

REACT

1987

CONTENTS

OVERVIEW	S Gopinathan & Agnes Chang Shook Cheong
(1) FIFTEEN THOUSAND HOURS	Michael Rutter & Others
(2) HIGH SCHOOL ACHIEVEMENT- PUBLIC, CATHOLIC AND PRIVATE SCHOOLS COMPARED	James S Coleman & Others
(3) SCHOOL SOCIAL CLIMATE, ACADEMIC ACHIEVEMENT AND SELF-CONCEPT	Ng Gek Tiang
(4) FIVE WAYS TOWARDS EFFECTIVE SCHOOLING	Barbara L Schneider
(5) CHARACTERISTICS OF SCHOOLS THAT IMPROVE OVER TIME	Wilbur B Brookover & Lawrence W Lezotte
(6) THE SOCIAL CONTEXT OF EFFECTIVE SCHOOLS	Philip Hallinger & Joseph F Murphy
(7) EFFECTIVE SCHOOLS: A REVIEW	Stewart C Purkey & Marshall S Smith
(8) SMALL GROUP DISCUSSION CAN HELP PUPILS IN CRITICAL THINKING	B B Hudgins & S Edelman
(9) THE EFFECT OF ENCOURAGEMENT ON PROBLEM-SOLVING	D E Krarner & C D Baye
(10) DEVELOPING CRITICAL THINKING SKILLS IN SLOW LEARNERS	Charles K Curtis
(11) TEACHING PUPILS THINKING SKILLS	Wendy G Oxman
(12) IMPROVING THINKING SKILLS IN YOUNG CHILDREN USING COMPUTER-BASED ACTIVITIES	R J Riding & S D Powell
(13) FOSTERING YOUNG CHILDREN'S THINKING AND CREATIVITY USING LOGO AND CAI	D H Clements
(14) CREATIVITY AND MORAL REASONING	Conchita Tan-William
(15) MODIFYING 'CREATIVE WRITING' IN THE CLASSROOM	A Harrop
(16) SAYS RESEARCH	

OVERVIEW

by S. GOPINATHAN and AGNES CHANG SHOOK CHEONG

This issue of REACT features 15 abstracts based on two themes: (1) School Effectiveness and (2) Teaching Thinking. The first seven abstracts draw attention to some of the factors that make for effective schools, while the remaining eight abstracts focus on the development of pupils' skills in problem-solving and creative and critical thinking. Additionally, in this issue, as in the previous three issues, we include a colourful broadsheet featuring some key findings in snippet form from research studies not abstracted here. We hope you will find them interesting and thought-provoking, but there is a cautionary note - the findings as stated should not be over-generalised.

STUDIES IN SCHOOL EFFECTIVENESS

One of the major concerns facing both policy makers and teachers in education is how to ensure that schools are effective institutions. Such a concern is understandable since education systems are both expensive to maintain and because parents expect the system to provide equal opportunities for their children to excel. In the sixties and early seventies, the research literature seemed to suggest that schools made little difference. More recent studies have, however, demonstrated that schools are indeed effective.

One significant study in the recent literature on effective schools is Michael Rutter's Fifteen Thousand Hours, which is abstracted here. A longitudinal study conducted in the UK, it showed that schools do make a difference to the educational attainment and behaviour of pupils and that such factors as academic emphasis and the quality of pupil teacher interaction were more significant than school size, administrative organization and similar factors.

Another major study, done in the US, entitled High School Achievement - Public, Catholic and Private Schools Compared by Coleman and his colleagues sought answers to two questions. viz. Are private schools more effective than public? and Are private schools racially divisive? This study, abstracted in this issue, demonstrated that private schools produced better cognitive outcomes, encouraged pupil interests in higher education and provided a safer, more disciplined and more ordered school environment. They also tended to be divisive along income and religious lines.

Ng Gek Tiang's study of eight English-medium primary schools in Singapore sought to examine the links between school social climate, self-concept and achievement. Her findings were that there were differences in pupils' perceptions of school social climate, differentiated by the academic status of the Schools, and that there was a positive relationship between academic achievement and pupils' academic self-concept.

Barbara Schneider's research identified teachers' high expectations of pupils, parental involvement, low pupil enrolment, teacher enthusiasm and more instructional time as key factors contributing to pupil performance. Brookover and Lezotte, on the other hand, examined the patterns of school administration identified with schools that improved their effectiveness over time. They found that in these schools there was an emphasis on basic skills for all, high expectations with regard to the educational accomplishments of their students and a greater amount of task-oriented

time in the classrooms.

Finally, there are two abstracts that take a cautionary position. Hallinger and Murphy point out in their paper on the social context of effective schools that the social environment outside the schools affects the operation of school effectiveness factors. In a similar vein, Purkey and Smith in their review of the literature on effective schools point to differences in characteristics identified for effective schools and caution that the same ingredients placed in different schools will not necessarily bring about the same changes. They point to the need to pay attention to processes like collaborative planning and collegial work and to staff attitudes and perceptions.

STUDIES IN TEACHING THINKING

Life in a democratic nation undergoing technological modernization requires its citizens to be good thinkers and decision-makers. Hence the development of students' capacities for problem-solving and creative and critical thinking in all areas of learning becomes a fundamental goal in education.

Hudgins and Edelman in the abstract, "Small Group Discussion Can Help Pupils in Critical Thinking", show that encouraging primary pupils to verbalise their thinking in small groups could improve their critical thinking. In another abstract, "The Effect of Encouragement on Problem-Solving", Kramer and Bayean recommend that encouragement given at strategic points in time during the performance of problem-solving tasks could bring about better results.

Teachers will feel heartened to learn from Curtis' "Developing Critical Thinking Skills in Slow Learners" that slow learners in secondary schools could be taught to apply critical thinking skills in problem-solving situations. In another study entitled "Teaching Pupils Thinking Skills", Oxman stresses the need for teachers to guide and encourage secondary pupils to think creatively and critically.

The computer is increasingly used in the development of critical and creative thinking in pupils. Presenting problem-solving activities on the computer to young children was found by Riding and Powell to improve their intelligence test scores in their study, "Improving Thinking Skills in Young Children Using Computer Based Activities." Similarly Clements shows that young children could improve in their creativity and thinking skills after being exposed to computer activities, using LOGO and CAL.

Prospective teachers engaged in activities that enhanced creativity not only improved their creative thinking but also their moral reasoning. This is explained in the abstract of Tan-William's "Creativity and Moral-Reasoning".

Positive feedback is found to be essential in motivating creative writing. Harrop shows that primary pupils' writing could be modified by the types of assigned essays and teachers' appropriate comments in the abstract, "Modifying 'Creative Writing' in the Classroom".

As you read each abstract, you may find that the richness of detail is somewhat lost in the attempt to be concise. This is inevitable. You are therefore encouraged to read the original reports, articles or dissertations, most of which are deposited in the IE Library.

THE SOCIAL CONTEXT OF EFFECTIVE SCHOOLS

by PHILIP HALLINGER and JOSEPH F. MURPHY



Abstract by S Gopinathan

WHAT WAS THE STUDY ABOUT?

The concern of Hallinger and Murphy is to determine whether the factors identified as contributing to school effectiveness operate in a similar fashion between effective elementary schools with students of differing socio-economic backgrounds. They wish in particular to examine how the social environment outside the schools affects the school effectiveness factors.

HOW WAS THE STUDY DONE?

The researchers identified seven factors that the research literature had indicated were important

- clear school mission
- tightly coupled curriculum
- opportunity to learn
- instructional leadership
- home-school cooperation
- widespread student rewards
- high expectations

Hallinger and Murphy identified eight effective elementary schools, two each from low, lower middle, middle and upper middle income schools. They used interviews, questionnaires, document study and classroom and school observation to gather their data.

WHAT WERE THE FINDINGS?

Their principal finding is that the social context within which the schools are set influences the way in which the factors operate; in particular the role of expectations and rewards for student achievement, instructional leadership and home-school relations were significantly different.

