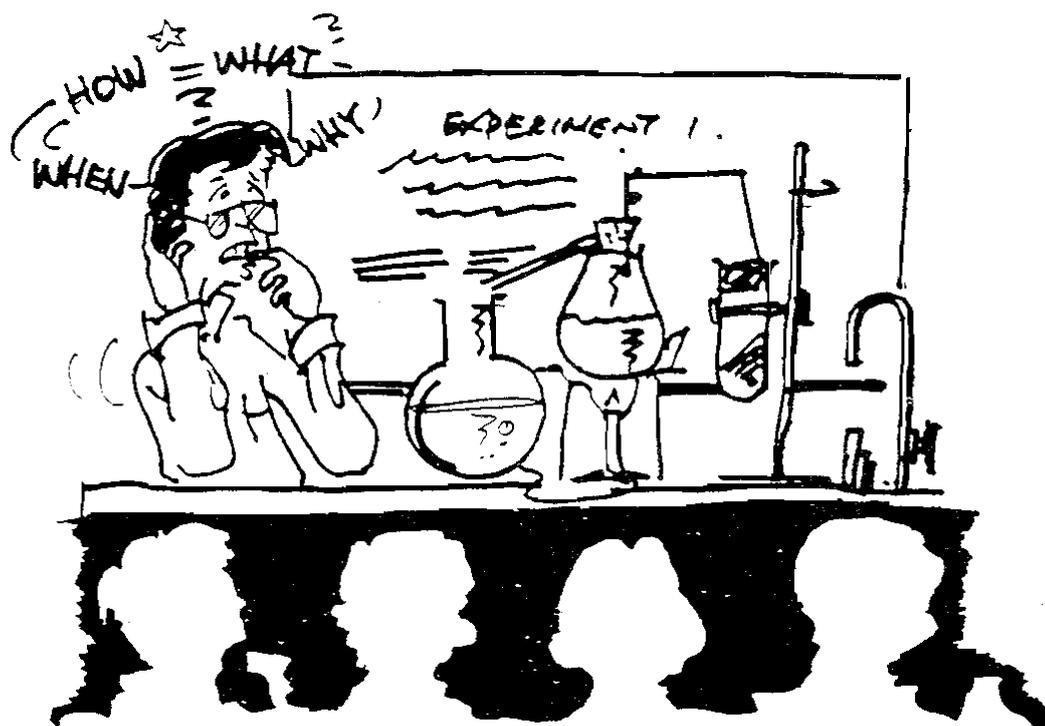
INTRODUCTION

It is commonly upheld that questioning is one of the important instructional strategies to improve learning either in formal situations such as the classroom or informal situations such as field trips. The success of inquiry depends largely on the teachers' questioning techniques. Hence, as teachers, we are interested in research on questioning techniques. Since there are many aspects to questioning techniques we will, in our review, only focus on those factors concerning 'wait-time', 'cognitive level of the teacher's questions' and 'students' questions'.

WHAT DOES THE RESEARCH SAY?

The results of research in science education on questioning techniques show consistently the important role of 'wait-time'. One of the representative examples is the experimental study carried out by Tobin (1981). He examined the role of pausing in instruction, based on the research work of Rowe and others on the dynamics of wait-time. He investigated whole class settings to examine relationships among variables like teacher wait-time, student achievement, and features of teacher and student discourse such as structuring, soliciting, responding and reacting.

Twenty classes of sixth and seventh graders were involved in the study. Ten of them were randomly assigned as the treatment group and the rest as the control group. Data for wait-time and the teacher and student discourse variables were collected from audiotapes recorded during each of the seven lessons on the teaching of the concept of probability. A pretest on formal reasoning and a posttest on a ten-item objective achizvemenr test had also been conducted.

The findings of this study showed that the summative achievement for the treatment group. with an average wait-time of 3.2 seconds, was significantly higher than that for the control group. Furthermore, the summative achievement was also positively related to formal reasoning, length of student discourse. and the proponion of student responses. However, as pointed out by Tobin (1984) extended wait-time does not in itself lead to improved achievement. Wait-time alone may be necessary. but not sufficient to bring about the desired changes, without the incorporation of other aspects of questioning technique, such as the level and content of the questions. This is shown in 3 study by Riley (1986), who investigated the following aspects: the amount of time a teacher waits after asking a question, the cognitive level of teacher's questioning, and the effect on student's achievement.

One hundred and twenty nine subjects representing an even distribution across Grades 2 to 5 and twenty six preservice teachers participated in chis study. The class size for the treatment was on the average five students. Each preservice teacher was randomly assigned 30-minute scripted lessons from the Teaching Improvement Kit (Popham, 1972) which contained a specified level of questions and wait-times. The questions had been categorized using Bloom's Taxonomy (1956) as comprehension and knowledge types or a 50150 combination of them. A wait-time of 1, 3 or 5 seconds was attempted by asking the subjects to wait until called upon to respond. The treatment questions were taped and the wait-times were measured: A 25-item achievement rest comprising 15 comprehension and 10 knowledge items was administered.

The results of the study indicated that. for achieving comprehension level objectives, a combination of low and high cognitive level questions. together with long wait-times averaging 5.9 seconds, seemed more effective than the other tested combinations.

Due to the experimental setting of this study, the generalizability of the results is limited. However, the possibility of differentiating among levels of wait-time and of levels of questioning seems promising in general.

There is no doubt that the use of higher order of questions could raise students to a higher level of thinking. But, on the other hand, we should be sensitive to student ability and set questions appropriate to their ability level. Towards this end, Alfke (1974) proposed a model which systematically directs students and teachers to investigate common science phenomena through the use of operational questions, which manipulate variables through: (1) eliminating, (2) substituting, and/or (3) Increasing or decreasing the presence of some variables. An operational question is one which can be answered by students based on their first hand experience (e.g. carrying out a task with the materials provided to seek an answer).

In faa, science inquiry teaching involves both teacher and student questioning. Hence, not only ate the level and content of the questions asked by teachers imponant, the way students ask questions is also an important aspect of the questioning technique. Allison and Shrigley (1986) had actually looked into the training of students in asking operational questions in science. They investigated the way teacher modelling (showing examples) could affect the percentage of operational questions asked by students following a demonstration.

Seventy-two fifth and sixth grade students from a school were randomly assigned to the three groups (TI: students to whom the teacher showed examples of operational questions; T2: students to whom the teacher not only showed examples of operational questions, but also provided practice in writing operational questions; and T3: students not involved in the treatment). Three

CAN COMPUTER-BASED TESTING AFFECT PERFORMANCE?

