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FOCUS: Motivating Students

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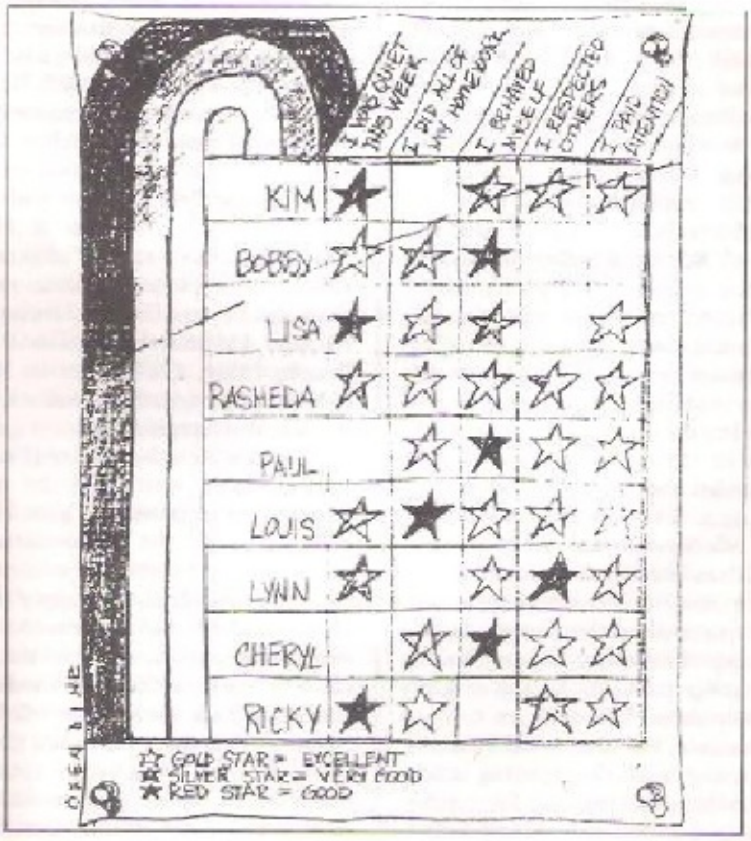
JERE BROPHY

Synthesis of Research on Strategies for Motivating Students to Learn

Students are more likely to want to learn when they appreciate the value of classroom activities and when they believe they will succeed if they apply reasonable effort.

This article synthesizes the conclusions drawn from a review of the literature on motivation conducted to identify principles suitable for use by teachers, especially principles for motivating students to learn during academic activities. To begin with, student *motivation to learn* can be conceptualized either as a general trait or as a situation-specific state. The *trait* of motivation to learn is an enduring disposition to strive for content knowledge and skill mastery in learning situations. The *state* of motivation to learn exists when student engagement in a particular activity is guided by the intention of acquiring the knowledge or mastering the skill that this activity is designed to teach.

Several conceptual distinctions implied by these definitions of student motivation to learn guided my review of the literature. Student motivation to learn is an acquired competence developed through general experience but stimulated most directly through modeling, communication of expectations, and direct instruc-



tion or socialization by significant others (especially parents and teachers). If activated in particular learning situations, motivation to learn functions as a scheme or script that includes not only affective elements but also cognitive elements such as goals and associated strategies for accomplishing the intended learning. According to this view, teachers are not merely reactors to whatever motivational patterns their students had developed before entering their classrooms but rather are *active socialization agents* capable of stimulating the general development of student motivation to learn and its activation in particular situations.

However, teachers work within certain restrictions. Schools are formal institutions that students are required to attend in order to learn a prescribed curriculum, and classrooms are public settings where performance is monitored by peers and graded by teachers. If teachers were recreation program managers, they could solve motivation problems merely by finding out what their clients like to do and arranging for them to do it. Instead, like supervisors in work settings, teachers must find ways to motivate their students voluntarily to try to do well what is required of them.

Schools are not ordinary work settings, however; they are settings for learning. With a few exceptions (penmanship, zoology dissection skills), school learning is covert and behavioral. We need a clear distinction between learning and performance: *learning* refers to the information-processing, sense-making, and comprehension or mastery advances that occur during the acquisition of knowledge or skill; *performance* refers to the demonstration of such knowledge and skill after it has been acquired. The term *motivation to learn* refers not just to the motivation that drives later performance but also to the motivation underlying the covert processes that occur during learning. Therefore, strategies for motivating students to learn apply not only to performance on tests or assignments, but also to information-processing activities (paying attention to lessons, reading for understanding, paraphrasing ideas) initially involved in learning the content or skills. The emphasis is not merely on offering students incentives for good performance later but on stimulating them to use thoughtful learning. Thus strategies for stimulating motivation to learn differ from strategies for supplying extrinsic motivation for performance.

They also differ from strategies for capitalizing on students' intrinsic motivation, because intrinsic motivation is not the same as motivation to learn. *Intrinsic motivation* usually refers to the affective aspects of motivation - liking for or enjoyment of an activity. Intrinsic motivation, even for academic activities, does not necessarily imply motivation to learn. For example, students may enjoy participating in an educational game without trying to derive any academic benefit from it. Similarly, students can try to learn the knowledge or skills that an activity is designed to teach without enjoying the activity.

Guided by these distinctions concerning the nature of schooling and of student motivation, I have searched the literature for theory and research that suggest principles suitable for application by teachers in classrooms. This review and synthesis work has yielded the strategies summarized in the "Highlights" box (Ames and Ames 1984, 1985, Brophy 1983, Corno and Rohrkemper 1985, Deci and Ryan 1985, Keller 1983, Kolesnik 1978, Lepper and Greene 1978, Maehr 1984, Malone and Lepper in press, McCombs 1984, Nicholls 1984, and Wlodkowski 1978). For additional discussion and examples beyond this brief listing, see Brophy (1986a, b) or Good and Brophy (1986, 1987).

Development and organization of the list of strategies has been guided by *expectancy x value* theory (Feather 1982), which posits that the effort people will expend on a task is a product of: (1) the degree to which they *expect* to be able to perform the task successfully if they apply themselves; and (2) the degree to which they *value* participation in the task itself or the benefits or rewards that successful task completion will bring to them. This theory assumes that no effort will be invested in a task if either factor is missing entirely, no matter how much of the other factor may be present. People do not invest effort on tasks that do not lead to valued outcomes even if they know they can perform the tasks successfully, and they do not invest effort on even highly valued tasks if they are convinced that they cannot succeed no matter how hard they try.

The simplest way to ensure that students expect success is to make sure they achieve it consistently.

The *expectancy x value* theory of motivation implies that, in order to motivate their students to learn, teachers must both help them to appreciate the value of academic activities and make sure that they can achieve success on these activities if they apply reasonable effort. The "Highlights" box is organized according to these *expectancy x value* theory ideas. First, it lists the preconditions necessary if teachers are to motivate their students. Second, it enumerates strategies that involve establishing and maintaining success expectations in the students. Third, it offers strategies that enhance the subjective value students place on school tasks. The latter strategies are subdivided into those that involve offering extrinsic incentives, taking advantage of intrinsic motivation, or stimulating student motivation to learn.

If teachers were recreation program managers, they could solve motivation problems merely by finding out what their clients like to do and arranging for them to do it.

Essential Preconditions

No motivational strategies can succeed with students if the following preconditions are not in effect.

1. *Supportive environment.* If the classroom is chaotic or if the students are anxious or alienated, then students are unlikely to be motivated to learn academic content. Thus, in order to motivate students to learn, the teacher must organize and manage the classroom as an effective learning environment. This includes encouraging students, patiently supporting their learning efforts, and allowing them to feel comfortable taking intellectual risks without fear of being criticized for making mistakes.

2. *Appropriate level of challenge/difficulty.* Students will be bored if tasks are too easy and frustrated if tasks are too difficult. They will be optimally motivated by tasks that allow them to achieve high levels of success when they apply reasonable effort.