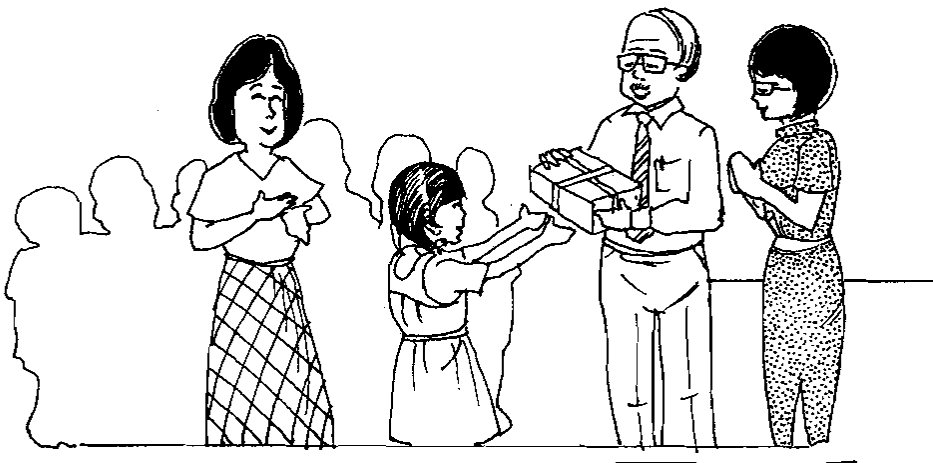
- Instructional Leadership: in the low SES effective schools the principals tended to take a very directive role in the selection, development and implementation of curriculum and instructional programmes. They had high visibility. However, their counterparts in high SES effective schools gave much more autonomy to teachers and in general exercised more indirect control.
- Widespread Student Rewards: in the low-SES effective schools

students were rewarded more frequently and with more tangible public rewards. In one school over 90 percent of the students received some form of public recognition in one school year. In the high SES effective schools by contrast there was much less emphasis on public rewards, perhaps because these students already had high motivation levels.

- High Expectations: in the low SES effective schools the staff had to play a more positive and direct role in creating high expectations within the school itself, principally because the wider community with less well schooled and less involved parents could not be a major source of these expectations. In the high SES effective schools while teachers did set out to create high expectations they acknowledged that they were reinforcing high expectations from parents.
- Home-School Relations: differences similar to those noted above were evident. In low SES effective schools there was in general poor parental support and involvement; the school was more isolated and thus had to be self-sustaining. Principals often acted as buffers, "protecting" the schools' programmes from the community. In high SES effective schools parents were heavily involved, providing money and instructional support. The schools were well integrated and highly prized part of the community.

WHAT ARE THE IMPLICATIONS FOR SCHOOLS?

Though Hallinger and Murphy caution against applying the results without further research, principals and teachers could use these results for school improvement. For instance, the finding that positive rewards consistently and frequently given are more important in low SES schools is important for the many schools in Singapore with low SES pupils. The finding that principals may need to "protect" low SES schools from their **communities** is disturbing since good educational practice cannot ultimately be sustained without parental support. Perhaps the answer lies in the principal and the school staff seeking ways of reaching out to the community and "educating" them as well about the need for parental support for school efforts and high expectations for their children.



The article, "The Social Context of Effective Schools" by Philip Hallinger and Joseph F. Murphy is to be found in the American Journal of Education, May 1986, **94(3)**: 328-355. The journal is available in the IE Library.

FIVE WAYS TOWARDS EFFECTIVE SCHOOLING

by BARBARA L. SCHNEIDER

Abstract by Tan Tai Wei

There has been an influential school of thought that says that the really effective factors influencing school performance are the larger social ones located in the structure of society at large. Individual schools therefore are powerless in attempting to counteract or enhance environmental influences. Any change for good or ill can only be effected via changing society at large.

WHAT WAS THE STUDY ABOUT?

Barbara Schneider has produced some evidence to debunk the above view. Along with other researchers cited in her study, she wants to reassure school administrators and teachers, and others closely related to the day-to-day running of individual schools such as parents, that they have quite a lot of power to influence pupils for the good, irrespective of the larger environmental forces.

HOW WAS THE STUDY DONE?

Her study was based on a sample of 493 students in four American urban elementary schools. Through studying information on pupil achievement, classroom observations and the results of interviewing teachers, she has concluded that the factors listed below do play an important role in improving pupil achievement.

WHAT ARE THE FINDINGS?

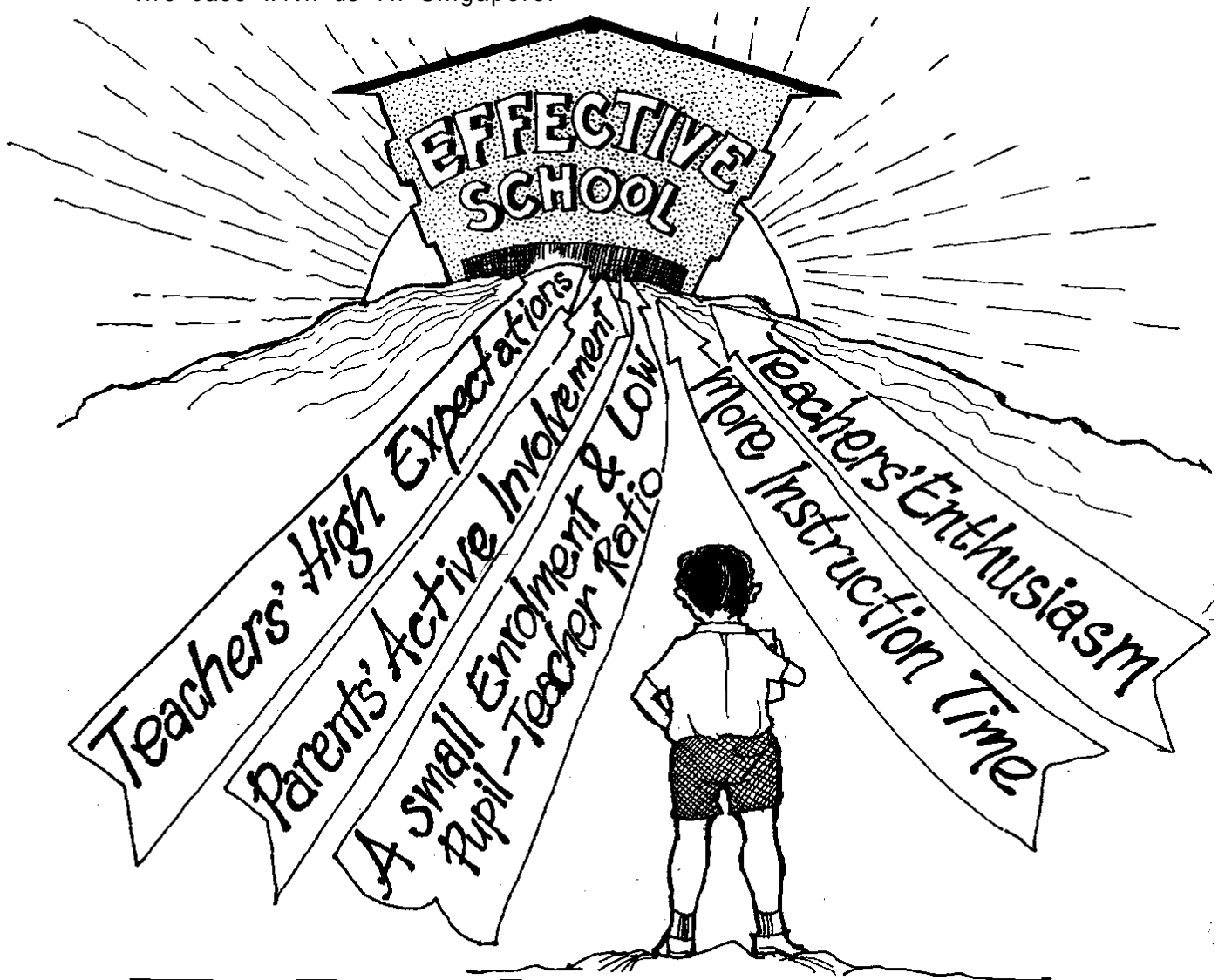
The findings are that the following five factors do produce good effects:

- Teachers' high expectations of pupils.
 - Parents' active involvement in instructional programmes.
 - A small pupil enrolment and low pupil-teacher ratio.
 - The enthusiasm of teachers.
 - More time for instruction.
- Pupils are better motivated to achieve, and do achieve more, when teachers have faith in their pupils' abilities and are therefore more enthusiastic and positive in their classroom behaviour. Parents

active participation, too, contributes to the pupils' feeling of being trusted and worthy. A small pupil enrolment of course makes it feasible to promote such interpersonal trust and help. Instructional time is then better utilised and may be beneficially enhanced. Therefore the five factors are mutually related, and they reinforce one another.