Review by
Christine Chin
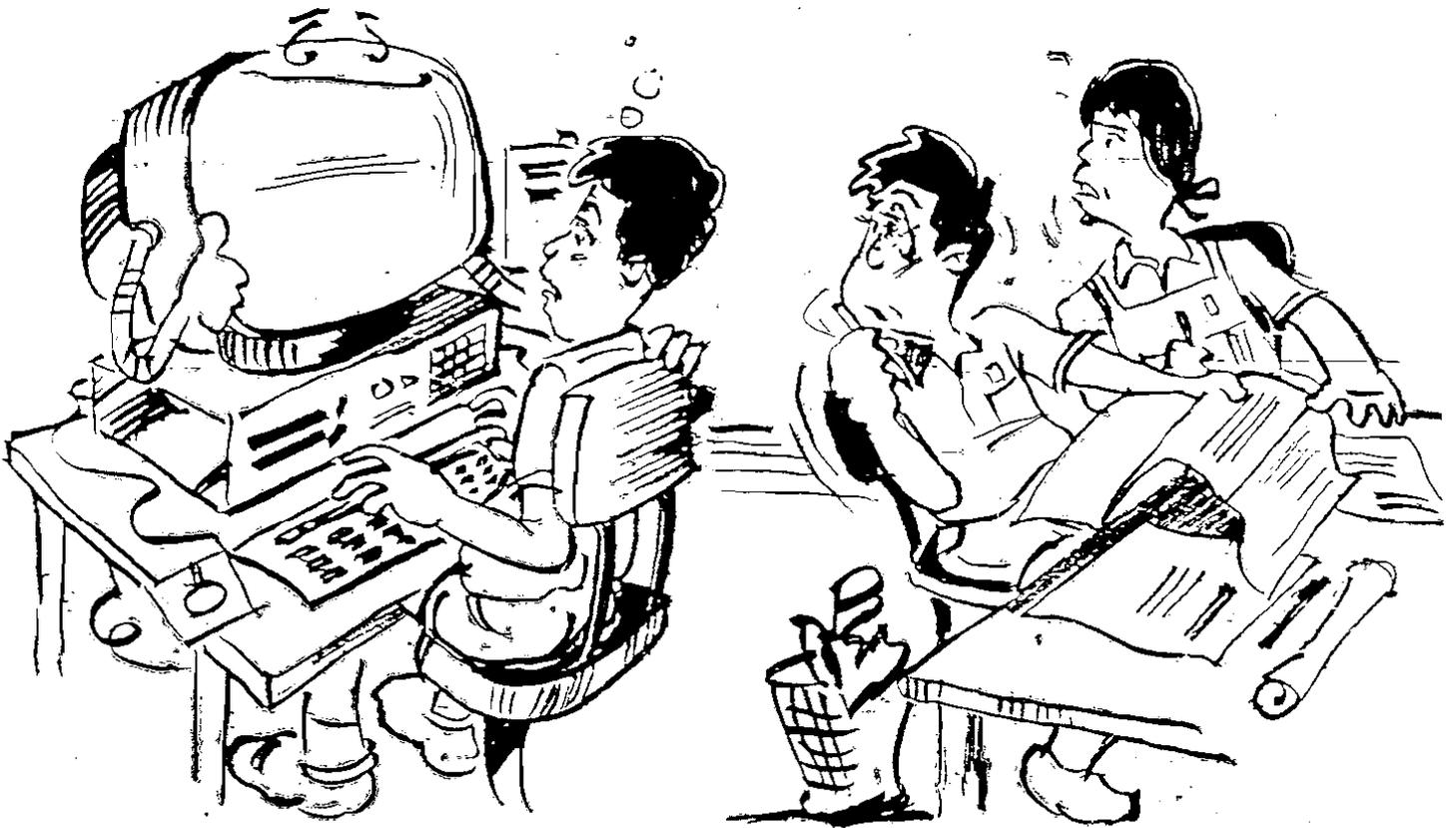
INTRODUCTION

Although the primary uses of microcomputers in education are instructional and administrative, the expansion of computer technology has created many possibilities for computer applications in the area of testing and assessment. One of these is *computer-based testing* which refers to using the computer to administer a test that is identical in length, item content and sequence to the conventional (i.e. paper-and-pencil) rest. This form of testing, with its advantages of increased accuracy and speed of scoring, is an attractive alternative to the paper-and-pencil test, particularly for

multiple-choice questions. Within a few minutes after completing the test. the rest-taker or the test administrator can receive a score. Moreover, with the elimination of answzr sheets. the chances of test-takers inadvertently skipping an item in the rest booklet hut not on the answer sheet. or erroneously matching their answers to the wrong item will be minimized. By presenting only one item per screen, the computer automatically matches responses with the item.

An important issue. however, has to be considered when administering tests by computers. This pertains to the *equivalence of scores* obtained in a computerized test compared with the traditional paper-and-pencil test. In other words, would test-takers obtain similar scores if they took either form of the test?

WHAT DOES THE RESEARCH SAY?

In the context of testing, "validity" means the degree to which a test actually measures what it is intended to measure. The purpose of a computer-based test is to assess the examinees' knowledge and competence in the area being tested, not their computer familiarity or literacy. Effective use of a computer in a testing context however, demands that the examinee be able both to identify the correct answer to a problem and to properly communicate the answer via the computer. Accordingly, the primary concern regarding the administration of tests on a computer is whether irrelevant extraneous variables incidental to computer administration either *facilitate* or *inhibit* the examinee's performance on the computerized test. These factors which have been seen to affect test-takers' performance include *individual differences* such as previous experience or familiarity with cumputers, computer anxiety or attitudes towards the computer (e.g. liking or dislike for the computer); as well as the effects of *medium of item presentation* (i.e. paper-and-pencil or computer-based). The latter effect refers to the technicalities associated with the design of the computer-based test.

1.   **Individual** Differences **in Computer** Experience. **Anxiety** and **Attitudes**

Lack of computer familiarity and anxiety on the part of some test-takers may unfairly handicap their performance on a computer-based test (Llabre, Clements, Fitzhugh, Lancelotta, Mazzagatti, & Quinones, 1987). *Computer anxiety* refers to the apprehension felt by certain people when they use computers, or when they consider the possibility of computer utilization. It is produced in part, by a lack of familiarity with the computer. Students accustomed to working with computers could well have an advantage when taking a computer-based test, compared to novices whose normal test anxiety is further heightened when they are confronted with an unfamiliar machine. This potential problem is compounded by the fact that variables such as computer experience may be related to gender. There is evidence suggesting that males and females have different experiences with, knowledge of, and attitudes toward computers (e.g. Levin & Gordon, 1989), with males having greater exposure to computers and holding more positive attitudes.

Hence different persons with the same ability may not perform equally well on a computerized test. Unequal access to computers in schools could also perpetuate disparities between subgroups if computerized tests are used to measure achievement.

2.   The Medium of Item **Presentation**

Factors related to the use of the computer as a medium of item presentation include differences in *test-taking flexibility* and amount of *control* (Spray, Ackerman, Reckase, & Carlson, 1989), *test structure* (discrete items versus sets of items based on a common reading passage or problem description), and *item content* (items containing graphics versus items containing only verbal material) (Mazzeo & Harvey, 1988).

WRITING IN TWO LANGUAGES: WHAT IS THE PROBLEM?

Review by
Ruth Wong Yeang Lam
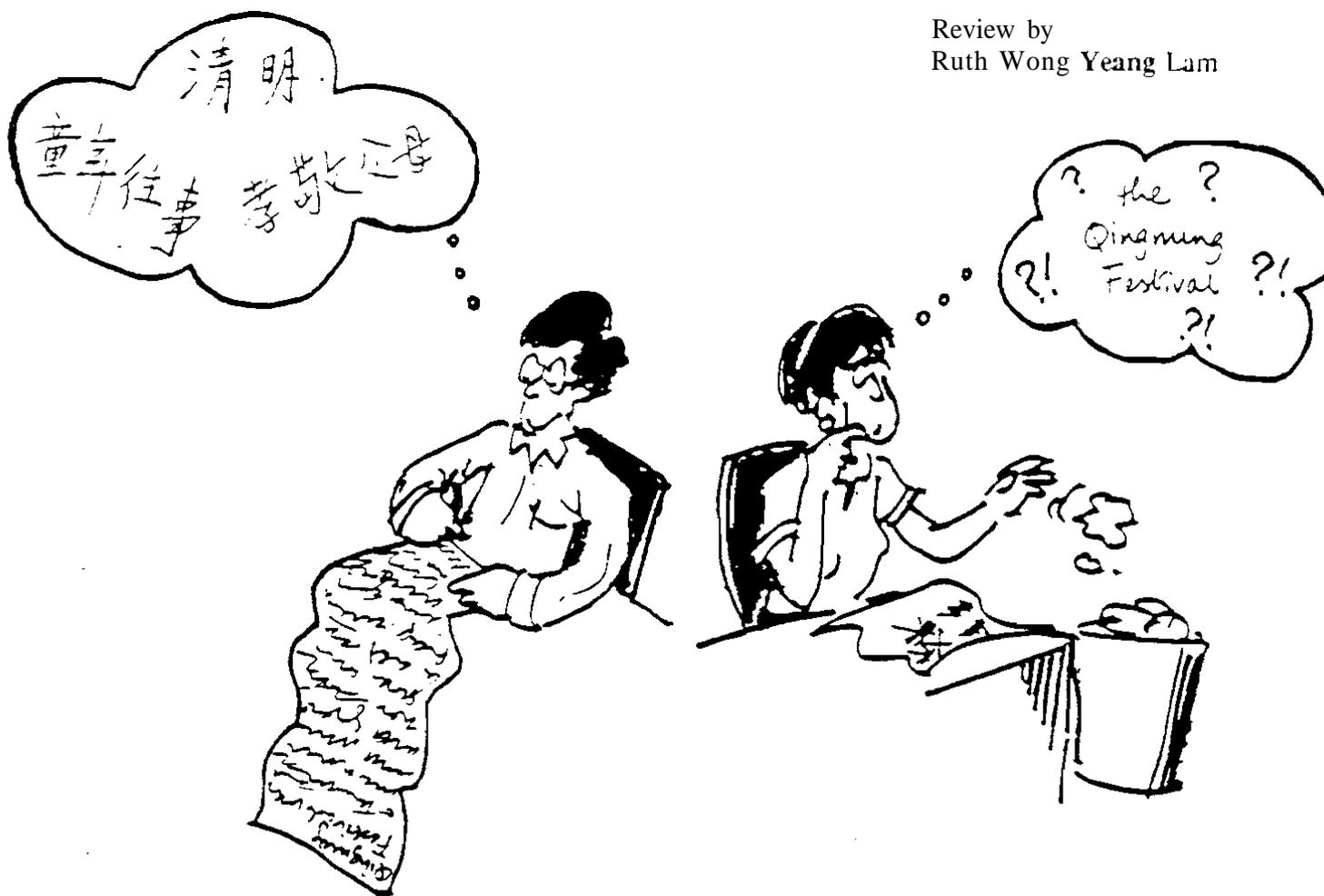
DOES OUR FIRST LANGUAGE HELP US WHEN WE WRITE IN OUR SECOND LANGUAGE?