3. *Meaningful learning objectives.* Teachers should select academic activities that teach some knowledge or skill that is worth learning, either in its own right or as a step toward a higher objective. It is not reasonable to expect students to be motivated to learn if they are continually expected to practice skills already thoroughly mastered, memorize lists for no good reason, copy definitions of terms that are never used in readings or assignments, or read material that is not meaningful to them because it is too vague, abstract, or foreign to their experience.

4. *Moderation/optimal use.* Motivational attempts can be overdone, and any particular strategy can lose its effectiveness, if it is used too often or too routinely.

Motivating by Maintaining Success Expectations

Much of the best-known research on motivation is focused on the role of success expectations in determining performance. Research on *achievement motivation* (Dweck and Elliott 1983) has shown that effort and persistence are greater in individuals who set goals of moderate difficulty level, who seriously commit themselves to pursuing these goals, and who concentrate not on avoiding failure but on achieving success. Research on *efficacy perceptions* (Bandura and Schunk 1981) has shown that effort and persistence are greater in individuals who believe that they have the efficacy (competence) needed to succeed on a task than in individuals who lack it. Research on *causal attributions* for performance suggests that effort and persistence are greater in individuals who attribute their performance to internal or controllable causes rather than to external or uncontrollable ones (Weiner 1984). In particular, better performance is associated with a tendency to attribute success to a combination of sufficient ability with reasonable effort and a tendency to attribute failure either to insufficient effort (if this has been the case) or to confusion about what to do or reliance on an inappropriate strategy for doing it. The literature on motivation suggests that the following strategies (nos. 5-8) will help students maintain success expectations and associated goal setting behaviors, efficacy perceptions, and causal attributions.

5. *Program for success.* The simplest way to ensure that students expect success is to make sure they achieve it consistently. Teachers can accomplish this by beginning instruction at their level, moving in small steps, and preparing students sufficiently for each new step so that they can adjust to it without much confusion or frustration. Note that students' success levels will depend not only on task difficulty, but on the degree to which the teacher prepares the students for the task through advance instruction and assists their learning efforts through guidance and feedback.

6. *Teach goal setting, performance appraisal, and self-reinforcement skills.* Help students learn to set and commit themselves to goals that are: (1) near rather than far (they refer to tasks to be attempted here and now rather than to ultimate goals in the distant future); (2) specific (complete a page of math problems with no more than one error) rather than global (work carefully and do a good job); and (3) challenging rather than too easy or too hard. Provide specific,

detailed feedback and help students use appropriate standards for judging their performance (i.e., to compare it with absolute standards or with their own previous progress rather than with the performance of peers), so that they can recognize their successes and reinforce themselves for their efforts.

7. *Help students to recognize linkages between effort and outcome.* Use modeling, socialization, and feedback to make students aware that the amount and quality of effort that they put into an activity determines what they get out of it. Portray effort as an investment, which will produce knowledge or skill development and thus empower students, rather than as a risk of failure or embarrassment. Portray skill development as incremental (open to improvement in small steps rather than fixed) and domain specific (students possess a great many different kinds of skills rather than a single IQ that determines performance in everything). Last, focus on mastery of instructional objectives rather than comparisons with the achievements of peers.

8. *Provide remedial socialization.* With discouraged students, use performance contracts, Mastery Learning Principles (additional instruction, practice opportunities, and make-up exams to allow struggling students to overcome initial failures through persistent efforts), and attribution retraining (teach students to concentrate on doing the task at hand rather than to become distracted by fears of failure; to cope with frustration by retracing their steps to find their mistake or analyzing the problem to find a better way to approach it; and to attribute failures to insufficient effort, lack of information, or reliance on ineffective strategies rather than to lack of ability).

Teachers can shape the ways students view their performance - what they see as achievable with reasonable effort, whether they define this achievement as successful, and whether they attribute their performance to their own efforts. Empty reassurances or a few words of encouragement will not do the job. Rather, a combination of appropriately challenging demands with systematic socialization designed to make students see that success can be achieved with reasonable effort should be effective.

The strategies described in this section have address the *expectancy* term of the *expectancy x value* formulation. The strategies explained in the next three sections address the *value* term.

Motivating by Supplying Extrinsic Incentives

Strategies for supplying extrinsic motivation do not attempt to increase the value that students place on the task itself but rather to link successful task performance with access to valued rewards.

9. *Offer rewards for good (or improved) performance.* In addition to grades, these may include: (1) material rewards (prizes, consumables); (2) activity rewards and special privileges (play games, use special equipment, engage in self-selected activities); (3) symbolic rewards (honor rolls, displays of good work); (4) praise and social rewards (teacher or peer attention); and (5) teacher rewards (opportunities to go places or do things with the teacher). Teachers should offer and deliver rewards in ways that call attention to developing knowledge and skills rather than in ways that encourage students to focus just on the rewards.

10. *Structure appropriate competition.* The opportunity to compete for prizes or recognition either as an individual or as a member of a team can add incentive to classroom activities. In addition to structuring competition based on test scores or other performance measures, teachers can build competitive elements into instruction by including activities such as argumentative essays, debates, or simulation games that involve competition (Keller 1983). Use handicapping systems such as those devised by Slavin (1983) to ensure that everyone has a good (or at least an equal) chance to win. It is also helpful to depersonalize the competition and emphasize the content being learned rather than who wins and who loses.

Extrinsic incentives and competition are more effective for stimulating intensity of effort than for inducing thoughtfulness or quality of performance. Thus, rewards and com-

People do not invest effort on tasks that do not lead to valued outcomes even if they know they can perform the tasks successfully, and they do not invest effort on even highly valued tasks if they are convinced that they cannot succeed no matter how hard they try.

petition are best used with practice tasks designed to produce mastery of specific skills rather than with incidental learning or discovery tasks, and with tasks where speed of performance or quantity of output is of more concern than creativity, artistry, or craftsmanship.

11. *Call attention to the instrumental value of academic activities.* Where possible, note that the knowledge or skills developed by an academic task will enable students to meet their own current needs, provide them with a "ticket" to social advancement, or prepare them for success in an occupation or in life generally. Help students to see academic activities not as imposed demands to be resisted but rather as enabling opportunities to be valued.

Extrinsic motivational strategies are effective under certain circumstances, but teachers should not rely on them. When students are preoccupied with rewards or competition, they may not attend to or appreciate the value of what they are learning.

Extrinsic incentives and competition are more effective for stimulating intensity of effort than for inducing thoughtfulness or quality of performance.

Motivating by Capitalizing on Students' Intrinsic Motivation

Teachers can capitalize on intrinsic motivation by planning academic activities that students will engage in willingly because they are interested in the content or enjoy the task. Opportunities to do this are limited by several features inherent in the nature of schooling - compulsory attendance, externally prescribed curriculum, public monitoring, and grading of performance. Further, students differ in what they find interesting or enjoyable. Even so, teachers can schedule activities that incorporate elements that most students will find rewarding.

12. *Adjust tasks to students' interests.* Whenever curriculum objectives can be accomplished using a variety of examples or activities, incorporate content that students find interesting or activities that they find enjoyable. When giving examples or applications of concepts being learned, include people, fads, or events prominent in the news or in the youth culture.

13. *Include novelty/variety elements.* Make sure that something about each activity (its form or content, the media involved, or the nature of the responses it demands) is new to the students or at least different from what they have been doing recently. Do not allow a steady diet of routine lessons followed by routine assignments to become "the daily grind".

14. *Allow choices or autonomous decisions.* Within the constraints imposed by the instructional objectives, offer students alternative ways to meet requirements and opportunities to exercise autonomous decision making and creativity in determining how to organize their time and efforts. If children make poor decisions when left completely on their own, provide them with a menu of choices, or require them to get their choices approved before going ahead.

15. *Provide opportunities for students to respond actively.* Most students prefer activities that allow them to respond actively by interacting with the teacher or with one another, by manipulating materials, or by doing something other than just listening or reading. Provide students with opportunities to participate, for example, in projects, experiments, role-playing, simulations, educational games, and creative applications of what is being learned.