WHAT ARE THE PRACTICAL IMPLICATIONS?

Most of the factors listed above need to be heeded by at least some of our schools and teachers. For instance, teachers of monolingual or normal and extended stream pupils may need to realise that they should have high, even though realistic, expectations of their pupils. Also, not all our schools solicit parents' active involvement. And the need for a small pupil-teacher ratio is something we have recognised. With regard to teacher enthusiasm, the study found that generally it is the older, more experienced teachers who lacked it. Hopefully that is not the case with us in Singapore!



This is an abstract of the article entitled "Further Evidence of School Effects" by Barbara L. Schneider, Journal of Educational Research, 1985, 6: 351-53.

SMALL GROUP DISCUSSION CAN HELP PUPILS IN CRITICAL THINKING

by B.B. HUDGINS and S. EDELMAN

Abstract by Seng Seok Hoon



It has been found that if teachers are given an opportunity to lead discussions with a group of six children, he or she can effectively be encouraged both to speak less and to shift some responsibility for group work to the children. Children would participate more easily especially when the teacher tries to lessen his or her control of the group interaction.

A STUDY ...

... was conducted to increase pupils' critical thinking skill through small group discussion. It was hypothesized that children's critical thinking could be stimulated by having them participate in teacher-led small group discussions of lessons that demand critical thinking. Children may profit from such a systematic instructional effort to improve their logical thinking.

HOW WAS THE STUDY DONE?

Eight experimental lessons were written especially for teachers to conduct them with small groups of their pupils. Each lesson was constructed to pose a problem that demanded critical thinking for its solution, or alternatively, a situation was presented and critical thinking was necessary to explain how it was brought about.

The children's task in general was to select from the information provided and to see how it could be used as evidence for or against a conclusion, or how it could be organised to suggest a reasonable

The participating teachers took part in two in-service workshops where the need to do less talking and to shift the thinking from themselves to the children was emphasised. They were shown how to encourage children to give evidence for their conclusions. Children from ten classes were divided into two groups, one of which, the experimental group, participated in the small group discussions with their teachers.

WHAT DID THE STUDY SHOW?

- The amount of teacher talk declined after the teachers attended the two workshops.
- The amount of talk in the small group discussions contributed by pupils increased significantly.
- Children's verbal participation reflected a significant increase in the frequency with which they gave evidence.
- The teachers expressed surprise and pleasure at how effectively children who rarely or never participated in large group discussions, contributed to small group discussions. This was especially so with girls, not boys.
- Pupils were more willing to discuss their lessons during small group discussions.

WHAT DOES THIS STUDY TELL TEACHERS?

- Talk less in small group discussions and encourage pupils to talk more.
- Try to make pupils assume more responsibility for the thinking tasks.
- Spell out as clearly as possible to the children the behaviour that is desired.
- Offer children the chance to try out behaviours through role playing.
- Recognise that critical thinking is very much an interactive affair and that it can be taught.

This abstract is based on the article entitled "Teaching Critical Thinking Skills to Fourth and Fifth Graders Through Teacher-Led Small-Group Discussions" by B.B. Hudgins and S. Edelman, The Journal of Educational Research, 1986, 79(6): 333-342. This article is available in the IE Library.

DEVELOPING CRITICAL THINKING SKILLS IN SLOW LEARNERS

by CHARLES K. CURTIS

Abstract by Agnes Chang Shook Cheong

BACKGROUND

This study examined the effectiveness of teaching the skills of critical thinking to non-academic classes. as they investigated a **community** problem.

HOW WAS THE STUDY CONDUCTED?

I The Sample

- The 225 high school students involved in the study were slow learners and non-achievers attending non-academic vocationally-oriented programmes in eight schools. The students (from 15 to 21 years) were generally at least **two** years older than their peers in the academic classes. There were slightly more girls than boys. The school districts varied in geographic location, size, number of schools, teachers and students.
- In four of the eight project schools, there were an experimental class and a control class in each of them. In the remaining four schools, there were only experimental classes.
- All students were tested before and after the treatment programme on the Cornell Critical Thinking Test (CCTT).

II The Procedure

The experimental students

- The students employed an inquiry problem-solving model to investigate the problems and issues related to the housing conditions in their communities.
- Reports on field studies and interviews were provided for the students. Student surveys of the housing market were also introduced during class lessons. From these surveys, students decided on the housing problem in their community.

- Part of the study involved the investigation of factors that affect the cost of housing.
- There were lessons on critical thinking
- Students were also required to analyse a radio interview critically and to complete a work sheet on the interview.
- Other assignments involved the critical examination of a comic book on homes.
- Finally, students were encouraged to judge the authoritativeness of the data and the soundness of the arguments presented.

The control students

- In the schools with control classes, instruction consisted of chapter by chapter study of a textbook. Besides class discussions and a major project, questions were set at the end of each chapter of the textbook. Different topics were chosen by the schools.

WHAT WERE THE FINDINGS?

- The experimental classes scored significantly higher on critical thinking than the control classes.
- Experimental students in the non-control group also made significant gains in the critical thinking test.
- Geographic location and sex of the students were not important factors in the study.

IMPLICATIONS

The evidence from this study suggests that a **programme** consisting of specially prepared lessons designed to teach specific critical thinking skills is appropriate pedagogy for teaching critical thinking to nonacademic students. The findings also imply that critical thinking skills tend not to be developed in non-academic classes through formal instruction.

This study should give teachers teaching the academically weak students much encouragement and food for thought. Critical thinking has **till** now been considered a higher cognitive skill and is assumed to be an improbable attainment by the weaker students. The above findings show that such an assumption is erroneous.

This is an **abstract** of an article by Charles K. Curtis, entitled "**Developing Critical Thinking Skills in Nonacademic Social Studies Classes**", The Alberta Journal of Educational Research, 1980, 26(2): 75-84. This journal is available in the IE Library.

TEACHING PUPILS THINKING SKILLS

by WENDY G. OXMAN

Abstract by Ko Peng Sim

WHAT IS THIS PAPER ABOUT?

This paper discusses the importance of teaching thinking skills. The author believes that thinking is an essential process which underlies the learning of all school subjects. She uses the results of a research project to support her views that teachers should teach pupils reflective thinking.

WHY SHOULD THE TEACHING OF THINKING SKILLS BE ENCOURAGED?

The author observes that, in general, pupils who score high in tests of general verbal ability tend to be strong in reading comprehension. This, she says, could be due to the fact that both verbal ability and reading comprehension tests require the pupil to engage in reflective thinking, i.e., to relate, to infer, to analyze, to ponder, to judge, with regard to more and more complex and abstract concepts and ideas.

She also observes that classroom teaching mainly involves the presentation by the teacher of factual information with students answering simple factual questions to demonstrate that they have learned the material. Students are normally directed to memorize and recall. They are not encouraged to think. This is not a good way to teach reading comprehension because students are not given the opportunity to reflect on what they have learned.

HOW WAS THE PROJECT CARRIED OUT?

At least one study has shown that teaching pupils thinking skills is possible. This is a study conducted by Project THISTLE (Thinking Skills in Teaching and Learning). Taking part in the study were 100 Grades 10, 11 and 12 (equivalent to our Sec 4, Pre-U1 and Pre-U2) students and their teachers. A training programme was designed for the teachers. They were taught how to

- plan and use teaching materials and learning activities in a meaningful way;
- encourage students to participate in these activities; and
- guide students to think creatively and critically.

WHAT WERE THE FINDINGS?

Students' progress was assessed by the Comprehensive Test of Basic Skills (CTBS). The results were as follows:

- All students made gains in the post-test.
- The older students from Grade 12 had the least gains.