Contrary to the popular belief that our first language (L1) tends to interfere with our writing in the second language, several studies of writing processes have shown the reverse to be true. There is evidence to indicate that we actually transfer the skills and strategies that we use in our first language to our writing in the second language.

Cummins (1979) makes the strongest case for this transfer of literacy skills in his linguistic interdependence hypothesis. Put simply, Cummins hypothesizes that if pupils are taught effectively in their first language, their proficiency in this language will transfer to their second language. This will happen as long as the pupils are adequately exposed to the second language, and are motivated to learn it. In other words, in bilingual education, the two languages work interdependently rather than interfere with each other. ■

WHAT DOES THE RESEARCH SAY?

Studies have shown that wrirers use their knowledge about writing in their first language to help them write in their second language. Edelsky (1982), for example, studied the writing of nine Grade 1 and 2 and eight Grade 3 students in a bilingual (Spanish-English) programme. and found that certain writing skills in one language, such as knowledge of spelling and manipulation of style, helped her subjects when they wrote in the other language.

Cumming (1988) also tound this transfer of skills from L1 to L2 in his study. In fact, he observed that while inexpert writers consistently used their L1 (French) to generate ideas only, expert writers went one step further, and used their L1 both to generate ideas and to check style. In fact, they did a lot of thinking in their L1. In this sense, the two languages enhance thinking, and help rather than interfere with each other.

But these studies looked at languages that are similar in orthography. What about writing in languages that are orthographically different, such as in English and Chinese, or English and Tamil? Under such circumstances, would the skills acquired in one language still transfer to the other language? To date, there has been no study comparing English and Tamil writing. However. the results of several studies involving English and Chinese writing seem to indicate that there is a transfer of strategies from one language to the other.

Friedlander (1990) asked 28 Chinese-speaking university students to generate a wrinen plan in their native language (Chinese) and another in English. The first task was planning a Chinese festival, *Qingming*; and the second task was life at an American university. One group planned in Chinese on the first task, and English on the second task. Another group planned in English on the first task, and in Chinese on the second task. The results showed that writers were able to plan and write more effectively when they wrote their plans using the language in which they had acquired that knowledge. In other words, those who planned in Chinese on the topic *Qingming* did much better than those who planned that topic in English. Not only were such plans significantly longer, they were also richer in information.

This interdependence between the two languages does not stop at the planning stage. There is evidence of interdependence between the two languages even at the revising stage. Hall (1990) looked at the complexity of revising across languages by studying the composing processes of four advanced English as a Second Language (ESL) writers (1 Polish, 1 Swiss/French, 1 Norwegian and 1 Chinese). The subjects were asked to write two tasks in their native language and two in English. The findings indicate that the same system of revision is used in both the L1 and L2. As the writers pause and revise their writing in the second language, grappling with the additional problems of vocabulary and grammar, they use a system of revision that appears to be shaped at first in their L1 and is subsequently transferred to their L2.

PARTICIPATION IS SCHOOL DECISION-MAKING: DO TEACHERS WANT IT?

Review by
Ho Wah Kam

GIVING TEACHERS MORE SAY

Teacher participation in school decision-making has been an important theme in the school management literature. Recently in the **US,** in calling for school reforms, the Carnegie Commission (1986) advocated "giving teachers a greater voice in decisions that affect the school". But do teachers really want it?

WHAT DOES THE RESEARCH SAY?

The results of research in teacher participation in the **US** have tended to show that teachers felt "deprived" of involvement in managerial decisions but less so in decisions affecting the classroom. However, because teacher involvement in decision-making is a complex phenomenon, the results of the research so far cannot be said to be conclusive.

One study found that the teachers were in fact less anxious to participate in school-wide or managerial decision-making and, if they did. were deriving little satisfaction from it. Another study (Aluno & Belasco, 1972) examined the difference or discrepancy between the actual and desired levels of participation, and the results showed three decision states, viz., *depn'ved* (i.e. involved in fewer decisions than desired), *in equilibrium* (involved as often as desired), and *saturated* (more involved than desired) Aluno and Belasco found a much higher percentage of their teacher sample in the "deprived" condition, a lower percentage "in equilibrium" and very few teachers in a "saturated" state. [See the table on page 2.] This study also found that the lack of involvement in decisions of importance was related to lower levels of job satisfaction.

In a similar vein. Schneider (1984) surveyed the views of 266 teachers in 33 junior high schools in Wisconsin. USA Two findings of interest were: (1) teachers with the interest and expertise to he involved in school decision-making saw themselves to be less involved than they should be, and (2) teachers with a high level of involvement had a significantly higher level of job satisfaction.

But would over-involvement affect teachers' level of job satisfaction in a negative way? In other words, is the relationship a simple linear one or *"curvilinear"*? - by "curvilinear" is meant that beyond a certain amount of involvement, the level of job satisfaction tends to drop, as illustrated in the figure below.
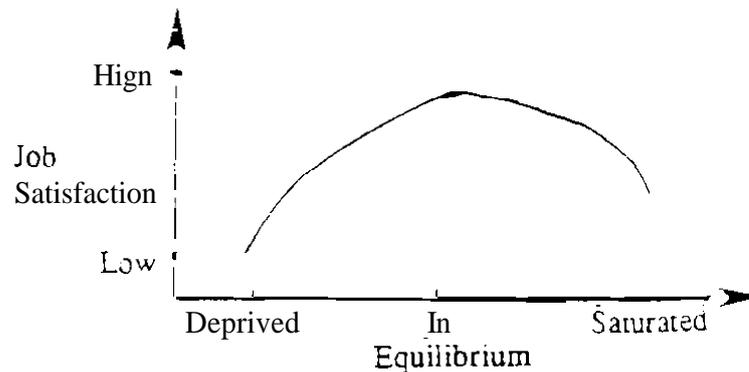
A few studies suggested that this was the case. Conway's (1976) study, for example, found some support for this phenomenon, but later studies found no evidence of this. In any case, very few teachers reponed that they were over-involved, so the point of saturation was seldom reached.

## WHAT HAS BEEN THE CASE IN SINGAPORE SCHOOLS?

Two research studies conducted in Singapore are reviewed here briefly, viz., Bhajan (1985) and Khor (1990). While these two local studies dealt with teacher participation in general, each of the studies focused on a different aspect of the issue in two different settings, secondary and primary schools.

Bhajan (1985) surveyed a sample of 742 teachers in 30 secondary schools and found that on the whole the level of participation in school decision-making was relatively low. This result was quite consistent with those reported in American studies, as the table below shows. In all three studies, the distribution seems to lie in the same direction.

Decision State	Alluto & Belasco (1972) (No of trs = 454)	Conway (1976) No of trs = 166	Bhajan (1985) (No of trs = 742)
Deprived	57%	72%	52%
In equilibrium	2 4	24	46
Saturated	19	4	2

MANAGEMENT SUPPORT: CAN TEACHERS EXPECT HELP FROM PRINCIPALS?