16. *Provide immediate feedback to student responses.* Students especially enjoy tasks that allow them not only to respond actively but to get immediate feedback they can use to guide subsequent responses. Automatic feedback features are built into programmed learning and other "self-correcting" materials as well as into computerized learning programs. Teachers can incorporate feedback features into typical activities by leading the group through an activity and then circulating to supervise students' progress during seatwork. Teachers can arrange for alternative sources of feedback when they cannot be available themselves by providing answer keys or instructions about how to check work, designating student helpers, or having students review their work in pairs or small groups.

17. *Allow students to create finished products.* Students prefer tasks that have meaning or integrity in their own right over tasks that are mere subparts of some larger entity. They are likely to experience a satisfying sense of accomplishment when they finish such tasks. Ideally, task completion will yield a finished product that students can use or display such as a map, an essay, a scale model, or something other than just another ditto or workbook page.

18. *Include fantasy or simulation elements.* Where more direct applications of what is being learned are not feasible, introduce fantasy or imagination elements that will engage students' emotions or allow them to experience events vicariously. In ad-

Highlights of Research on Strategies for Motivating Students to Learn

Research on student motivation to learn indicates promising principles suitable for application in classrooms, summarized here for quick reference.

Essential Preconditions

1. Supportive environment
2. Appropriate level of challenge/difficulty
3. Meaningful learning objectives
4. Moderation/optimal use

Motivating by Maintaining Success Expectations

5. Program for success
6. Teach goal setting, performance appraisal, and self-reinforcement
7. Help students to recognize linkages between effort and outcome
8. Provide remedial socialization

Motivating by Supplying Extrinsic Incentives

9. Offer rewards for good (or improved) performance
10. Structure appropriate competition
11. Call attention to the instrumental value of academic activities

Motivating by Capitalizing on Students' Intrinsic Motivation

12. Adapt tasks to students' interests
13. Include novelty/variety elements
14. Allow opportunities to make choices or autonomous decisions
15. Provide opportunities for students to respond actively
16. Provide immediate feedback to student responses
17. Allow students to create finished products
18. Include fantasy or simulation elements
19. Incorporate game-like features
20. Include higher-level objectives and divergent questions
21. Provide opportunities to interact with peers

Stimulating Student Motivation to Learn

22. Model interest in learning and motivation to learn
23. Communicate desirable expectations and attributions about students' motivation to learn
24. Minimize students' performance anxiety during learning activities
25. Project intensity
26. Project enthusiasm
27. Induce task interest or appreciation
28. Induce curiosity or suspense
29. Induce dissonance or cognitive conflict
30. Make abstract content more personal, concrete, or familiar
31. Induce students to generate their own motivation to learn
32. State learning objectives and provide advance organizers
33. Model task-related thinking and problem solving

- Jere Brophy

dition to full-scale drama, role-play, simulation games, and other "major productions," incorporate more modest simulation activities into everyday instruction. For example, stimulate students to think about the motives of a literary author or scientific discoverer or to imagine themselves living in the historical time or geographical place under study.

19. *Incorporate game-like features into exercises.* Transform ordinary assignments into "test yourself" challenges, puzzles, or brain teasers that:

- require students to solve problems, avoid traps, or overcome obstacles to reach goals;
- call for students to explore and discover in order to identify the goal itself in addition to developing a method for reaching it;
- involve elements of suspense or hidden information that emerges as the activity is completed (puzzles that convey a message or provide the answer to a question once they are filled in); or
- involve a degree of randomness or uncertainty about what the outcome of performance is likely to be on any given trial (e.g. knowledge games that cover assorted topics at a variety of difficulty levels and that are assigned according to some random method, such as in Trivial Pursuit.)

Although many teachers associate "games" with team competitions, the term "game-like feature" has a much broader meaning; most of these features involve presenting intellectual challenges appropriate for use by individuals or by groups working cooperatively.

20. *Include higher-level objectives and divergent questions.* Most students soon become bored by a steady diet of knowledge- and comprehension-level questions. Therefore, include questions that address higher cognitive levels (application, analysis, synthesis, or evaluation) and encourage students to make sense of what they are learning by processing it actively, paraphrasing it, and relating it to their prior knowledge and experience. Also, ask questions that

Students prefer tasks that have meaning or integrity in their own right over tasks that are mere subparts of some larger entity.

When the topic is familiar, counter students' tendency to think that they already know everything there is to know about it by pointing out unexpected, incongruous, or paradoxical aspects

elicit divergent thinking (opinions, predictions, suggested courses of action, or solutions to problems) in order to generate student responses that are more personal and creative.

21. *Provide opportunities to interact with peers.* Students enjoy activities that allow interaction with their peers. Build such opportunities into whole-class activities by scheduling discussion, debate, role-play, or simulation. In addition, plan follow-up activities that permit students to work together in pairs or small groups to tutor one another, discuss issues, to develop suggested solutions to problems, or to work as a team preparing for a competition, participating in a simulation game, or producing some group product. Peer interactive activities are likely to be most effective if teachers: (1) make them worthwhile learning experiences rather than merely occasions for socializing by structuring them around curriculum objectives; and (2) arrange conditions so that every student has a substantive role to play and must participate actively (Slavin 1983).

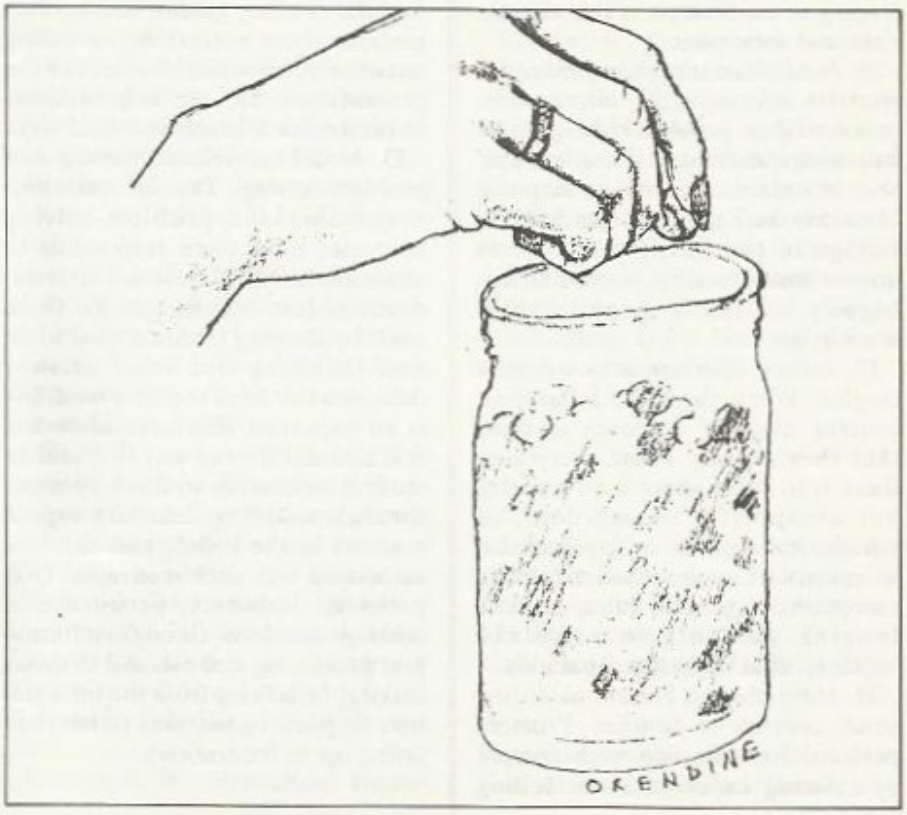
Strategies for Stimulating Student Motivation to Learn

The strategies just described for capitalizing on intrinsic motivation should increase students' enjoyment of classroom activities; however, these strategies will not directly increase students' motivation to learn the content or skills being taught. The literature on motivation suggests that the following strategies will stimulate students to take academic activities seriously and to acquire the knowledge or skills that they were designed to develop. The first three strategies are general ones describing pervasive features of the learning environment that should be established in the classroom.

22. *Model interest in learning and motivation to learn.* Routinely model interest in learning by showing students that you value learning as a rewarding, self-actualizing activity that produces personal satisfaction and enriches your life. Share with students your interests in books, articles, TV programs, or movies on the subjects you teach. Mention applications of the subjects to everyday living, the local environment, or current events.