The author of this paper attributed the students' improvement in reading comprehension to the thinking skills they had acquired. It was the thinking skills, she said, which helped the students to understand the written language better.

WHAT SHOULD THE TEACHERS DO IN HELPING STUDENTS IMPROVE THEIR THINKING SKILLS?

Teachers should:

- Confront their pupils with ideas,
- Stimulate them with questions,
- Engage them in creative activities, and
- Challenge them with new problems.

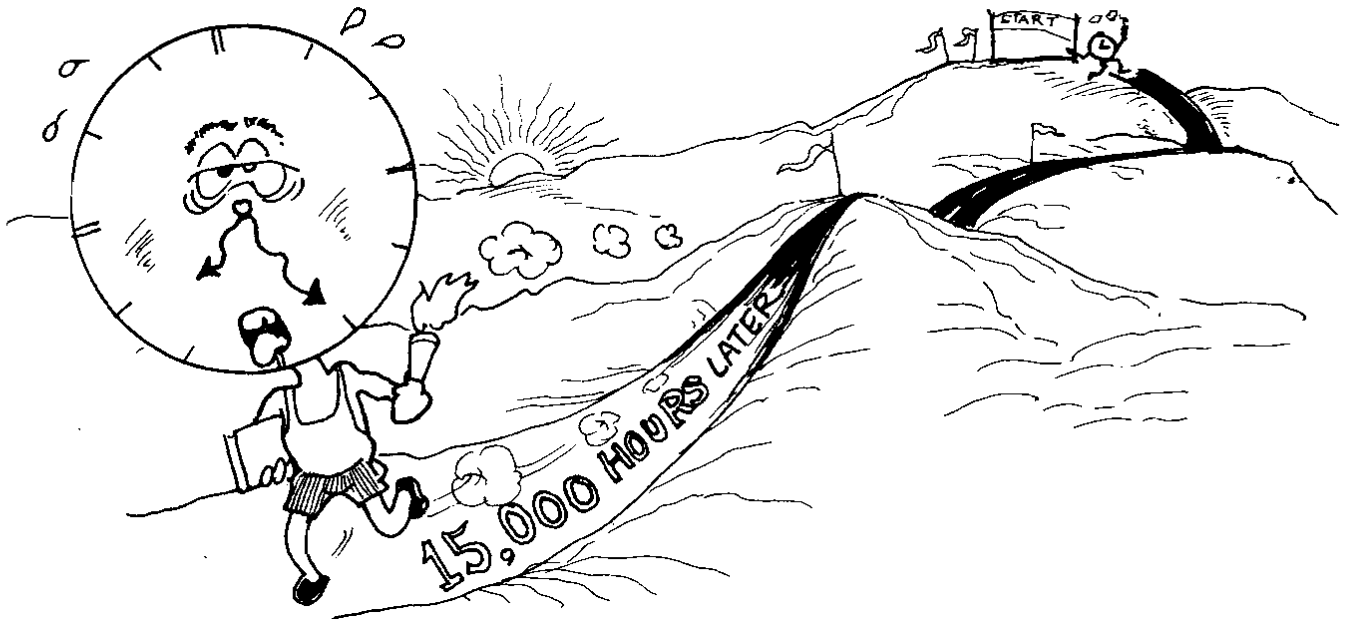


This abstract is based on the article, "Thinking, Basic Skills, and Learning" by Wendy G. Oxman, American Education, 1982, 20: 17-21. The journal is available in the IE Library.

FIFTEEN THOUSAND HOURS

by MICHAEL RUTTER and OTHERS

Abstract by Loh Shou Ai



'Fifteen Thousand Hours' derived its name from an approximation of the hours children spent in school from the age of five to about sixteen. Children in Singapore also spend about the same number of hours between primary one and secondary four.

WHY WAS THIS STUDY A HIT?

'Fifteen Thousand Hours' was a local hit as it appeared to have answers for some perennial questions about school effectiveness, and because the study was supported by an impressive wealth of data. The three main questions asked in the study were:

- Do experiences at school have any effect on pupils?
- Does it really matter which schools pupils attend?
- Which features of school matter more than others?

HOW WAS THIS RESEARCH CONDUCTED?

The first part of the research in 1970 included a survey of ten-year-old children in an inner London borough and in the Isle of Wight. Group tests to assess non-verbal intelligence and reading attainments were administered. Behavioural reports in terms of pupils' self-report and teachers' report on pupils were also gathered.

In 1974, about 2000 of the children were re-tested and data on their school attendance, examination results, school behaviour and incidence of delinquency outside school hours were collected. In so doing, the researchers could take account of the children's earlier characteristics when studying their later progress; this also provided evidence of variations between schools.

Twelve secondary schools attended by these pupils were examined in terms of academic emphasis, roles and responsibilities of children, a system of reward and punishment, and daily interaction of teachers and pupils in classrooms. Other factors like school size, physical facilities, and pupil composition in intakes were also examined.

WHAT WERE THE MAIN FINDINGS?

In essence, **it** was found that "Schools do indeed have an important impact on children's development and **it** does matter which school a child attends". Below are some of the details.

- Children's behaviour and scholastic attainments were influenced by the schools they attended; such influence lasted for at least four or five years.
- Schools where children's behaviour was above average tended to produce above average examination results.
- Such factors as school size, space and administrative organisation did not make as much difference to pupil outcomes as academic emphasis and teacher-pupil interaction.
- Pupil composition in each intake did affect pupils' learning and behaviour.
- The cumulative effect of various social factors was more influential than any individual factor.

WHAT DO THE FINDINGS MEAN TO TEACHERS?

This research suggests the following:

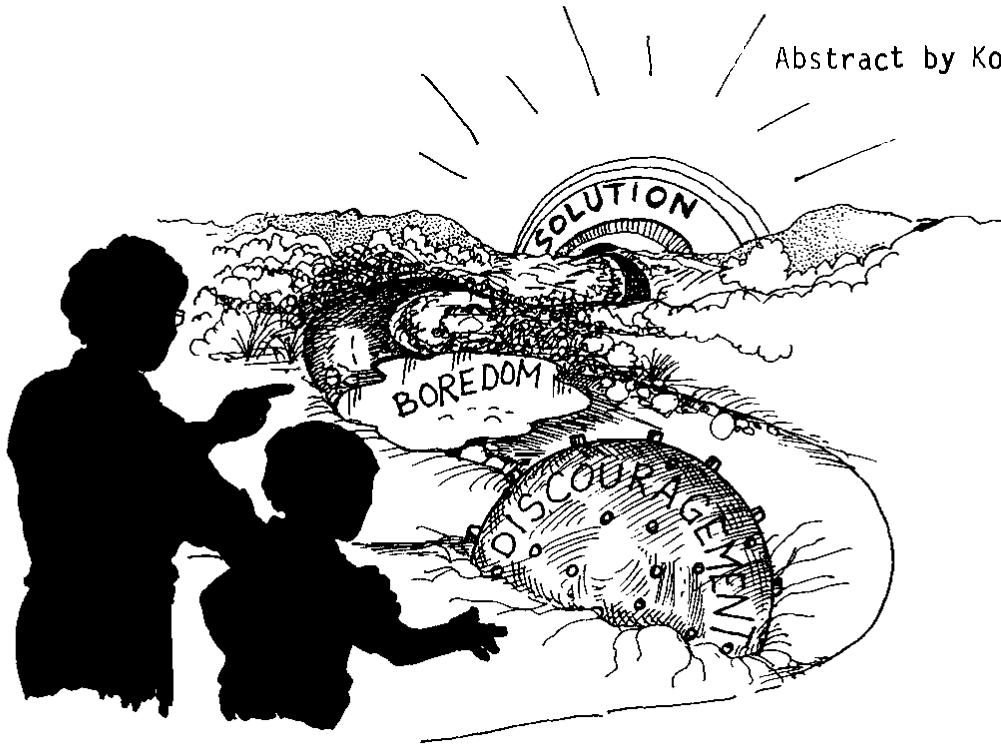
- The social rather than the physical environment matters more when **it** comes to pupils' behavioural and academic attainments. Therefore, even **if** our schools do not have the best facilities efforts to foster and nurture a positive school ethos are worthwhile.
- Peer-group influences affect pupil outcomes. Teachers need to think of ways to discourage negative attitudes on the part of pupils, foster and capitalise on pupils' positive orientation to school and people.