Review by
Chong Keng Choy
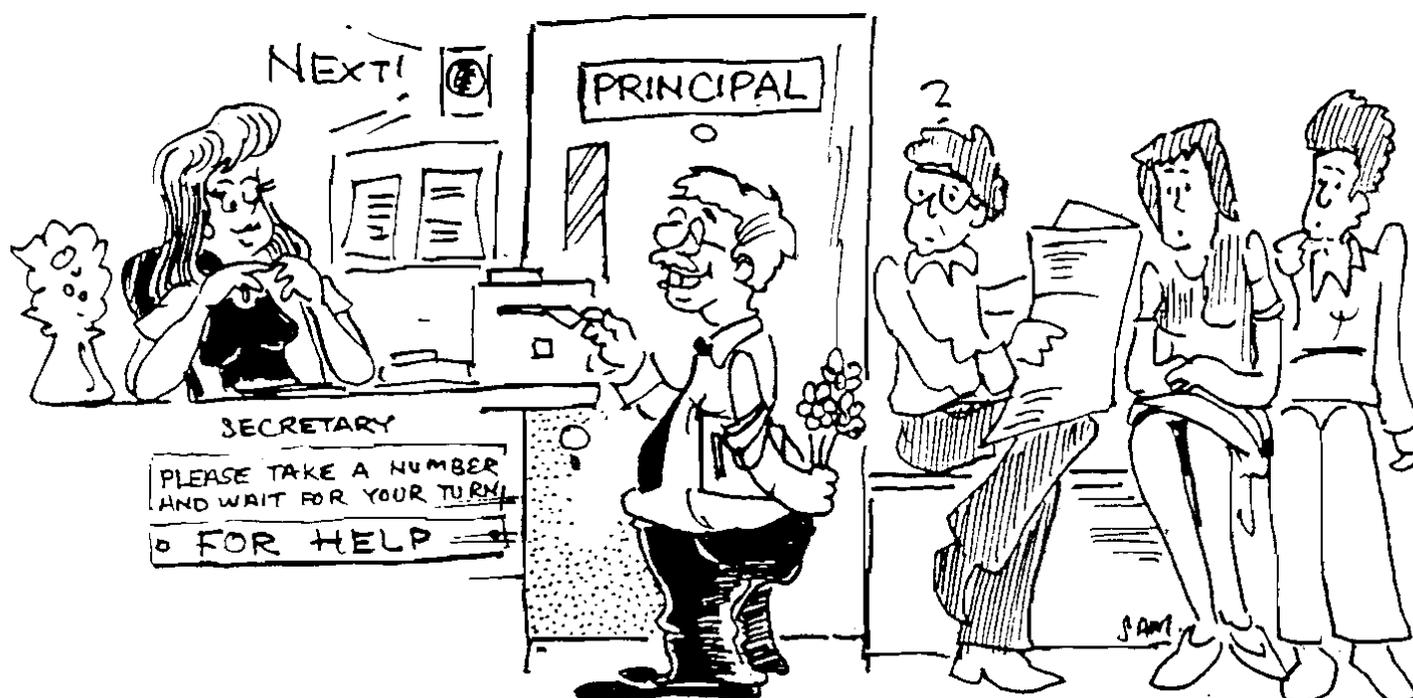
WHAT IS MANAGEMENT SUPPORT?

Teachers help their pupils learn. Principals help their teachers help pupils learn. Parents expect this to happen in schools. Management support refers to what teachers perceive their principals do to help teachers help pupils learn. It is possible to identify principalship tasks that constitute management support in Singapore schools based on the results of research, conducted for example, by Markandu (1985). He identified principalship tasks that ate associated with teacher performance as well as those that are not. Further, when teachers do not perceive their principals as helping them, management support does not exist, regardless of what the principals do. What does research say about management support in Singapore schools? A brief introduction is given in this review.

IS MANAGEMENT SUPPORT WORTH GETTING?

Yes, management support is worth getting, if teachers and principals want high performing schools. There is research evidence to indicate that greater frequency of management support is associated with high performing schools. Juma'at (1990) surveyed the perceptions of 70 principals of primary schools and 350 teachers in their schools by means of a 34-item questionnaire which listed principalship tasks that were aimed at helping teachers help pupils learn. When teachers perceive their principals perform these tasks, they receive management support. Juma'at labelled the performance of these tasks as those associated with the instructional leadership role. Management support and instructional leadership role are the obverse sides of the same coin. He divided the seventy schools into two groups. One group contained high performing schools, and the other low performing schools. High performing schools were those achieving an overall pass rate of 86% or higher at the Primary School Leaving Examination. Those achieving below 86% were categorised as low performing schools. Juma'at found that teachers from high performing schools reported that they received management support more frequently, although principals in both groups reported giving management support equally frequently.

DO TEACHERS NEED MANAGEMENT SUPPORT?

In general, research points to teachers desiring management support (Chong and Low, 1991). They want it to help their pupils learn. According to research on the impact of management support on teacher performance conducted by Markandu (1985), management support is associated with teacher performance that helps pupils learn. He surveyed 570 teachers in 19 secondary schools by means of two questionnaires, one of which listed principalship tasks aimed at helping pupils learn. The other questionnaire listed teacher tasks aimed at helping pupils learn. Teachers participating in his survey were asked to rate the frequency of their principals' and their own task performance. His study suggested that the frequency of receiving management support was associated with teacher performance. In general, higher frequency of receiving management support is associated with more frequent teacher performance of tasks aimed at helping pupils learn.

DO PRINCIPALS WANT TO GIVE MANAGEMENT SUPPORT?

From research studies done by Markandu (1985) and Juma'at (1990), teachers' perception of the frequency of receiving management support varies. Nevertheless, according to Juma'at (1990), principals of primary schools in both high performing and low performing groups claimed that management support took up 50% of their official work-hours. Here is a caution; if teachers do not perceive management support, it does not exist. Chong and Low (1991) suggested six tasks that principals desired to do that aimed at helping teachers help pupils learn. They are:

1   Provide feedback to teachers on their instructional strategies based on classroom supervision.

2   Induct new teachers into the school system.

3   Discuss with teachers new teaching strategies.

4   Discuss with staff the implementation strategies of new policies.

HOW ARE EDUCATIONAL STANDARDS MONITORED IN AUSTRALIA AND ENGLAND?