23. *Communicate desirable expectations and attributions about students' motivation to learn.* Routinely project attitudes, beliefs, expectations, and attributions concerning reasons for students' behavior which imply that you expect them to be curious, to want to understand concepts and master skills, and to see what they are learning as meaningful and applicable to their lives.

24. *Minimize students' performance anxiety during learning activities.* Protect students from premature concern about performance adequacy by structuring most activities to promote learning rather than to evaluate performance. When activities do include test-like items, treat these as opportunities for students to apply the material rather than as a chance for you to see who does or doesn't know the material. Combat test anxiety by minimizing time pressures, by portraying tests as opportunities to assess progress rather than as measures of ability, by giving pretests to accustom students to "failure" and provide a basis for marking progress, and by teaching stress management and test-taking skills (Hill and Wigfield 1984).



In addition to fostering a supportive learning environment through these general strategies, use the following strategies to stimulate student motivation to learn during specific activities.

25. *Project intensity.* Project a level of intensity that tells students that the material deserves close attention either by saying so or by using rhetorical devices (slow pacing, step-by-step presentation with emphasis on key words, unusual voice modulations or exaggerated gestures, scanning the group intensely at each step to look for signs of understanding or confusion). Projecting intensity is especially useful when introducing new content, demonstrating skills, or giving instructions for assignments.

26. *Project enthusiasm.* Present topics or assignments in ways that suggest they are interesting or worthwhile by identifying your own reasons for finding the topic meaningful, and then communicate these reasons when teaching it.

27. *Induce task interest or appreciation.* Where relevant, elicit student appreciation for an activity by noting its connection with things that students already recognize as interesting or important, by mentioning applications of the knowledge or skills to be learned, or by specifying challenging or exotic aspects that the student can anticipate.

28. *Induce curiosity or suspense.* Put students into an active information-processing or problem-solving mode by posing questions or doing "set-ups" that introduce curiosity or suspense elements and motivate students to engage in the activity in order to answer some question, resolve an ambiguity, or fill in gaps in their knowledge.

29. *Induce dissonance or cognitive conflict.* When the topic is familiar, counter students' tendency to think that they already know everything there is to know about it by pointing out unexpected, incongruous, or paradoxical aspects; calling attention to unusual or exotic elements; noting exceptions to general rules; or challenging students to solve the "mystery" that underlies a paradox.

30. *Make abstract content more personal, concrete or familiar.* Promote personal identification with content by relating experiences or telling anecdotes illustrating how the content applies to the lives of individuals (especially persons whom the students are interested in and likely to identify with). Make abstractions concrete by showing objects or pictures or by conducting demonstrations. Help students relate new or strange content to their existing knowledge by using examples or analogies referring to familiar concepts, objects, or events. Where a text is too abstract or sketchy, elaborate by filling in sufficient detail to enable students to visualize what is being described and explain it in their own words.

31. *Induce students to generate their own motivation to learn.* Do this by asking them to list their own interests in particular topics or activities, to identify questions that they would like to have answered, or to note things that they find surprising as they read.

32. *State learning objectives and provide advance organizers.* Stimulate motivation to learn when introducing activities by stating their objectives and by providing advance organizers. Prepare students to get more out of lectures, films, or reading assignments by clarifying what you want them to concentrate on as they process the information; distributing outlines or study guides; making suggestions about notetaking; or calling attention to structural features of the presentation that can help students to remember it in an organized way.

33. *Model task-related thinking and problem solving.* The information-processing and problem-solving strategies used when responding to academic tasks will be invisible to students unless teachers make them overt by showing students what to do and thinking out loud as they demonstrate. Such *cognitive modeling* is an important instructional device. It is also an effective way to stimulate student motivation to learn because, through modeling, teachers expose students to the beliefs and attitudes associated with such motivation (e.g. patience, confidence, persistence in seeking solutions through information processing and rational decision making, benefiting from the information supplied by mistakes rather than giving up in frustration).

[Teachers can] portray effort as an investment, which will produce knowledge or skill development and thus empower students, rather than as a risk of failure or embarrassment.

Protect students from premature concern about performance adequacy by structuring most activities to promote learning rather than to evaluate performance.

A Starter Set

Although student motivation to learn cannot be taught as directly as a concept or a skill, it can be developed in children who systematically socialize their students using the strategies listed here as part of a larger package of appropriate curriculum and instruction. Further research will undoubtedly identify additional strategies and qualifications on the use of ones described here. Nevertheless, the list provides a "starter set" of strategies to select from in planning motivational elements to include in instruction. In particular, these strategies remind us that students need not only incentives for applying themselves and activities they will enjoy but also motivation to learn the knowledge and skills being taught.

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QUAH MAY LING

Motivation and the Underachieving Child

When Seng Chan, a Secondary Four student, scored A's and B's in the mid-year examinations, his parents were overjoyed. Ever since John entered secondary school, he has been unmotivated and careless in his school work. He has been absent from school this year, first for two weeks because of chicken-pox and then, off and on for about a term. Although he is a likeable chap and is popular with his classmates, his teachers complained that he often does not complete or hand in his assignments. Lately, he has failed in two class tests. Seng Chan's parents are concerned. They are convinced he is a bright boy and would do well in his school work if he applied himself as diligently as he did when he was in primary school. They went to see Seng Chan's teacher who spent some time explaining where his weaknesses in certain subjects were. Seng Chan was fortunate that his parents engaged a tutor to help him in some of the subjects he was weak in. Their efforts paid off as can be seen by his mid-year results.

Angeline, a Primary Six pupil, who did very well in school till this year, now finds excuses not to go to school. In school, she daydreams and slouches on her desk, does not participate in class unless called upon to do so. She is fairly well-liked by her peers and in fact has been ticked off by teachers for talking to her classmates in class when teaching was going on. Her teachers wish she would appear a little bit more interested in her lessons. At home, she spends long hours in front of the television set. Before the implementation of the time-based telephone system, she used to chatter on the phone with friends. When asked about her homework, she says she has completed all her work at school. Her father feels that since school is already such a "pressure cooker", they, as parents should back off and allow their daughter to enjoy some of her childhood. Her mother feels differently. Being a teacher herself, she knows how competitive students can be. She believes that Angeline should study consistently and very hard in order to score good grades so that she can get into a "good" secondary school after the PSLE (Primary School Leaving Examination). That is the only way to get into a "good" JC (Junior College) and later into one of the local universities. Being a smart girl, Angeline plays one parent against the other to get her way and family quarrels often centre around this problem. Rather than waiting for Angeline to get over her lethargic mood, her mother took Angeline in hand, revised her school work with her at home every day and saw to it that she did all her homework.

These two children are not isolated cases. Most schools have their fair share of children who are not performing as well as they should. The tragic thing is that these children have the ability to succeed but because of a number of reasons, are not doing so.

John and Angeline are what we call "underachievers", and although they are two different kinds of underachievers, they share some similar characteristics. Both are students who possess intellectual abilities but are not performing well in school work. They are well liked by peers and are accepted by their classmates. Both did good work in the earlier years of school and as the years pass, their grades and test scores started to fall until their lack of interest in school work was apparent to teachers and parents. They were both fortunate to have parents who helped them to overcome their learning difficulties.

Other underachievers are not so lucky. Many are left to flounder on their own and some children drop out of school, not because they lack the ability to succeed. Many of these children are bright young people who score well enough to "get by" in primary school but find that they cannot "get by" any more in secondary

Playing one parent against the other

Children do not set out to fail in school. Many able children do because they receive hidden rewards when they do not do well in school.

school. They may not be top students in primary school but they possess at least average intelligence and are capable of passing their examinations each year. They certainly should not be failing in school. However, not all children who get poor marks or fail in school are underachievers. Some children who receive borderline passes or who fail, are in fact performing at their best. These are low achievers or slow learners who because of their more limited ability, cannot realistically be expected to perform as well as their more capable peers.

Children underachieve for different reasons. Students, like Seng Chan, who usually do well may fall behind because short and frequent absences from school result in crucial concepts being poorly grasped and understood and insufficient practice in the application of these concepts. Important lessons are thus missed and there are too many gaps in their learning. Unless these gaps are bridged fairly soon, learning becomes less and less meaningful and students feel that work is beyond their ability and they lose interest altogether.