This abstract is based on the book, Fifteen Thousand Hours: Secondary Schools and Their Effects on Children by Michael Rutter, Barbara Maughan, Peter Mortimore and Janet Ouston (Open Books Publishing Ltd, 1979). This book is available in the IE Library.

THE EFFECT OF ENCOURAGEMENT ON PROBLEM-SOLVING

by D.E. KRAMER and C.D. BAYEAN

Abstract by Ko Peng Sim



WHAT WAS THE STUDY ABOUT?

It was a study of creative problem-solving. The researchers demonstrated that people engaging in problem-solving tasks would perform better if they were appropriately encouraged during the problem-solving process.

HOW WAS THE STUDY CONDUCTED?

Sixty-nine subjects took part in the study. The researchers divided them into three groups. All were given the same problem to solve. Before the session began, all subjects were warned of the possible difficulties they might encounter while they were working on the problem. Some of these difficulties were boredom, discouragement and the feeling of getting stuck. They were encouraged not to give up when they encountered such problems.

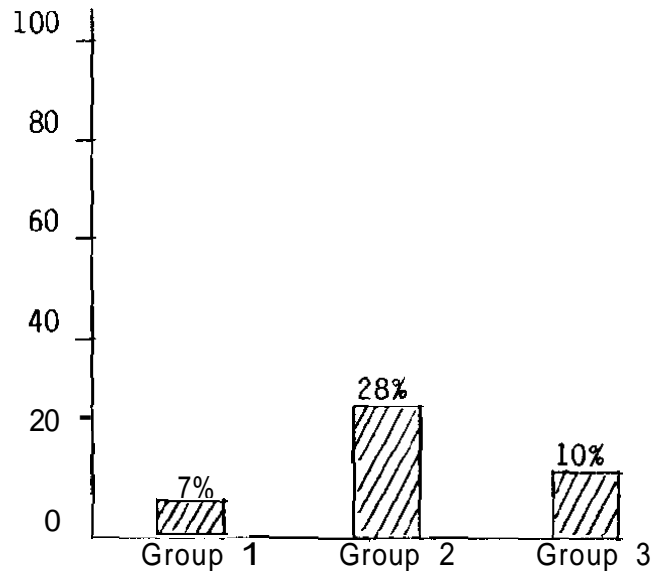
The following were the experimental conditions:

- Group 1: Received encouragement at the beginning and were left to work on their own thereafter.
- Group 2: Received the same encouragement twice: at the beginning and also halfway through the experiment.
- Group 3: Received the same encouragement every five minutes.

At the end of the session, the number of subjects who solved the problem correctly was recorded.

WHAT WERE THE RESULTS OF THE STUDY?

The results are shown below.



The results show that Group 2 subjects, who received encouragement at the beginning and half-way through the experiment, did best in the problem-solving task. Group 1 and Group 3 subjects did not do as well.

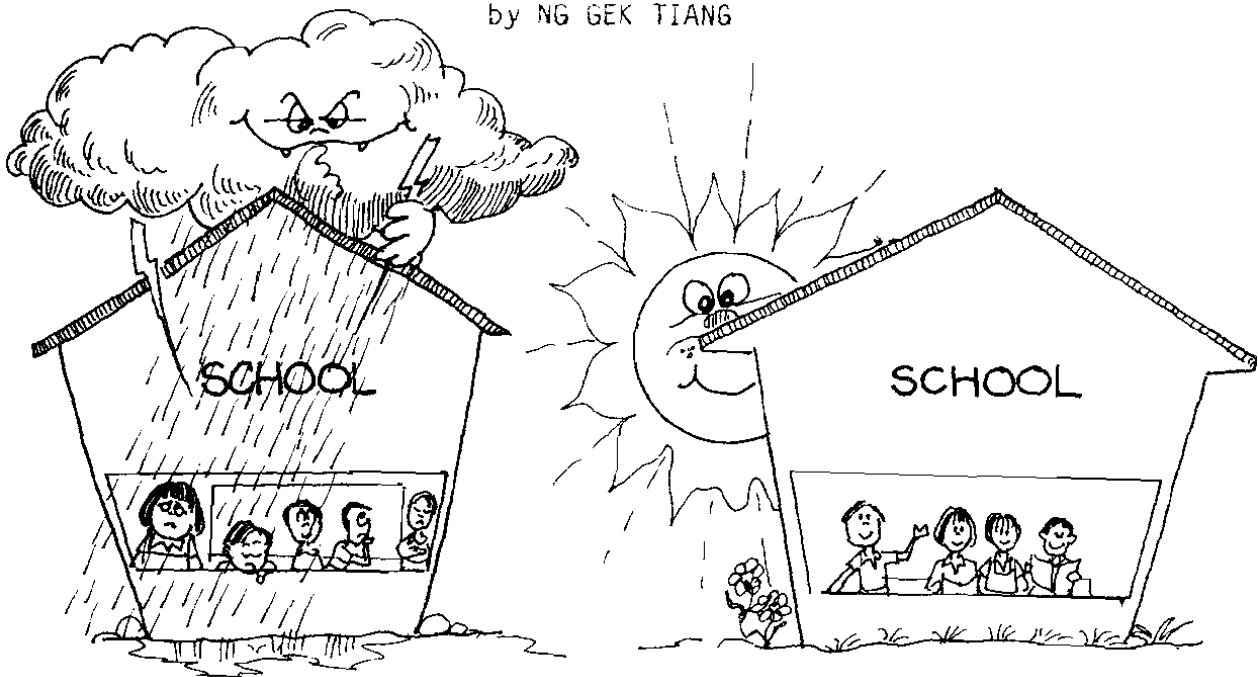
WHAT DID THE FINDINGS INDICATE?

The findings indicated that while people would work better when encouraged, too much encouragement would not be desirable.

The abstract was based on the article "The Effects of Behavioural Strategies on Creative Thinking" by D.E. Kramer and C.D. Bayan, Journal of Creative Behaviour, 1984, 18(1) : 23-24. This journal is available in the IE Library.

SCHOOL SOCIAL CLIMATE, ACADEMIC ACHIEVEMENT AND SELF-CONCEPT

by NG GEK TIANG



Principals and teachers are rightly concerned with ways of improving the school's effectiveness so that all pupils can benefit from the school's instructional programme. But how does one go about enhancing a school's effectiveness? Recent research has identified school social climate or the norms, expectations and beliefs found in the school, as an important variable.

WHAT WAS THE STUDY ABOUT?

The study was aimed at answering the following questions:

- Are there differences between schools in the views pupils hold of their school social climate?
- Does the school social climate contribute significantly to the differences in academic achievement of pupils between schools?
- Is there a link between pupils' academic self-concept and academic achievement?
- Does the school social climate contribute significantly to the pupils' self-concept of academic ability?

HOW WAS THE STUDY DONE?

Data to answer the above questions were obtained from 1177 primary six pupils drawn from eight English-medium primary schools, four low achieving schools (two government and two government-aided) and four high achieving schools (two government and two government-aided).

High achieving schools were defined as schools in which pupil performance in the PSLE was better than those in the low achieving schools. These pupils answered a 46-item questionnaire with three main themes:

- pupils' perception of their ability to function successfully
- perceptions of their friends' expectations
- perceptions of the academic norms of their schools

Data from the PSLE were used to assess levels of academic achievement.

WHAT WERE THE FINDINGS?

The main findings were as follows:

- There were differences between schools in pupils' perception of the school social climate.
- In general, the school social climate in the more effective schools was different from that found in the less effective schools. These differences occurred even when pupils' SES was taken into account.
- There is a positive relationship between academic achievement and pupils' academic self-concept.
- The school social climate contributes significantly to the pupils' self-concept. This occurred even when pupils' SES was taken into account.

WHAT DO THE RESULTS MEAN TO TEACHERS?