Review **by**
K.C. Cheung
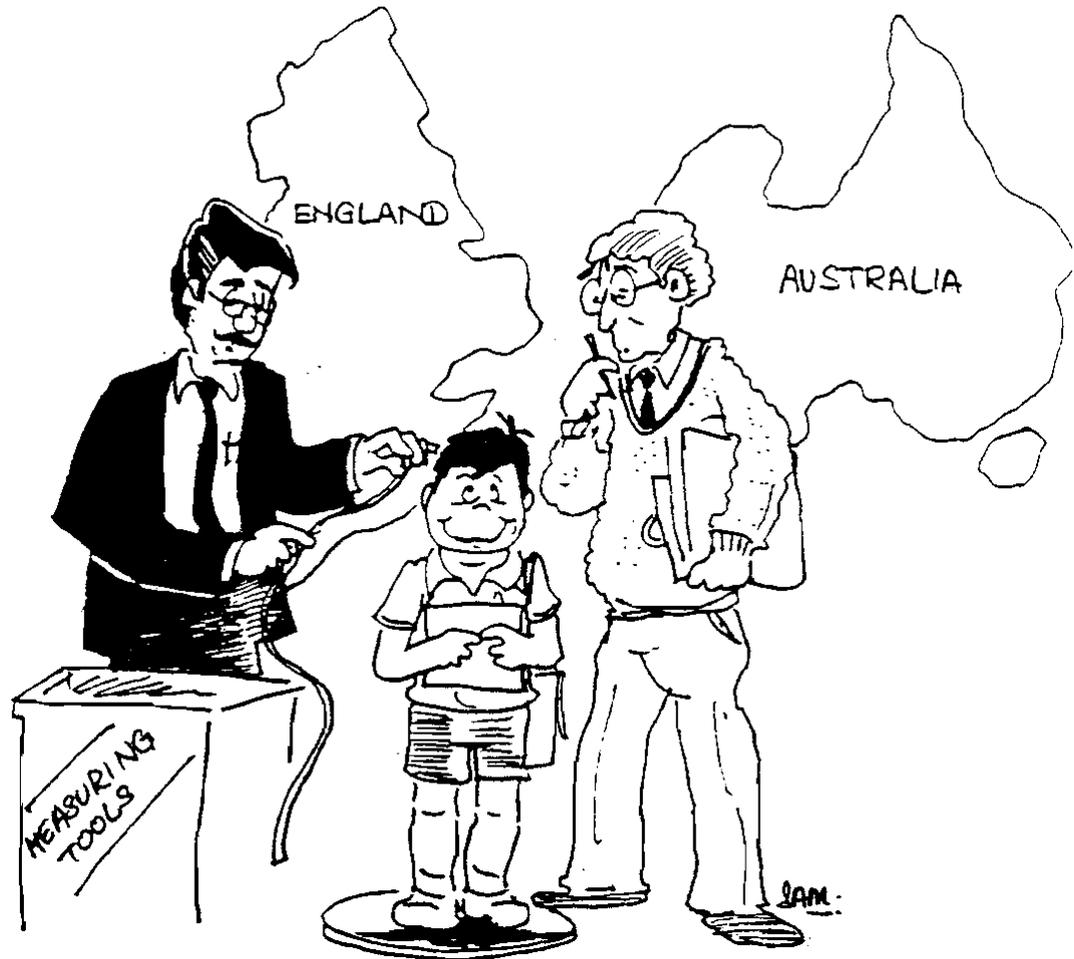
Towards the end of the 1980s, a concern for falling educational standards in some Western countries resulted in a movement towards a more centralised national curriculum for their primary and secondary school children. At the same time, recent advances in the psychology of learning and test theory have helped to improve the assessment and reporting of pupils' performance. These led to the development of pupil *profiling*, which is a system for monitoring educational standards.

This article presents the concept of pupil profiling in two places: The Basic Skills Testing Program in New South Wales, Australia; and the National Curriculum and Assessment Framework in England and Wales.

In Singapore, the Primary Pupil Profiling Project has just been launched along similar lines. It is important that teachers in Singapore keep abreast of these developments, which have implications for the structure of a curriculum and its assessment framework.

A BASIC SKILLS TESTING PROGRAM IN AUSTRALIA

This program was introduced by the New South Wales government in 1989. Its success has led other Australian states to join in as well. There are two main objectives in this program:

1. to chart educational standards across the state so that these can be monitored by school principals and government officials, and

2. to provide parents and teachers with diagnostic information regarding children's strengths and weaknesses in some key aspects of learning.

In the 1989 testing programme, the two target groups chosen were the Year 3 and Year 6 primary students in government schools. They were tested on five aspects of literacy and numeracy based on the existing curriculum. These were

1. Reading (comprehension)
2. Language (knowledge of written English)
   which represented the two aspects of literacy; and
3. Number
4. Measurement
5. Space
   which were the three aspects of numeracy.

Thus, these were the five *profile components* that needed to be charted and monitored and the results reported to teachers, principals, parents and the educational authorities of the state.

There are four innovative features of this programme:

1. New kinds of test questions that can be scored directly by machines were introduced to replace traditional multiple choice and essay questions. Students can colour the pictures, draw paths on maps and underline errors in samples of writing. In this regard, computer scoring programs need to be written to handle such responses from students.

2. Test questions are free from cultural bias and are set in personally meaningful everyday experiences. Curriculum developers are called in to design questions with *progressive levels of attainment,* that is, ranging from lower levels of activities, such as finding two pieces of information in a short piece of writing, to progressively higher levels, such as putting together several pieces of information to reach a conclusion.

3. Students' responses to these five aspects of pupil profiling are statistically analysed. Students are given a quantitative ability score for each of these profile components, which is then qualitatively interpreted, indicating what students can and cannot achieve.

4. Items that are common in the two grade levels of Year 3 and Year 6 are set and students' progress from Year 3 to Year 6 can be charted.

THE NATIONAL CURRICULUM AND ASSESSMENT FRAMEWORK IN ENGLAND AND WALES

The 1988 Education Reform Act in England and Wales introduced a compulsory National Curriculum for all children aged five to sixteen in maintained schools (equivalent of government schools in Singapore). This enabled a Task Group on Assessment and Testing to not only provide an assessment framework. that is, a system designed for testing the performance of students, but also to influence the design of the school curriculum and programmes of study. The assessment framework is based on the profile components in the three core subjects,English, Mathematics and Science.

For English, there are three profile components:
I. Speaking and listening
2. Reading
3. Writing, spelling and handwriting.

For Mathematics, the two profile components are
I. Knowledge, skills, understanding and use of number, algebra and measures, and
2. Knowledge, skills, understanding and use ot shape, space and handling data.

For Science, the two broadly defined profile components are
I. Exploration of Science
2. Knowledge and understanding of Science

These profile components are subdivided into ***attainment targets.*** Each of these attainment targets is graded into ten progressive levels of attainment. Thus, this form of assessment framework enables the progress of each child to be measured against established national standards. (At the moment, desirable functions of profile components are still under heated debate in England and Wales.)

Four stages of schooling have been identified for reporting and monitoring purposes. These are 5 to **7** years old, **7** to 11, 11 to 14 and 14 to 16. Groups of profile components are combined to form programmes of study for these four stages of schooling.

There are four innovative features of this assessment framework:

1. The assessment framework respects the professional expertise and responsibility of teachers because assessment on students'levels of attainment is done using ratings or tests designed by teachers. This is to be supplemented by standard assessment tasks (i.e. written tests) for the purpose of moderation across teachers and schools.

2. Each attainment target can be assessed by a unique set of assessment methods thought by teachers to be appropriate.

3. A student's performance is compared with the progress made by the average (median) student over two years, with due regard paid to the differing levels of **performance** within any age groups. This is the comparison that forms the basic requirement for **each** level of attainment.

4. Decisions on how the data should be aggregated and what language should be adopted for communication purposes are based on the needs of students, parents, teachers. schools and Local Education Authorities.

IMPLICATIONS FOR CLASSROOM TEACHERS

These developments in Australia and in England and Wales touch on more fundamental issues regarding the structure of a curriculum and its assessment framework. Teachers in Singapore may find it useful to consider the following questions:

● Can subject teachers agree on what topics are worth monitoring and reporting?

● Can students' attainment on these topics be qualitatively graded into progressive levels?

● According to an agreed assessment framework, can graded responses be made consistently through teacher assessment?

● To maintain consistency, what moderation schemes are possible?

● How should information be reported to teachers, principals, parents and education authorities?

● What remedial steps would need to be taken for students who fall below the expected level of attainment?

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3   Inrroduce alternative/new strategies to upgrade school performance.

6   Organise experimental educational projects to promote innovation and change

These tasks that principals claimed that they desired ro perform were identified by Chong and Low (1991) through a re-analysis of data presented by Mok (1985), who surveyed 104 secondary school principals on their performance of principalship tasks. Based on Mok's (1985) data, all senior inspectors surveyed agreed that these six principalship tasks were desirable. If teachers want management support in their schools. then these six tasks are likely to be the key ones that constitute that management support in Singapore schools.

Teachers' need for management support consisting of these six tasks may be better appreciated when one compares them with tasks that Markandu (1985) had identified as being associated with teacher performance. From among the many tasks identified by Markandu, the following five principalship tasks in the cluster that ~Markandulabelled as 'curriculum planning' could be readily related to the above six tasks:

1   Guide the staff to develop subject plans on the basis of the school self-appraisal findings.

2   Advise the subject comminees ro plan for appropriate instructional resources.

3   Work out a plan of co-curricular activities with senior subject teachers and programme coordinators.

4   Determine academic targets for subject areas on the basis of examination results

5   Provide directions to the subject committees to draw up school plans.

By comparing Markandu's list with Chong and Low's list, one may have reasons to be confident that the probability seems high that the proposed management support can bring about better teacher performance in helping pupils learn.

IS MANAGEMENT SUPPORT EASY TO GET?