Some able students streamed into classes with less able peers do not do well in school because they want to be popular and accepted by their classmates. If these students are not identified and given work commensurate with their abilities, they will slide further and further down the academic ladder and become failures too. Some children perform below their capacity because they feel they cannot measure up to their parents' expectations. These underachievers probably have ambitious, tertiary-educated parents who make greater and greater demands on them. When they fear that they may not be able to meet these demands, they are turned off and may give problems in school and schoolwork. Disenchantment with some area(s) of learning may be the result of unpleasant or traumatic experiences with over enthusiastic teachers or a hostile class environment. Others may come from deprived homes where expectations are low. Another important reason for lack of achievement may be motivation, or rather a lack of it.

Children do not set out to fail in school. Many able children do because they receive hidden rewards when they do not do well in school. They strike out at others such as their parents, in anger. Some of these children crave attention from parents and they receive it (perhaps for the wrong reason) when teachers send for parents to complain about their children's poor school performance. It could be a way of showing passive resistance towards parents for making unreasonable demands on them. For whatever reasons able children underachieve, they need help in understanding their own motivations.

Able and gifted children often *begin* school with *positive* attitudes towards school but fail to maintain these attitudes because they find a lack of challenge in their school work. They need a differentiated curriculum and teaching approaches that meet their needs and interests. Research studies have shown that these children are easily bored in regular classes where instruction is aimed at the average ability children (Tempest, 1974; Feldhusen & Kroll, 1985). They find the level of instruction too low, the pace too slow and little opportunity to pursue their studies to a depth that is more commensurate with their abilities. Students, like Angeline, escape into daydreams in class probably due to boring and unsatisfying curriculum and find social interaction more rewarding.

Among several mitigating factors associated with underachievement, low self-esteem seems to be experienced by most of these children. Often a fear of failure is a factor too, and the student decides that it is better not to try than to attain high standards of perfection and fail. Or the student may fear success and the increasingly high expectations of parents and teachers and their inability to meet those expectations. Although most children naturally

High standards

want to please the significant adults in their lives, bright youngsters may decide that the cost of striving to excel academically is too great in terms of the risk of failure involved, the social sacrifices they have to make, and the time and effort they have to expend in order to ensure success. Furthermore, choosing to pursue a less vigorous lifestyle has its compensations. If they perform just well enough to pass, parents and teachers will leave them alone as their expectations will be reduced and there will be less pressure from them. They will then have time to pursue other interests and there is little danger of disappointing their parents, causing tension and even alienation at home. Similarly, there will be less conflict with teachers who tend to expect more from abler students.

To parents and teachers, it seems such a paradox that the able, sometimes gifted child, should behave as if he/she is unmotivated to learn or unable to excel in school when he/she clearly is able to do so without too much effort. This situation often invokes feelings of guilt that perhaps one party lacks good parenting skills and the other party cannot teach.

Parents and teachers may be in conflict over how to cope with the underachiever and in their view regarding the responsibility of the other. Keeping in mind that the child can be manipulative and defensive, the scene is set for the parents and teachers to believe that the other party is either not doing enough of the needed things or is doing harmful things to the child. To combat this problem, it is essential that there be a close working relationship between home and school. One way of achieving this home-school collaboration is to hold meetings between parents and teachers and later between parents, teachers and child concerned to work out an acceptable plan of action. During this meeting with the child, it is important that the parents and teachers establish a strong parental posture. This posture should send out a "we care, we are concerned and we will do something" message to the child.

Teachers are in a good position to motivate underachievers. When the classroom is a warm and caring place to meet and work together, children will have a sense of belonging. They are less likely to cause problems if the atmosphere is aimed at nurturing involvement and stimulating learning contributions from the pupils. Reserving special comments for extra effort put in by pupils is right; however, for students disappointed with school, a kind word sometimes relieves the anguish and anxiety caused by constant failure. Positive communication from teachers can raise a student's interest in learning and teachers should exploit this to advantage.

In addition, varied teaching methods and approaches help to relieve boredom and predictability for underachievers. These strategies should match different student learning style characteristics. Reflective teaching and thinking about what happens in a classroom, asking questions and probing for correct solutions to problems will promote learning and motivate underachievers. According to Brophy (1987), strategies for motivating students to learn apply not only to performance on tests or assignments, but also to information-processing activities (paying attention to lessons, reading for understanding, paraphrasing ideas) initially involved in learning the content or skills. The emphasis is not merely on offering students incentives for good performance later but on stimulating them to use thoughtful learning.

Relieving boredom...

Without a doubt, underachievers have gaps in the mastery of essential skills. In most cases, they drift along until repeated failure singles them out for attention. With extra help from parents and teachers at an early stage, they can improve their self-concept and motivation and become successful learners in school.

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GOH CHOR BOON

Old Problems and New Approaches: Motivation in History Teaching

Historically, many schools in Singapore used the simple method of textbook, notes and narration (or dictation!) to teach history. Sadly, it is difficult to deny the fact that this traditional method is still practised and, indeed, many teachers would claim that it works because it produces the desired results in examinations. Why change a system that achieves its objectives? However, one serious consequence of its prolonged use is that history teaching - and learning - becomes unimaginative and boring. Many teachers and pupils alike reach the stage of stagnation, boredom and then, perhaps, a total lack of motivation and interest. Who bears the responsibility? The administrators? the teachers? or the pupils? In this article I would like to share my pent-up thoughts on the issue of motivation in history teaching in a rather straightforward and open discussion. I would also include examples of how we can attempt to rekindle the flagging spirit of those history teachers who find teaching the subject a little too stifling! My stand here is quite clear. I strongly believe that pupil motivation in history - or any subject, for that matter - depends significantly on the teacher's attitudes and motivation. I agree that certain conditions in the schools do work against the development of strong, positive attitudes. These would include the intentional move by some principals to channel weaker students (especially those with poor command of the English Language) to study history as one of the humanities subjects, the rather obsolete and uninspiring syllabus, the nature of examinations which simply demands the regurgitation of four or five memorised essays, unnecessary administrative tasks in schools, negative influence of the home environment or peers, etc. But I still maintain that these walls are not insurmountable and that something can be done to raise the status of history in schools.

A Personal Philosophy

The process of "rejuvenation" starts with the task of asking ourselves whether we agree that history is an important subject and that it has relevance to our society today. Two basic tenets must be stated here :

- Good history teaching has never limited itself to factual knowledge.
- The educational value of history is related to the skills of historical understanding which the adolescent can apply in everyday life to other areas of intellectual concern such as the appreciation of current society, culture or politics.

In short, history teachers must know the answer to the seemingly simple question - Why study history?

Related to this point I would like to add that history teachers must constantly link the past to the present. History is not dead. By indicating its relevance to our pupils we can let them recognise the worthiness of learning the subject. For example, we can link the failure of the League of Nations to reinforce world peace through disarmament in the 1920s and 1930s to the role of the United Nations, the Cold War or the recent moves by the United States and Russia to limit nuclear arms build-up. There are many other historical situations or events which have either direct or indirect bearing on contemporary developments. It is our responsibility to impart this educational value of learning history.

Knowing Historical Skills and Concepts

The second aspect of motivation in history teaching is the awareness of the need to develop historical skills and concepts in our pupils. The problem here is that many of us do not consciously develop and impart these skills and concepts in our lessons. Why? I can think of two reasons. Firstly, some of us do not see the need to do so because skills and concepts are not being tested in our present examinations. Tons of factual knowledge will suffice. Secondly, I suspect that some teachers do not have a good knowledge of these skills and concepts and how to develop them in lessons. Whatever the reason might be, it is essential for us to bear in mind the following skills and con-

cepts:

- the recall, evaluation and selection of knowledge relevant to the context and to use it in a clear and coherent form.
- the use of a wide variety of historical evidence or primary sources by comprehending and extracting information from it, by interpreting and evaluating it and by comparing various types of evidence and reaching conclusions based on this comparison.
- the understanding of concepts of causation (cause and effect), continuity and change, similarity and difference.
- the ability to look at events and issues from the perspective of people in the past, that is, the concept of historical empathy.