- Such factors as pupils' feelings of mastery of their academic work, their perception of teachers as caring and encouraging, and high expectations for tertiary level education were related positively to pupils' academic achievement. **I**f teachers are able to develop these features in their own school environments they can expect better pupil performance.
- Since pupils' SES was less influential than the school social climate for academic achievement, teachers' efforts to improve school learning environments can make a difference even with pupils who have disadvantaged home backgrounds.
- By being positive in their evaluation of ability, and by providing opportunities for success in the school environment, teachers can improve pupils' self-concept thus aiding higher academic achievement.

This abstract is based on **Ng Gek Tiang's** Master of Education dissertation entitled "A Study of the Relationships between School Social Climate and the Academic Achievement and Self-concept of a Sample of Primary Pupils" (National University of Singapore, 1985). A copy of the dissertation is available in the IE Library.

HIGH SCHOOL ACHIEVEMENT - PUBLIC, CATHOLIC, AND PRIVATE SCHOOLS COMPARED

by JAMES S. COLEMAN and OTHERS

Abstract by Pauline Chan

Educators used to measure the 'quality' of a school by the resources which went into the school, not by the quality of the students who came out of it. However, in the 1960s, attention began to shift from resource inputs to the outcomes of education, and in particular to achievement in basic language and mathematical skills. Various studies have indicated that schools do make a difference.

THE PUBLIC SCHOOL AND PRIVATE SCHOOL DICHOTOMY

The study of High School Achievement was an attempt to answer two important questions:

- Do private schools provide a better education than public schools?
- Are private schools racially divisive?

The findings confirmed that students in private and Catholic schools academically outperform public-school students when matched for race, socioeconomic status, and parental education.

The study also made an interesting observation that the public-private dichotomy reflects different modes of school organization, particularly the two principles of organization:

- organization around residence (the principal mode in the public sector);
- organization around a religious identity (the principal mode in the private sector).

However, it raises the question about the appropriateness and even the continued viability of assignment to school by place of residence.

HOW WAS THE STUDY DONE?

A national study of 58,728 students in 1,015 high schools in America was carried out. Information was obtained from students who were asked to complete questionnaires regarding their school experiences and coursework, the post-high school plans, and general family **background**. They also completed a battery of tests covering general as well as specific areas of achievement. Eighty-five per cent of students responded to the questionnaires. School officials and

teachers were included in the survey, which provided the most **complete** information available for the comparison of public, Catholic and private schools.

WHAT WERE THE MAIN FINDINGS?

- Private schools produce better cognitive outcomes than do public schools;
- Private schools provide a safer, more disciplined and more ordered environment than do public schools;
- Private schools encourage interest in higher education and lead more of their students to attend college than do public schools with comparable students;
- Private schools tend to be socially divisive along income lines, separating the students from higher income backgrounds into elite schools;
- Private schools tend to be divisive along religious lines, segregating different religious groups into different schools;
- Private schools do not provide the educational range that public schools do, particularly in vocational and other non-traditional courses or programmes.

WHAT ARE THE IMPLICATIONS FOR BOTH PRINCIPALS AND TEACHERS?

This study has shown that school order and discipline, regular homework and a high level of teacher involvement are important attributes of the achieving high schools. Such attributes could be fostered in Singapore secondary schools to improve student performance.

Private schools tend to make greater academic demands and have more effective discipline as there are fewer constraints under which the private schools operate. They depend more on parents to reinforce the demands which the school makes on students, and there is more leverage for the school to make demands and exercise authority on how the school should be run.

This abstract is based on High School Achievement - Public, Catholic and Private Schools Compared by James S. Coleman, Thomas Hoffer, Sally Kilgore (New York: Basic Books, 1982). A copy of the book is available at the IE Library.

CHARACTERISTICS OF SCHOOLS THAT IMPROVE OVER TIME

by WILBUR B. BROOKOVER and LAWRENCE W. LEZOTTE

Abstract by Chuah Toh Chai

Brookover and Lezotte examine a specific question: what changes occurred in the improving or declining schools that coincided with the changes in measured achievements? Their assumption is that changes in school operation hold the key to improvement rather than changes in the type of student intake.

HOW WAS THE STUDY DONE?

Eight elementary schools in Michigan State, USA were selected on the basis of changes in their academic achievement as measured by a **common** standardized test (the Michigan Educational Assessment Program) over a three-year period. Data were collected on school organisation, functions of the school, methods and materials used, staff perception of students and community, interpersonal relationships and staff perception of need satisfaction.

WHAT WERE THE MAIN FINDINGS?

Among the improving schools, the following changes in school characteristics were found to be prevalent and consistent:

- acceptance and emphasis on basic skills in reading and mathematics as the minimal objectives for instruction;
- teachers and principals shared a strong belief in the ability of students to master these basic skills;
- a higher and increasing expectation among staff and principals with regard to the educational accomplishment of their students;
- a greater sense of responsibility among staff and the principal for teaching the basic skills rather than passing the blame of failure to parents or students themselves;
- a greater amount of task-oriented time in classroom;
- the principal was regarded as the instructional leader, school disciplinarian and, above all, effective **programme** evaluator for achieving these objectives;
- less satisfaction among staff and principals with the existing situations, and a belief in improvement.

WHAT WERE SOME OF THE RECOMMENDATIONS?

Based on the findings and related literature, the authors went on to make the following recommendations:

- achievement of basic skills in reading and mathematics be regarded as a minimal 'non-negotiable' goal for all students, irrespective of their background, hence, reducing emphasis on differential goals for different groups of students;
- principals be increasingly regarded as instructional leaders and evaluators of programmes with the aim of achieving these basic objectives;
- teachers' responsibility for the instruction of basic skills to all students be emphasized in all general programmes for professional development;
- the production-oriented attitude be promoted among teachers and due recognition and reward be given to those who practise it.

WHAT ARE THE IMPLICATIONS FOR US?

- **It** is encouraging to know that an alterable variable, school operation, is more important for school effectiveness than the so called 'innate attributes' of students.
- School effectiveness can improve when both teachers and principals share a similar positive outlook on the educability of their students, taking into account differences in their learning pace.
- Mastery teaching for basic skills in reading and mathematics is the basis for further educational success.



This abstract is based on the report entitled "Changes in School Characteristics Coincident with Changes in Student Achievement" by Wilbur B. Brookover and Lawrence W. Lezotte. Occasional Paper No. 17, Institute of Research on Teaching, Michigan State University, 1979. A copy of this report is available in the Reference Section of the IE library.

EFFECTIVE SCHOOLS: A REVIEW

by STEWART C. PURKEY and MARSHALL S. SMITH

Abstract by S Gopinathan

The various studies of school effectiveness abstracted in this issue point to a number of features or factors that are prominent in effective schools. Purkey and Smith review these features and introduce as well theories of organizational change and implementation of innovation to suggest a more complex notion of academically effective schools.

WHY IS THIS REVIEW SIGNIFICANT?

- Purkey and Smith say that their orientation is skeptical, pointing out that isolated lists of "effective features" are not helpful in bringing about changes in schools.
- They have reviewed a wider research literature including outlier studies, case studies and studies of programme implementation and school organization. Such diverse perspectives, they feel, are vital to understanding the complex nature of how schools function.
- Their analysis is concerned with both content and process. By content they mean such characteristics as principal's leadership quality and evaluation. By process they refer to the ways in which goals are determined, how schools conduct their everyday business and how they accommodate conflict and change.

HOW DO THEY CHARACTERIZE THE SCHOOL EFFECTIVENESS LITERATURE?

- Different studies have come up with different lists of characteristics of effective schools. Thus there is as yet little consensus on just what the important characteristics are.
- Some studies seem to imply that change can be brought about by adopting a set of "effectiveness variables". Purkey and Smith contend that the same ingredients placed in different schools will not necessarily bring about the same changes.
- There is a lack of longitudinal studies. It is not clear that effectiveness either at the class level or for the whole school will remain fixed.
- They do indicate, however, that the following features have been identified in many studies:
 - an emphasis on instructional leadership by the principal or another important staff member

- high staff expectations for student achievement
- well-disciplined schools

WHAT MODEL OF SCHOOL EFFECTIVENESS DO THEY PROPOSE?