Unfortunately, the answer is likely to be 'no'. There is no research study on the processes that teachers use to get management support. Outside the education sector, there has been increasing interest in getting management support for helping employees learn in the workplace. Broad (1980) surveyed 84 presidents of chapters of the American Society for Training and Development (ASTD), and she identified actions relevant to upper management involvement, pretraining preparation, support during training, job linkage, and follow-up. Altogether she highlighted 71 important actions. Although. she had identified what were important, management support was not envisaged to come by easily. Chong (1988) in his research conducted semi-structured interviews with 23 human resource development specialists in Singapore, and he identified key actions from Broad's (1980) list that could constitute management support in these organisations and highlighted very sophisticated support-building initiatives taken by these specialists to obtain such support. These support-building initiatives consisted of activities which could only be carried out by trained consultants or those with considerable experience.

WHAT CAN SCHOOLS DO?

Principals can begin to think about the son of management support that they can give. They can begin discussions with their teachers about management support during 'contact time'. Teachers can begin to think about the sort of management support that they need. They can begin discussions with their principals about organising workshops on management support. When everyone in the school has thought rhrough the value of management support in improving pupil learning, and each is willing to undertake the commitment to improving pupil learning, teachers and principals can collaborate with one another lo instirute management support in their schools. It is advisable to invite an external consultant to help facilitate the process of instituting management support.

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Bhajan used an instrument outlining 24 decision-situations covering 8 categories of school-related work, and interestingly there were no decisions that the teachers in the sample were prepared to leave completely to principals. He also found that the level of actual participation increased with the teachers' holding of a higher position in the school hierarchy. There was also evidence of a relationship between actual participation and school climate, ie. the higher the score for school climate (positive), the higher the level of actual participation, with no suggestion of a cause-effect relationship.

Khor (1990) studied the level of participation of primary school teachers in the development of school plans and the relationship between the teachers' level of participation and the satisfaction with teaching. As in Bhajan's (1985) study, the teachers surveyed in Khor's seem to be generally "deprived" of participation. Teachers would like to be consulted and to be able to give suggestions and comments on matters in which they felt they had the expertise. An important factor that determined the level of participation was the way school leaders conducted the decision-making process in the school. Khor's study also found that the level of teacher job satisfaction war related *negatively* to the discrepancy between actual and desired levels of participation, ie. the bigger the gap between the actual and desired levels of participation as perceived by teachers, the lower the teachers' level of job satisfaction. In addition, Khor reported that the level of job satisfaction seemed to decline after a certain level of participation had been reached - an indication of a likely *curvilinear* relationship.

WHAT IS THE GENERAL PICTURE?

The general picture derived from the research conducted in the US and Singapore is that teachers as a whole have a limited decision-making role in school-wide matters, as distinct from classroom-related matters. There is a kind of "zoning", in which teachers are most involved in matters in the instructional domain and less so in matters in the managerial/administrative domain. At the same time, it would appear that not all decisions are necessarily appropriate for *shared* decision-making. There are teachers who see some issues as being not directly relevant to their role, interest or expertise. Also, the desire for participation is not evenly distributed throughout the school - some teachers prefer more, others less.

So. while increased involvement in decision-making is assumed to be related to increased overall job satisfaction, it is useful to realise from the research that there is not necessarily a simple one-to-one relationship, nor is there the relationship of cause and effect.

WHAT ARE THE IMPLICATIONS FOR SCHOOLS?

It seems clear that the research on school decision-making has really to do with:

- the nature of authority relationships in schools, ie. between school administrators and teachers, and

- the question of influence in the work place.

Both of these matters are central to the social organisation of teachers in a school. Four implications seem obvious here.

Firstly, school principals should be conscious uf the psychological importance of reachers' pzrceprions of the discrepancy between their desired and actual levels of involvement.

● Secondly, if teacher participation in school decision-making is a desired thing, it seems reasonable to assume that teachers are interested in participating in school decision-making only in so far as they feel that such participation will give them some control over events in the school. Involvement without some measure of influence may nor he a desired thing.

● _Thirdly_, teachers should only be involved in those tasks for which they have some interest or expertise.

Fourthly, since the research discloses a weak upward influence across organisational levels in a school, it would appear that school administrators should try to work towards a flexible social structure in the school, based on consultation and group/team work. In a school set-up, the teacher work-group or committee could well serve as a useful _mechanism_ for participative decision-making.

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Likewise. Wong (1992) found that when the writers in hzr study got stuck. they rzsoned to their stronger language (English) to help son out their thinking before they were able to translate their ideas into the target language (Chinese).

This transfer of strategies from one language to the other improves writing. Lay (1982) found that when her four adult, Chinese-speaking L2 subjects incorporated their first language (Chinese) into their L2 (English) composing processes, the compositions wzre much bener in terms of ideas, organization and dztails.

However, many of us who write in English and Chinese experience difficulties. Why? Arndt (1987), in her study of three male and three female Chinese post-graduate students in China writing in Chinese and English, concluded that this is because writers have problems with the task itself, and not so much with the differences between two languages. In other words, writers have the same strengths (or the same weaknesses, as the case may be) in their writing, no matter what language they write in. It is not the *language* that they have problems with. Rather, it is the *writing task* that they have difficulties with.

WHAT ARE THE IMPLICATIONS FOR SINGAPORE SCHOOLS?

It is logical to conclude that writing in two linguistically related languages (for example, English and French) is easier than writing in two linguistically unrelated languages (for example, English and Chinese). The latter would pose an additional problem of learning a new system of orthography. It also seems reasonable to think that we would use different strategies when writing in two orthographically different languages. However, this review shows that when we write in two languages, be they orthographically similar or onhographically different, the first language helps rather than interferes with the second language.

Bilingualism is the cornerstone of our education system, and language achievement plays a crucial role in deciding the fate of Singapore students. It is therefore important to study the strategies that are used in writing in our L1 and L2, be they English and Chinese, English and Malay, or English and Tamil.

In our Singapore classrooms, we should seriously consider allowing our pupils to brainstorm ideas and plan their writing in their stronger language, be it Chinese, Malay, Tamil or English. The research evidence reviewed here shows that this will have no adverse effect on the pupils' writing in either language. In fact, having discussions, planning and revising in one's stronger language will only serve to improve the content of one's writing, rather than restrict it.

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This refers to whether examinees are allowed to move back and forth within the test, skip items and answer them later in the test, return to and review items already answered, and change answers to items. If computerized versions of tests do not provide these features and instead display individual items in a single-pass, no-return mode, then these constraints could result in differences in item characteristics, such as difficulty and discrimination indices.

Moreover, even if the features mentioned are incorporated into a computer-based test, there is a certain inherent delay, particularly if several keystrokes are used, in retracing the test to review and revise earlier responses; and the opportunity to obtain cues from other items is limited as the items are usually presented individually. The same test items may hence function *differently,* where scores may be due at least partly to the lack of opportunity in scanning the test as a whole and viewing multiple items as in the paper-and-pencil mode.

b) <u>Test structure</u>

It is often difficult to simultaneously display an item along with a long reading passage or a set of figures to which the item refers. Test-takers must route themselves through a number of related screens to obtain information necessary to complete an item; this may be distracting or may make a given task more cognitively demanding. The result could be that computer versions appear more difficult than their paper-and-pencil counterparts.

c) ~~Item content~~

In tests that contain graphics (i.e. figural or pictorial information), the principal concern is whether the resolution of the display medium used in a computer-administered version is sufficient to allow the test-taker to interpret, and extract the required information from the pictures or diagrams. This could affect the rate at which the material is assimilated, resulting in concomitant effects on score comparability.

Consequently, when a conventional paper-and-pencil test is transferred to a computer for administration, the scores obtained on the computer-based test may not necessarily be comparable to those obtained with the conventional format, even though the computer-based version may appear to be an alternative form of the original paper-and-pencil test. Despite having identical content on the items, mode of presentation could make a difference in test-related behaviours, such as the inclination to guess, the facility with which earlier items can be reconsidered, and the ease and speed of responding (Greaud & Green, 1986). The manipulation necessary for working with a computer, and the stimulus value of the computer itself may affect the test-taker's responses.