How do we go about in ensuring that our pupils' historical knowledge is rooted in an understanding of evidence and concepts? The first thing, of course, is to make changes to the requirements of history examinations! The aim here is to provide opportunities to test pupils' use of historical content, skills and concepts. Hopefully, we would move towards this direction in the near future. The second strategy is to develop an interest in them. This sounds simple but some time and training is required before one is comfortable enough to introduce and reinforce these skills and concepts in lessons. For example, one can use a series of related photographs to show change and continuity. Students could be asked to describe and account for these changes or even to do a short write-up based on the visual evidence. We could also use political cartoons to identify points of view, attitudes and values. Indeed, many challenging activities and exercises based on primary sources could be done in class if the teacher is motivated to do so.

Developing Historical Content

One final aspect which I think many teachers would want to avoid discussing is their command of historical content. There are times when we simply feel uncomfortable teaching certain topics because we lack adequate knowledge and/or dislike teaching them. There are also days when we leave the classroom feeling low (not indifferent!) because we have taught a superficial lesson. Perhaps there are even occasions when we have to read quickly just before a lesson in order to remember and explain enough facts to pupils. What about teachers who have been teaching the subject for many years? Are they not the experts as far as the syllabus is concerned? In my opinion, precisely because of the years of teaching at the same level, the danger of experiencing a sense of stagnation and staleness is very real. How do we overcome this sense of "content deprivation"? I would like to state categorically that a motivated history teacher is one who continuously seeks to know more about his subject. He reads beyond the textbooks and is always confident and eager to impart a little more to his pupils. Pupils, on the other hand, would enjoy listening to teachers who provide them with interesting information beyond what they can read in their textbooks.

Therefore, a good history teacher is one who reads. But then is reading beyond the text or syllabus really necessary since all these years my students have done well in the examinations with the help of my notes? Why bother to read when my pupils do not seem interested? How could I find time to read when there is so much to be done in schools? These are just some of the reasons (or excuses?) history teachers would make to defend their position. Let us be honest with ourselves here. As professionals and as one source of information for our pupils, it is our moral responsibility to preserve and enhance the quality of our historical knowledge. We should not stagnate and rot. The more we read, the more motivated we become. And pupils are quick to note and response to enthusiastic teachers. At this juncture I would like to add a short comment regarding teachers who would claim that they are a motivated lot precisely because their students have consistently done well at the "O" or "A" level history examinations. Let us think for a moment. Can we conclude that these pupils really know history? Perhaps, some actually do but, in my opinion, one thing is for sure - they know the answers to the four or five questions which they (or teachers!) spotted with great pain and accuracy. It does not quite matter whether they fully understand historical events; just reproduce the answers for survival's sake. Forget about your personal philosophy of history teaching; pretend that historical thinking skills and concepts do not exist. Just churn out notes and get them memorised! On reflection, these teachers do what they are supposed to do - produce excellent results. Indeed, the task of preserving standard is a motivating factor in itself but let us not forget that we are history teachers and not the notes-provider.

Motivating Approaches

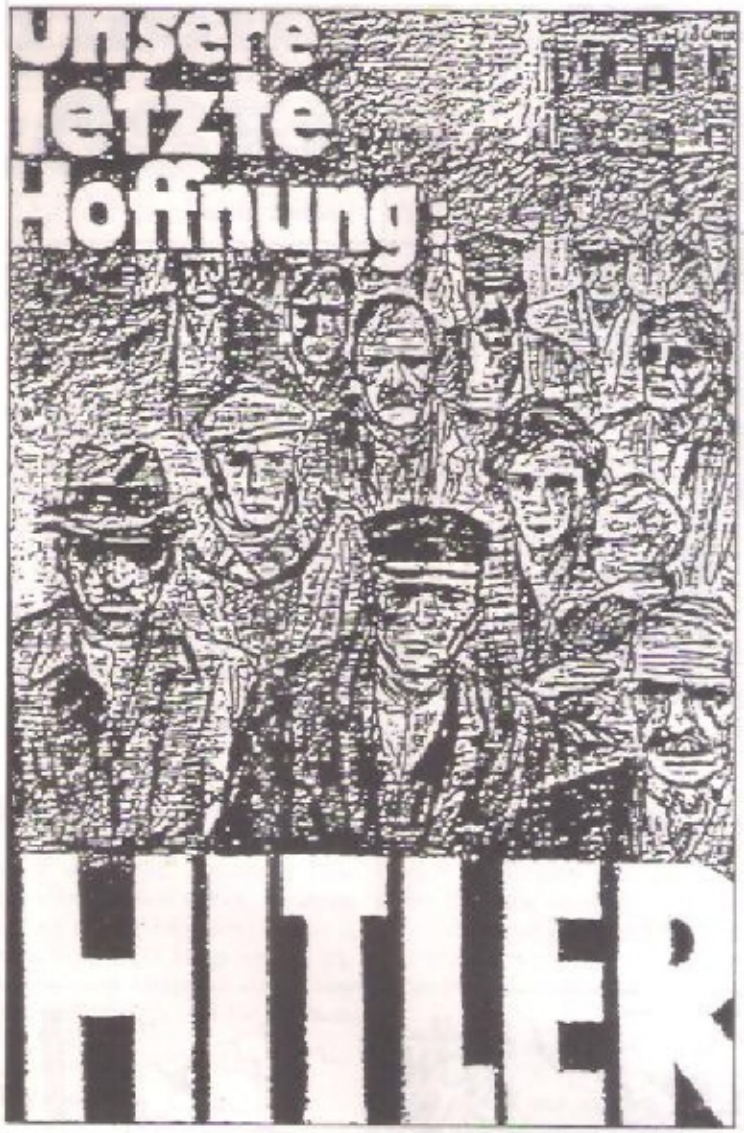
Let us now assume that you are a motivated teacher. How should I teach in such way that my level of motivation is maintained? I would like to recommend the source method - the use of various types of primary sources to teach the content. This method is a powerful eye-opener to pupils - it reminds them that history learning can be challenging and fun. I have selected some sources on Nazi Germany and the Pacific War to illustrate the usefulness of the source method.

SOURCE A: NAZI GERMANY - OUR LAST HOPE - HITLER

Content Notes

In 1929 the Great Depression started in America. Millions of Americans lost their jobs. The European countries that had borrowed from America were badly hit. Since the Dawes Plan of 1924, Germany had been lent huge amounts. The Depression caused millions of German to lose their savings or jobs. The German Government was helpless. Eventually, the people gave their votes to the Nazi Party of Adolf Hitler who became the Chancellor in 1933. He had clear plans for Germany:

SOURCE A : NAZI GERMANY - OUR LAST HOPE - HITLER



(a) He had planned to have as large an area as possible under his Nazi rule. He intended to take over the resources - coal, iron, wheat and oil - of other parts of Europe, especially in the east.

(b) He intended to destroy the hated Treaty of Versailles that a weak Germany had been forced to sign in 1919. Germany would refuse to obey it and the army would not stay within the limit of 10,000 men.

(c) He aimed to bring together all German-speaking people into one great state or Reich. This great Reich would provide the *Lebensraum* or living spaces for its people.

Some of these plans were explained in his book *Mein Kampf*. Hitler himself did not quite know how to achieve them. He was a great opportunist and the people believed in him.

This propaganda poster by the National Socialist clearly depicts the sufferings of the people. Unemployment hit 6 million in 1932. Hitler was seen as their last hope.

Usage of Source

The teacher shows the source and, at the same time, explains the historical content as mentioned above. Then he poses questions to evaluate pupil understanding of content and use of skills and concepts. This could also take the form of a written exercise. Some sample questions are listed below:

(a) Could you guess the time period of this poster?

(b) What does this poster tell you of the situation in Germany (in the early 1930s)? What evidence in the poster could you use to support your answer?

(c) Why was Hitler regarded as the people's last hope? What were some of his great plans for Germany?