- A school culture perspective is suggested which sees schools as unique and dynamic social systems. Attention should thus be focussed on the following:
 - the whole school should be treated with special attention, taking into account people's attitudes and how people interact with one another and the environment,
 - schools should be regarded as having a loose organizational structure and thus susceptible not to top-down control but to consensus building,
 - emphasis should be placed on collaborative planning, collegial work and a school atmosphere that supports experimentation and evaluation.



The article by Purkey and Smith *is* to be found in The Elementary School Journal, Vol 83, No 4, 1983. A copy of the journal *is* available in the IE Library.

CREATIVITY AND MORAL REASONING

by CONCHITA TAN-WILLIAM

Abstract by Agnes Chang Shook Cheong

BACKGROUND

Some research studies have claimed that creativity facilitates the development of mature moral judgement and decision-making. Based on the characteristics of people who had performed well in creativity and moral reasoning tasks, it is conceptualized that such people share common cognitive and affective traits. In the light of these characteristics, the investigator hypothesized that growth in creative thinking should in turn stimulate growth in moral reasoning. The study was conducted to investigate the effect of training for creativity on creative thinking and moral reasoning.

HOW WAS THE STUDY DONE?

The study involved 109 prospective teachers enrolled in an educational psychology course, specially designed to incorporate the development of creativity. The participants were tested before and after the course on two Torrance's tests on creativity and Rest's test on moral reasoning.

The teaching-learning experiences in the study were characterized by:

- student personal-involvement and active participation in all aspects of the course (construction, instruction and evaluation);
- frequent instructor-student and student-student interactions;
- freedom of choice within the framework of the course;
- self-direction with accompanying responsibilities;
- informality, mutual respect and acceptance;
- problem-solving, facilitation of different kinds of thinking, and teaching approaches;
- utilization of a wide range of learning materials and sources of information;
- rewards of creative performance/production;
- specific course-related tasks emphasizing the development of sensitivity to problems, fluency, flexibility and originality; and

- discussion of the nature and nurture of creativity.

WHAT WERE THE FINDINGS?

- Moral reasoning was found to relate positively and strongly with creativity.
- There were significant gains in all the creativity subtests and in the principled reasoning test after the course.
- No significant sex difference was found on the test scores before and after the course.

IMPLICATIONS AND SUGGESTIONS

The findings suggest that creative thinking is likely to influence moral reasoning and possibly vice versa. The overall results show that a programme enhancing creativity would help in the development of both creative thinking and moral reasoning. Though the sample involved in this study was a group of prospective teachers, one may note that the processes used could be adapted for different courses and for any level of schooling. It is important to remember that creative thinking and moral reasoning are two important traits which would help students meet their needs in a fast changing and expanding world.



This abstract is based on an article by Conchita Tan-Willman, entitled "Fostering Creativity and Its Effect on Moral Reasoning of Prospective Teachers", Journal of Creative Behaviour, 1980, 14(4): -259-263. This journal is ad

MODIFYING 'CREATIVE WRITING' IN THE CLASSROOM

by A. HARROP

Abstract by Frances Lee

WHAT WAS THE CREATIVE WRITING PROGRAMME?

Based on behaviour modification, the programme was an attempt to raise the writing performance of 26 third-year secondary pupils who were of average ability. It consisted of

- teaching pupils the three creative writing qualities of fluency, elaboration and flexibility,
- awarding scores to each of these writing qualities,
- giving appropriate **comments** by the teacher, and
- **lastly**, a promise of a letter to their parents.

These behaviour modification procedures were found useful in furthering the academic objective of stimulating creativity in writing.

HOW WAS THE PROGRAMME CONDUCTED?

The programme was implemented during normal classes between November and June, involving one English teacher who took the class on a ten-day time-table.

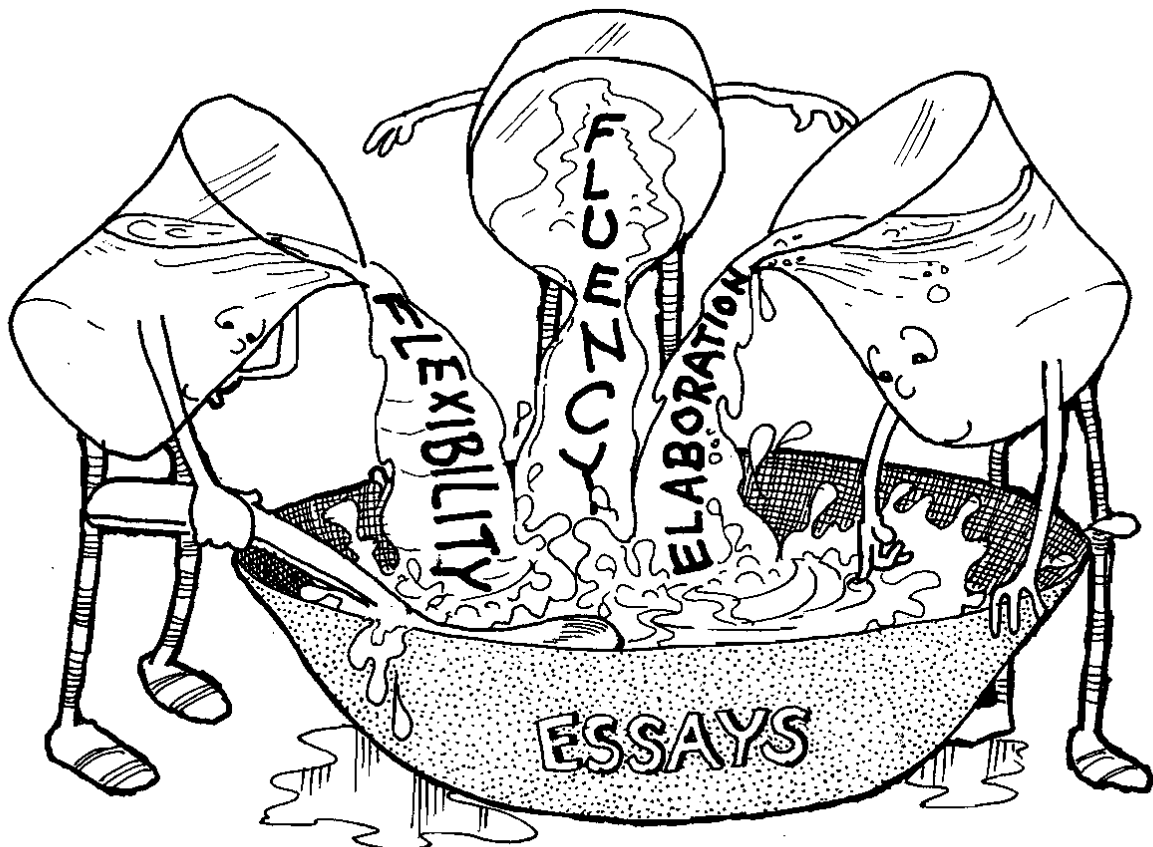
- Firstly, the pupils had to write six essays which were marked for fluency, elaboration and flexibility.
- The marked essays were returned to the pupils who were informed of the study. The teacher also explained thoroughly the meaning of the three creative writing qualities.
- The treatment came in the next three phases. Fluency was taught first, followed by elaboration and the treatment ended with flexibility. Each of them was treated independently.
- There was a one-month break before the pupils had to write six more essays which were marked just like the first set of essays.
- The teacher's marking was compared to that of the chief investigator so to ensure comparability between the two markers.

WHAT WERE THE RESULTS?

- The teacher's marking was comparable with that of the investigator.
- The teacher's comments were found to match the scores for each of the three qualities of creative writing.
- Pupils' performance had improved but the most significant had been for elaboration.
- The performance for fluency was closely related to flexibility.

WHAT WERE SUGGESTED BY THE RESULTS?

- Behaviour modification techniques were found to be useful in motivating pupils to write in a creative manner.
- The three phases of treatment suggested that even average ability pupils can learn to be creative in their essay writing.
- The **26** third-year secondary pupils were enthusiastic, showing great interest in their scores.