IMPLICATIONS OF THE ABOVE FINDINGS

In summary, on the basis of the above review, a number of factors related to the implementation of computer-based tests have been identified:

> ● Modifications in the way test items are presented in a computer-based test can elicit a *change* in a student's test-taking behaviour. Hence a student's performance on a computer-based test and a paper-and-pencil test may differ even though the two test forms are identical in length, item content and sequence.

- Issues such as the comparability in test-taking *flexibility* and examinee *control* are important considerations in the design of computer-based rests. It is important for designers of computer-based tests and rest administrators to ensure that the procedures involved in taking a computer-based test, such as the keystrokzs and commands required to view text and record responses are kept uncomplicated. and provide flexibility in reviewing and changing answers.

- Students' attitudes are important in determining whether computer-based rest programmes become an effective pan of a curriculum which incorporates the use of computers. There is a need to familiarize test-takers with techniques used in computer-based testing prior to test administration. The negative attitude of some test-takers toward computers may improve as they become accustomed to the machine and *its* associated procedures.

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science topics (Hear. Water and Air) were taught, each lasting one week. The treatment period was 40 minutes a day and stretched over four days per week. The data from the pretest and posrtest were collected.

The experimental findings showed that both teacher modelling alone and the combination of teacher modelling and student practice were more effective than controlled demonstrations in terms of the numbers of questions the studeno were able to write.

The above study shows the role of the teacher in the training of students in asking science questions. The teacher's own ability in asking science questions seems to be crucial. Goh and Chia (1990) did a study on the training of preservice primary teachers to ask operational questions in science and investigated the teachers' background in the study of science in association with the ability to ask this type of question

A sample of 34 szcond year preservice student-teachers enrolled in the two-year Ceniticate in Education programme was randomly selected. These student-teachers were representative of different science-background students in the whole cohort. The treatment included experiments, writing the observations, and questions related to the experiments and the observations. discussion on the concept of operational questions as well as practising in writing operational questions. Pre-test and post-test data were collected and evaluated. The teachers' attitudes/opinions towards the skills of asking operational questions were also sought through questionnaire.

The findings of the study showed that the behaviours of asking questions could be modified through teaching as was also shown by the study of Allison and Shrigley(1986). The preservice teachers with greater science background demonstrated better ability to ask operational questions.

WHAT ARE THE IMPLICATIONS FOR SCIENCE TEACHING?

1. Students need time to manipulate and process information while it is being stored and/or retrieved. Hence, the teacher should incorporate appropriate wait-time during lessons to allow for this processing. The teacher can utilize wait-time in combination with redirecting and probing strategies to increase the length of student responses and to increase the amount of student interaction.

2. It is evident from the research findings that the nature of the operational questions asked could be at a more concrete level, which can be handled by students themselves. Hence the asking of operational questions has an advantage over other styles of questions because of its flexibility. This is especially important for primary science teaching, as students can gain confidence and satisfaction and increased interest in the study of science.
    These instructional strategies may also provide students with opportunity to experience greater cognitive dissonance and more meaningful student interaction.

3. The fact that teacher's knowledge of science relates to their ability in asking operational questions implies that teachers can improve their questioning skills by upgrading their knowledge of science.

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The six high-ranking *terminal* values representing what the students were looking for at the time of responding to the questionnaire are shown below:

Females

- Comfortable life
- Family security
- Pleasure
- Self-respect
- Exciting life
- Social recognition

- World at peace
- Freedom
- Wisdom
- Inner harmony
- Family security
- True friendship

The six high-ranking *instrumental* values representing what the students believed to be the ways to reach the coveted life gods are :

Females

- Self-control
- Honesty
- Ambition
- Intelligence
- Politeness
- Responsibility

- Self-control
- Imagination
- Ambition
- Obedience
- Intelligence
- Politeness

IMPLICATIONS FOR SCHOOLS

As gathered from these three studies, it appears that Singapore youth are quite contented with the kind of life they are leading which reflects the affluence of society. They seem therefore rather home-bound and are more concerned with selfdevelopment than with the wider world outside their family. The poser for educators is to find ways to take the young people one step beyond their present position.

Since the inculcation of values is a long drawn-out process that calls for continuous effort over a period of time, some of the following might be considered:

● Bring the above findings to the students' attention and discuss with them the questions: Why do some youth like themselves set such priorities? What could be the consequences if the younger generation grew up with concerns for and interest in only these rather home-bound values?

● Organize in-class and inter-class debates on youth values such as those mentioned in the cited studies.

● Draw students' attention to the inter-relationship between the individuals, the family, and the nation as mutually dependent entities for the survival and development of all, by way of forums, talks by guest-speakers, and assemblies.

● Develop the concept of interdependence of individuals, the family, and the nation through literary and artistic activities such as essay-writing, drama, poetry, and songs.

SOURCES

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Generally, studies have shown that women are more selfdisclosing than men. especially when it comes to revealing feelings. Women are also better at reading non-verbal cues or body language. They tend to listen more attentively and respond well to pwple who need consolation. Although men tend to reveal less to other men, they share more personal information with women. When someone tells us something personal, we feel that we need to respond at the same level of self-disclosure. The theory of *reciprocity* states that we get along with people who disclose information in about the same depth of intimacy as we do. However, if someone were to tell facts that are too personal and too soon, we tend to feel threatened. On the other hand, if we are too quick to reveal information about ourselves, we may find ourselves feeling foolish. There is much evidence to illustrate that reciprocity in selfdisclosure is crucial in establishing friendships. A close friendship is likely to develop when the other person indicates in word or deed that he or she likes you, welcomes your company and thinks highly of you, and you feel the same way.

WHAT IS THE DIFFERENCE BETWEEN FRIENDSHIP AND LOVE?

Researchers are still debating the nature of love. One view is that love is a stronger, more intense form of friendship. In other words, strong feelings of friendship can develop into love. Another view is that the feelings of love are quite different from those of friendship.

Sternberg's theory of love (1988) attempts to explain the difference between friendship and love. According to him. love comprises three elements, intimacy, passion and commitment. Intimacy refers to how close two people feel towards each other and how strong the bond is. Passion includes physical attraction, romance and sexual interactions. Commitment is a decision to love somebody and to maintain that relationship. Sternberg's theory of love explains how intimacy, passion and commitment combine to form seven different kinds of love. Friendship, then, can be said to have elements of intimacy and commitment but not passion.

WHAT RELATIONSHIP PROBLEMS DO SOME TEENAGERS FACE?

Some teenagers may find it difficult to develop friendships because of shyness. People who are shy find it hard to start or continue a conversation, meet people at parties or join in group activities. If this continues, they might fall into a social anxiety trap. According to Brehm and Kassim (1990) social anxiety is associated with rejection of others, passive and unresponsive behaviour and rejection by others.

Another result of failure in establishing interpersonal relationships and falling in love is loneliness. Lonely people tend not to think well of others, are less sensitive to the feelings of others and are less responsive. Findings of Cutrona's research (1982) indicate that loneliness lasts longer among those who blame themselves for their personality, their shyness, their fear of rejection and their lack of social skills. They therefore tend to feel discouraged and avoid meeting others and making friends.

Loneliness can reach a peak during adolescence. In a local study by Quah, Low and Yeap (1991) it was found that between 75 to 100 percent of Singapore adolescents have experienced loneliness and there is no difference between boys and girls. Research has constantly shown a link between loneliness and low self-esteem. The relationship between loneliness and self-esteem may proceed as a vicious circle. Someone who is lonely may feel rejected, and thus avoids social contacts. As a result, he has little opportunity to develop social skills. This may lead to feelings of inadequacy and inferiority, and lower self-esteem. In another example, someone who suffers from low self-esteem may avoid social contacts and this would cause him to feel lonely.

HOW CAN TEACHERS HELP?

Teachers can help students re-examine their beliefs and how they feel about themselves. They can help students take a realistic look at some of their thoughts and see if they are irrational. These thoughts need to be replaced with more positive and realistic ones. For example, if a student thinks "1 must always do well", he may need to tell himself "It's OK to fail - nobody can do well all the time. 1 am not a failure."

Teachers can help raise the self-esteem of their students by not being critical and not labelling them as "stupid" or "good-for-nothing". Instead, students should be praised for their effort and not just for their achievements.