(d) This poster shows how the masses could be influenced (or indoctrinated) by the eloquence and charisma of individuals. Could you bring out a few examples of individuals in history of what historians termed as the "cult of historical personalities"?

Clearly, we do not expect encouraging answers to all the questions. For that matter, we need not ask too many questions; we could teach our pupils what to look out for in the primary source and how they could use it to learn more about history.

SOURCE B: THE PACIFIC WAR - "SCRAM!"

Content Notes

This British cartoon reveals the background to the Japanese attack of Pearl Harbour on 7 December 1941. Towards the end of 1940, the United States cut off supplies of certain kinds of fuel to countries outside the western hemisphere, with the aim of making it more difficult for Japan to wage her war against China. This move was seen by the Japanese military as an important step in the deterioration of American-Japanese relations. About a year later, in July 1941, United States, together with Holland and Britain, made a decision

SOURCE B : THE PACIFIC WAR - "SCRAM !"

to freeze Japanese assets. That was the last straw for the Japanese.

Usage of Source

The teacher could relate this political cartoon to one of the main causes of the Pacific War and Japan's invasion of countries in South East Asia. Uncle Sam assumes the role of a petrol attendant who rudely refuses supplies to the Japanese tank driver. Notice the size of the Japanese and his tank, as compared to Uncle Sam and America's oil reserves. This drawing also reflects subtlely the strong racial overtones which literally painted the Pacific War red! Again, the teacher could think of some questions which could be used as springboards for further discussion. Some examples are listed below:

(a) Why was Japan in desperate need for oil?

(b) Now that USA refused to supply oil what did the Japanese military government decide to do to maintain her oil supply?

(c) Observe the details of the cartoon carefully and suggest one interpretation of what the cartoonist has in mind.

As a matter of interest and to stimulate thinking, the cartoon below is a useful "follow-up" teaching material. Notice the common factor - oil.

SOURCE C: THE PACIFIC WAR - THE KAMIKAZE PILOT

Content Notes

By 1944, the Allied forces, mainly American, gained many hard fought victories and poised to attack the Land of the Rising Sun. In August of the same year, the Imperial Navy sought volunteers to fly suicide attacks against the advancing American fleets. Hosokawa was one of the many young Japanese who joined the 721st Squadron of the 5th naval Flying group, the first official kamikaze unit. Kamikaze means "divine wind" - an allusion to the fortuitous typhoon that drove a Mongol invasion flotilla from Japan's shores in 1281.

While some kamikaze crafts con-

Check under my bonnet, clean my windshield, inflate all my tyres, and vacuum my floor mats ... then I just might buy a buck's worth of regular ...

SOURCE C : THE PACIFIC WAR - THE KAMIKAZE PILOT

WINNERS *and* LOSERS

VETERANS REMEMBER WWII

Kamikaze pilot rebuilds his life, career, as Japan emerges as world superpower

By COLIN NICKERSON
The Boston Globe

THIRD OF FOUR PARTS

TOKYO — The radio had been placed on the altar of the Shinto shrine at Komatsu Air Base, home to the remnants of an Imperial Navy flying squadron called the Jin Rai, or Thunder Gods, an elite kamikaze unit.

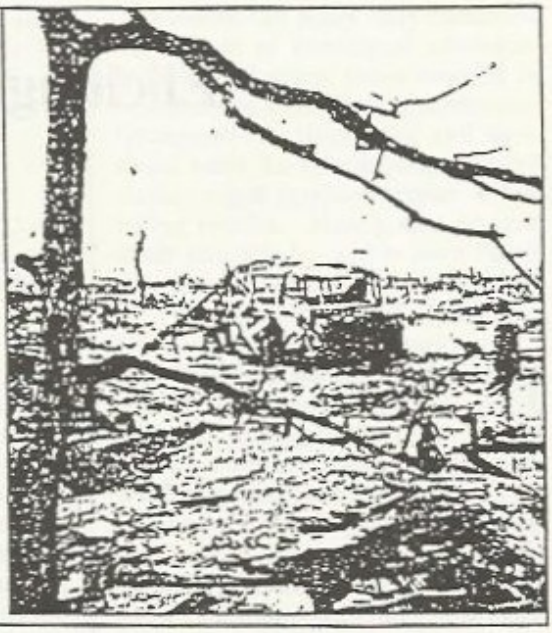
Sub-lieutenant Hachiro Hosokawa, a 24-year-old combat pilot and prominence signify that Japan is the long-term "victor" of humankind's bloodiest war.

"If a man loses his house and all that is precious to him to fire, he may build a new and bigger house," said Hosokawa. "But it is ridiculous to say he has 'conquered' fire.

"Japan is rich while the United States, I know, has some problems.

Associated Press

In 1945, Hachiro Hosokawa was a 24-year-old Japanese kamikaze pilot. His nation, with two cities reduced to atomic rubble, surrendered to the Allies. Since then, Hosokawa has seen his country prosper to one of the world's top economic powers.



Kamikaze pilots were responsible for sinking 34 allied ships, damaging 288 and killing 2,300 sailors and marines .... Hosokawa himself was slated to fly his own "one-way attack" in August 1945 but the war ended first. "You must understand, those of us in the kamikaze were not suicidal fanatics," Hosokawa said. "By 1944, our pilots were taking such heavy losses that we all expected to die. We did not welcome the idea of death, but we strongly believe that we were fighting to preserve the nation and the Japanese race from extinction. We were young, the war was not of our making, our courage was born of our innocence.". Like so many of his generation, Hosokawa is at once proud and worried by the nation Japan has become. "I do not know if Japan today is a land worth dying for ...."

sisted of ordinary Zeros jammed with high explosives, the elite "Thunder Gods" of the 721st Squadron flew crude rockets called Ohka, meaning "exploding cherry blossoms." These crafts carried 1200 kilograms of explosives, a pilot strapped into a tiny cockpit, and enough fuel for a three-minute flight.

Usage of Source

Though it is not necessary to test students' knowledge of battles, I find it odd not to mention about famous battles or military exploits when we teach them the World Wars, including the Pacific War. Indeed, many decisive battles determine the fate of historical events. Unless the teacher knows something about it, they will teach "fragmented" history and, in the process, robbing students of knowing the excitement, misery, bravery and other important aspects of human conflict in history.

For this source the teacher could ask pupils to read the personal account given by Hosokawa and to reflect for a moment the thoughts of the former kamikaze pilot. It is not easy to develop historical empathy but the least we could do is to try.

(Incidentally, in the 1990 Gulf War, it was reported that the Iraqis would resort to suicide squads.)

(a) What do you understand by the statement "We were young, the war was not of our making, our courage was born of our innocence."?

(b) Attempt to explain why Hosokawa said that "I do not know if Japan today is a land worth dying for...."

(According to Hosokawa, the young Japanese are losing their sense of dedication and willingness to sacrifice. The old values of commitment to the nation, of reverence for the unique Japanese culture, now mean little to them. It bothers him deeply that the Japanese government has sought to eradicate memories of World War Two and that the people do not learn from it. In his opinion, Japan should be a more modest, more reflective nation -and not be so obsessed with riches and expensive cars.)

Some Last Words

A good teacher is a self-motivator. He likes his subject and is always eager to keep his knowledge up-to-date. He also realises the "ripples in the pool" effects of his enthusiasm on his pupils. Of course, it is never an easy task to motivate people, especially if we have pupils who reply to you "History is boring" when asked upon their views of the subject. But first thing first. Let us now wipe away undesirable habits, adopt a new, refreshing attitude and look ahead with pride - because we are history teachers and we teach our pupils to know history.

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JESSIE EE

Eliciting Intrinsic Motivation

How can I motivate this child? He doesn't seem interested. This is one of the most common remarks that teachers tend to express to one another. Even though it may be a straightforward question, there is no simple answer because the approaches used are usually indirect and subtle; and although it may work for some students all the time; for others, it may not work some of the time.

So what is motivation? According to Cole & Chan (1987), "motivation is concerned with personal energy directed towards the achievement of particular goals", the sources of motivation being either intrinsic or extrinsic. Whereas intrinsic motivation is driven more by self-satisfaction and self-reward, extrinsic motivation is dependent on external reinforcements and rewards. As such, extrinsic motivation is linked with the notion of reinforcement. In motivating children, there is a need to consider the types of reinforcers to be used; and when and how to use them besides providing realistic objectives and programmes with varied activities and ensuring that children experience success and a feeling of competency.