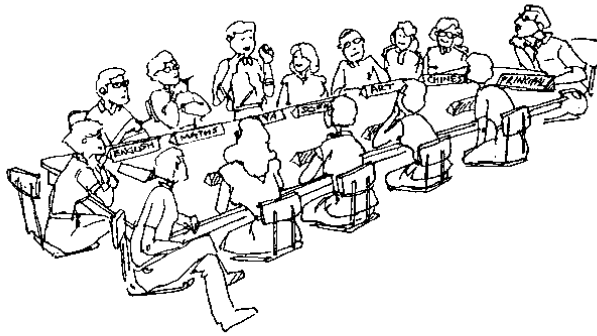


This abstract is based on the article entitled "Modifying 'Creative Writing' in the Classroom", by A. Harrop, British Journal of Educational Psychology, 1984, 54: 62-72. This journal is available in the IE Library.



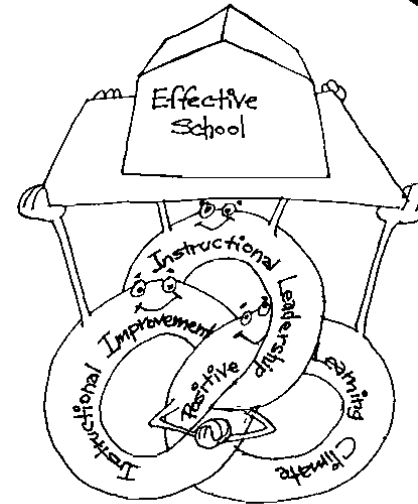
Attention paid to increasing the effectiveness of the leadership of principals should be coupled with an understanding of the needs, motives, and values of the individuals who are or who seek to be effective principals.

James A. Gun and Edward A. Holdaway (1988). "Perceptions of Effectiveness, Influence, and Satisfaction of Senior High School Principals". *Educational Administration Quarterly* (22,2:43-92).



The secondary principal who engages in a representative approach and allows for school participation may be better equipped by teachers to expand formal authority over teacher productivity levels.

Gladys S. Johnston and Berrice P. Venable (1985). "A Study of Teacher Loyalty to the Principal: Rule Administration and Hierarchical Influence of the Principal". *Educational Administration Quarterly* (22,4:4-27).



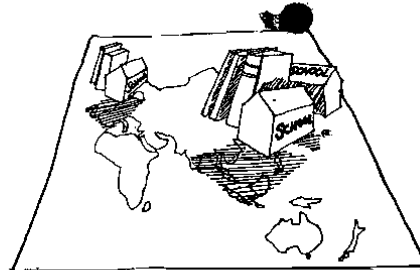
Effective schools are not merely an aggregate of common attributes or characteristics but manifest a set of common processes that function continually to maintain and improve school effectiveness.

T.P. Carter and M.L. Chatfield (1986). "Effective Bilingual Schools: Implications for Policy and Practice". *American Journal of Education* (95,1:200-232).



In order to maximize the contribution of the student, the teacher should regard him both as a subsystem of the school system and as a client. By so doing, the student's level of cooperation, participation and commitment to the achievement of the school goals might be considerably enhanced.

Mobesell Ogunsanya (1983). "The Student Factor in the Achievement of School Organizational Goals". *International Journal of Educational Development* (3,3:253-261).



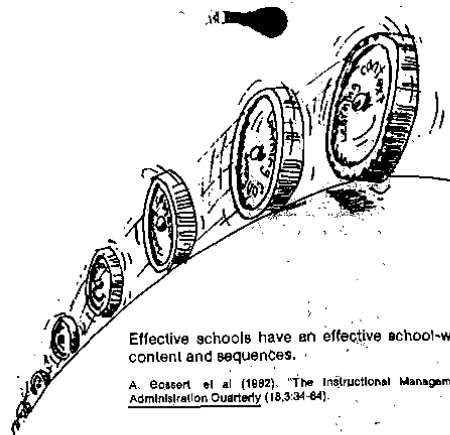
School factors are found to have a greater impact on achievement in developing countries than in developed countries.

G.A. Walker (1975). "The IEA Six Subject Survey in Twenty-One Countries". *International Studies in Evaluation* (9). New York: Wiley.



Where principals with more "experiences" exchange this expertise to influence teachers to improve instructional efforts, this results in increased pupil achievement.

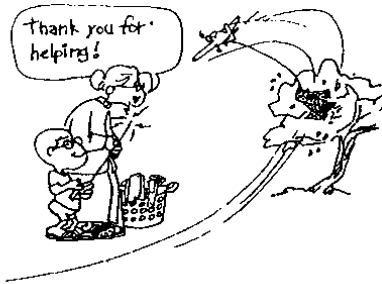
Reginald High and Charles M. Achilles (1988). "An Analysis of Influence-Gaining Behaviours of Principals in Schools of Varying Levels of Instructional Effectiveness". *Educational Administration Quarterly* (22,1:111-119).



Effective schools have an effective school-wide co-ordination of instructional content and sequences.

A. Gossett et al (1982). "The Instructional Management Role of the Principals". *Educational Administration Quarterly* (18,3:34-64).

**SAYS
RESEARCH**



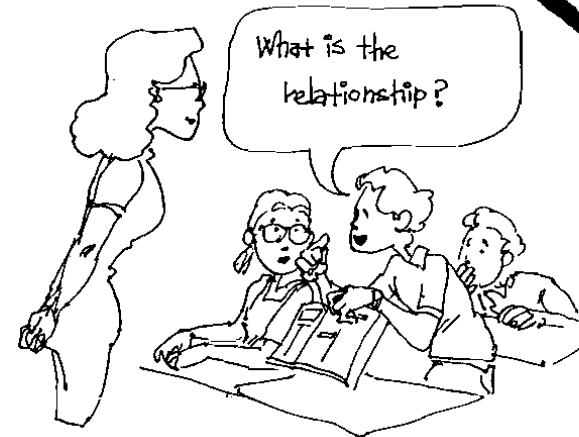
Moral Judgement is found to relate strongly to creative thinking in adolescents. Those students who possess higher creative abilities judge moral events more adequately.

Zhang Dexin (1985) "An Exploratory Study of Creative Thinking in Adolescents". Information on Psychological Sciences (2,20-25).



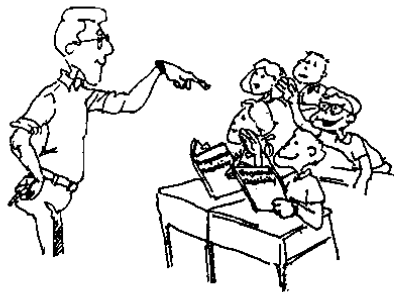
Subject-specific teaching of critical thinking is the most effective means to develop students' abilities to transfer strategies and skills to similar subjects in school and problems in life outside of school

D. Sullivan (1985-86) "Using a Textbook for Critical Thinking". New England Social Studies Bulletin (4,31-33).



To develop generic thinking competencies, students should be taught how to raise questions. By becoming question-raisers, students learn to assume responsibility for their learning rather than to depend solely on teachers or textbooks.

M. Helmen (1984) "Learning to Learn: A Behavioral Approach to Improving Thinking". Paper presented at the Harvard Conference on Thinking.



Programmed creativity instructional materials are successful in influencing verbal fluency for gifted and regular pupils in the upper primary classes.

J. Huber, D. Treffinger, D. Tracy and D. Rand (1979) "Self Instructional Use of Programmed Creativity-Training Materials with Gifted and Regular Students". Journal of Educational Psychology (71,3,309-309)



Teachers who ask challenging questions and require students to give evidence or reasons for their conclusions and opinions are likely to develop critical thinking abilities and a cr

M. Browne, and S. Kelley (1985) Asking the Right Questions: A Guide to Critical Thinking. Englewood Cliffs, N.J.: Prentice-Hall.



Creativity can be enhanced in pre-school and primary pupils by exposing them repeatedly to divergent-thinking questions.

M. Gillett, J. Shaw, and J. Sherwase (1980). "Effects of Training on Divergent-Thinking Abilities of Kindergarten Children". Child Development (50,4,1061-1064).



There is a strong relationship between an open, supportive and structured classroom climate where opinions on issues may be explored and expressed in a free and disciplined manner, and development of critical thinking and attitudes supportive of it.

J. Goodlad (1984). A Place Called School. New York: McGraw Hill.

**SAYS
RESEARCH**