● Teachers may need to teach social skills of listening and responding effectively, reading non-verbal signals accurately, expressing oneself assertively and resolving conflicts amicably. It is important that teachers are also good models of these skills.

● In schools, the Pastoral Care programme provides opportunities for self-reflection and the learning of social skills. Sludents discover more about themselves through self-awareness activities. They learn to make effective decisions and express their emotions appropriately. Through group activities such as role-play and games, they learn to interact better with each other and with teachers.

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WHAT WAS FOUND IN THE COOPERATIVE CLASSROOM?
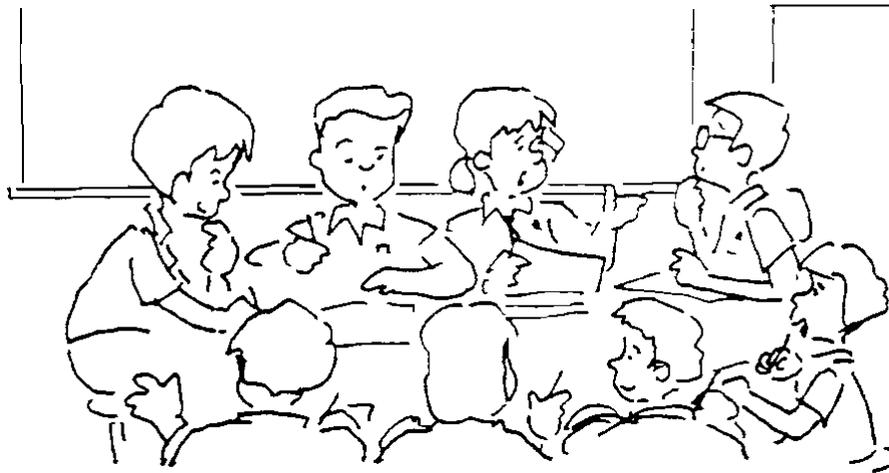
In the cooperative structure where the emphasis is on shared effort and doing one's part, groups that had successful outcomes lessened the negative self-evaluation of poor performers. But in groups that experienced failure, the positive self-evaluation of high performers war diminished! This emphasises the importance of group outcome in the process of self-evaluation under such conditions.

Dweck, who had also observed similar phenomena, has provided an explanation for this. Children in this study were motivated by two kinds of achievement:

(a) learning goals, in which individuals seek to increase their competence, to understand or master something new (these children were similar in orientation to those in the individualistic condition described by Ames and Ames);

(b) performance. goals, in which individuals gain favourable judgements of their competence or avoid negative judgements of their competence. (The orientation of these children corresponds with the ones in the competitive condition described by Ames and Ames).

Children who were oriented towards learning exhibited adaptive behaviours "characterized by challenge-seeking and high, effective persistence in the face of obstacles". These children chose challenging tasks regardless of whether they believed themselves to have high or low ability; they were more willing to take risks, and they thought more about the value of the skill to be developed or their interest in the task to be undertaken. Obstacles were a cue to increase their effort or to analyze and vary their learning strategies.

Children who were oriented towards performance, in contrast, avoided challenges, and high effort was at times negatively related to satisfaction. Effort in the face of uncertainty appeared to be experienced as aversive and worry about goal attainment may overwhelm intrinsic interest (Ames et al., 1977; Bandura and Dweck, 1985; Elliot and Dweck, 1985).

IMPLICATIONS FOR TEACHERS

1. Teachers (and parents) often pay attention to improvements and declines in a child's performance, but this information may be overlooked by students if the classroom structure is too iompetitive. (Ames and Ames, 1984).

2. Being a high achiever and knowing one has performed well does not appear to translate directly into behaviour that meets challenges with confidence (Dweck, 1986).

3. There is a risk that maladaptive behaviour already occurring in performance-oriented children will persisr in subsequent school years and even into adulthood if appropriate measures are not taken to remedy the situation.

SOURCES

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RESIDENTIAL EXPERIENCES

In addition to the recommendations set out in the key stages, the Working Group also recommended that:

> *a residential experience should wherever possible be a part of the formal curriculum of schools, for many pupils it can provide one of the most memorable and positive experiences of their school lives.*

CROSS - CURRICULAR CONTRIBUTION

In an expansion of cross-curricular matters, Outdoor Education is given further attention. The Working Group goes on to say here:

> *Outdoor Education can make a unique contriburion through: sharing experience with others, perhaps in a challenging environment; exploring personal beliefs, attitudes and values whilst living and learning wirh ones peers; working in small groups in a collective enterprise such as a challenging journey; and using the gifts of each individual toward the development of the whole group.*

IMPLICATIONS

What are the implications of this report for Singapore?

Outdoor activities have the potential to satisfy the need for excitement and challenge in a positive way. The human need for excitement and challenge can, if unfulfilled, lead to anti-social behaviour.The activities may not only be made available in wild and remote places, but may easily take place in the immediate urban area. Making Outdoor Education a compulsory part of education from 5 -16 is a brave and perhaps contentious move at this point in the economic climate in the U.K. However, it may provide a pointer to the direction we should be taking here in Singapore.

Within the scope of education for life comes education for leisure and it is in this area that outdoor and residential education has so much to offer. Outdoor education is a deliberate and calculated reaction to urban living; a purposeful injection of controlled adversity into a life which is one of routine work, 'soft ' leisure options and extreme comfort. In a society which takes for granted the advancement of technology and the inevitable loss of contact with the natural world, it is one possible means of redressing the balance. But it is not just about skill learning for adventurous, outdoor activities, it is also about using this medium to change people's attitudes to challenge, to the environment and to each other.

This has implications for the 'outdoor specialist', for the P.E. department as a whole, for academic departments like biology and geography, for the system of pastoral care in so far as it steers attitudes to social skills, and for the management of the school in its establishment of a school philosophy and a structure to best serve that philosophy.

CONCLUSION

The rapid urbanisation of sociery hers h a ld ro a generation at risk of growing up without any feel for the natural world. a wide programme oi Outdoor Educarion could help ro redress the balance. Nowhere has this been expressed more vividly than in the words of the American mountaineer Yvon Chouinard,

We are homo sapiens the tool users. We earn the name by developing tools ro increase our leverage on the world around us, and with this increased technological leverage comes a growing sense of power. This posirion of advantage which protects us from wild nature we call civilization. Our security increases us we apply more leverage, bur along with it we notice a growing isolation from the earth. We crowd into cities which shut our the rhythms of the planer - daybreak, high ride, wispy high cloud overhead, yelling storm tomorrow, moonrise Orion going south for the winter. Perceptions dull and we come ro a blunting of feeling in the shadow of security. Drunk with power, I find rhar I am our of my senses. I, toolman, long for immediacy of conracr to brighten my senses again, ro bring me nearer rhe world once more; in my security I have forgotten how to dance.

SOURCES

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Recent studies carried out on children in the United Kingdom by Armstrong et al. (1991) have concluded that the current level and pattern of British children's habitual physical activity is a cause for grave concern. In one study, the heart rates of boys and girls aged 10 and 13 years of age, were monitored for 12 hours a day. over a period of three days. Because the results showed that so few children achieved the desired criteria, the researchers went on to record the number of 10-minute sessions where the heart rate was at the desired level. Only 30% of the boys achieved heart rates above 140 for 10-minutes on each of the three rest days, as compared to 39% of the 10 year old girls. However, this dropped dramatically to only 11% of girls in the 13-year old category.

CONCLUSION

Presently in Singapore there are no data which reflect the intensity or duration of activity attained by children. However with the emphasis in our society on academic qualifications above all else, overprotectiveness by parents, and the favourite sedentary leisure pursuits of eating, shopping or watching films, the habitual activity levels of children are likely to be similar to those found in the United Kingdom, or even lower.

IMPLICATIONS

Children must be encouraged to become more active both in and out of school and to understand the links between health and activity. Habits are formed early in life and children with active parents are more likely to be energetic themselves. Mike Sleap (1990) from the University of Hull, U.K. states that

> "schools must also adopt a positive approach.
> If children experience a school environment
> where physical activity is highly valued and
> where adults are seen to be enjoying activity
> then they will come to accept it as normal and
> desirable. Young children have an instinctive
> love of activity, we must nurture that love
> and take care not to extinguish it.'

SOURCES

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