Studies have shown that high achieving children are more intrinsically motivated in contrast to the low achieving children who are more inclined to be extrinsically motivated. However, studies by Rose and Thornburg (1984) and Harter (1975) found that low ability children's needs for reinforcements can gradually be replaced by intrinsic need such as mastery motivation when they are competent in their performance. If children are to be intrinsically motivated, they must perceive themselves as competent and in control. Their peers, teachers and family members perception of their competence must also be perceived by them. Generally, teachers fail to motivate their students because they are not aware of the factors which influence intrinsic motivation or are unable to apply some of the above motivational principles necessary for motivating their students.

In this article, a short review of a case study by the author will show how an intellectually disabled (ID) child's needs for extrinsic motivation (reinforcements) was eventually replaced by his intrinsic need when he became competent in his mathematics performance. Considerations for motivation in teaching and learning will then be made.

The Study

The subject studied is an ID boy with a chronological age (CA) of 9 and a mental age (MA) of 6.5. ID children are also known as the "Mildly Mentally Retarded" (MMR), the "Educable Mentally Retarded" (EMR) or the Educationally Sub-Normal (ESN) with an intelligence quotient (IQ) range of approximately 50 - 70 (American Association on Mental Deficiency; Grossman, 1978). They are also said to be generally slow learners.

Research Design

A behaviour modification programme was carried out to assist the subject to transfer his knowledge of horizontal addition to vertical addition within 10. A 4-phase ABAB

design was employed. The first baseline probe using non-reinforcement levels of accuracy and time were assessed for the mathematics activity. This was followed by the treatment period of contingent reward and corrective feedback during which both accuracy and time were again assessed. A second baseline period was then introduced followed by a second period of contingent reward and corrective feedback.

Treatment

The treatment procedures were followed for 8 observation sessions. During this phase, reinforcement was delivered contingent upon the accuracy of the student's response to each equation. The effects of reinforcement were investigated with regards to the dependent measures of accuracy and time.

The schedule of reinforcement was continuous and delivered immediately after the completion of the worksheet of the 10 equations. The quality of the reinforcers selected for use was determined by the subject. For example, those reinforcers which the subject highly preferred such as, chocolate, ice-cream and smarties were selected. The social reinforcers used were praise, encouragement, physical contact and facial expressions; and the primary reinforcers selected were stars, smiley stamps, smarties and chocolate ice-cream. Approval of peers and teachers were also selected to motivate subject as well as to boost subject's self-concept and confidence. The quality of the reinforcers increases as subject's accuracy rate increases. If subject is able to achieve 100% accuracy and reduced time taken to complete his worksheet for 3 consecutive trials, he will get his chocolate ice-cream as well as have his work displayed and announced to his teacher.

The feedback was extended to a corrective procedure if the subject responded inaccurately. As the subject has deficit algorithm problem, subject's strategy is corrected to assist him to transfer his procedure of adding horizontally 2 + 3 = ____ to adding vertically e.g.

```
  2
+ 3
------
------
```

the number representing the larger addend 3 is replaced by 3 tally marks. These tally marks serve as cues for obtaining the sum 5. Subject touches the number 2 and counts the 3 tally marks in sequence from "2" : "3", "4", "5". Therefore,

```
  2
+ 3
------
  5
------
```

This corrective procedure also serves as reinforcement and motivation and is part of the treatment.

Results

The results showed an increase in subject's accuracy throughout the treatment. However, on subsequent observations, subject's increased efforts could possibly be due to mastery motivation - the desire to solve cognitive challenging problems for gratification inherent in discovering that he can obtain 100% on 3 consecutive trials without mistakes as suggested by Rose and Thornburg (1984) and Harter (1975). It could also be that being much older, subject's extrinsic motivation is gradually replaced by intrinsic motivations (Sorenson and Maehr, 1977). However, since no high or medium ability subjects with varying age groups were included in this study, it is impossible to make comparisons.

On-task behaviour also showed much improvement. Distractability was reduced and attentive behaviour was maintained. Yarbrough et al. (1977) also found such improvement in their study using reinforcements with their low ability groups.

From the remarks made by the subject, it can also be observed that the subject has gained much confidence and has a more positive attitude towards mathematics. It can be seen that although the subject was initially extrinsically motivated, the final outcome showed that the primary reinforcers were not necessary as he became more intrinsically motivated after obtaining success in his mathematics performance. Also, there is some consistency in his work from the pace that he works, unlike the inattentive and distractible nature he displayed initially. Probably, he realises that he needs to put in more attending behaviour on his task to achieve 100% accuracy similar to Kirby et. al. (1972) study.

Although the study only examined the effects of contingent reinforcement for accuracy, there remains to be examined the effects of other reinforcement contingencies and variables such as scheduling. These studies might produce similar or differing results. Hence, the present study can only be said to have found that extrinsic motivation dependent on reinforcement and corrective feedback affected the performance of this subject to the extent that intrinsic motivation was elicited and that such findings should not be too readily extrapolated to other situations and subjects.

However, from the study the following implications may be drawn for motivating children for learning. To ensure that children are motivated to learn, the following factors need to be considered. The special or remedial teacher must understand the needs of her students and be able to identify relevant learning goals and select successful and meaningful experiences for the child. The provision of varied, functional, interesting and challenging activities must also help children derive much success from doing them.

In general, low-ability students have difficulties with school tasks because they lack knowledge of basic concepts and prerequisite skills. Teachers can improve this situation by:

1. simplifying the subject matter and presenting it in small steps;
2. reducing the amount of verbal and abstract problem-solving required in assignments with short, simple, clear instructions and, if possible, concrete experiences;
3. reteaching the relevant and basic concepts or prerequisites in the subject;
4. know the student's interest and provide activities that interest him;
5. provide reinforcement for personal gains in achievement (competition with self and not with others);
6. provide secondary reinforcers to motivate students (e.g. marks, good work stamps, praises etc.);
7. monitoring the rate of success on

work tasks.

However, there are occasions whereby teachers may unintentionally impose standards that are quite unrealistic and which is beyond the child's ability level. If such pressures are exerted, students may be highly stressed and display high anxiety. The following motivational techniques should then be enforced:

- reduce the anxiety by introducing a non-threatening, conducive classroom climate.
- allow for mistakes during question time with encouraging words such as "Good effort, try again" to allow children to perceive that it is part of the learning process.
- maintain good rapport with children. This can be developed during recess or during activity time.
- organise activities that allow children to express their feelings, concerns and worries so that the teacher can further understand and cater to their needs.
- add humour to relax a stressing situation.
- ensure tasks are within children's ability level so that success ratings are high and increases children's feelings of competence and confidence rather than anxiety.
- encourage the self-competition or co-operative team spirit in children.

Expressing feelings, concerns and worries

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Adding humour to relax a stressing situation

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LOW GUAT TIN

How Come You Slept Right Through My Lectures?

Believe it or not, many students sleep right through lectures. Many have become such experts that they can sleep with eyes wide opened. To stay awake, some students chew all kinds of tit-bits, others talk, doodle or fiddle with pens, rulers and erasers.

The lot of the student is to me quite difficult. Imagine sitting in a class for 4-5 hours a day with a couple of breaks in between. If a student has a lively teacher or one who believes in using a variety of teaching methods, and one who gives them some freedom, then the day can actually be quite enjoyable. But imagine being glued to the seat listening to a voice that drones on and on. Can we blame our students for sleeping through our lessons?

Research into this area of motivating students is plentiful. Brophy (1987) has compiled a synthesis of research on strategies for motivating students to learn. Motivation, to Maehr (1984), is a study of factors that "drives, directs and excites..." us towards a goal. The basic issue to me then in a study of motivation is "Do students see what you are teaching and what they are being 'forced' to learn as being in line with their goals?"

Why do so many children have problems with music lessons? To me it is their parents who want those lessons. All the child wants is to tinkle around, to create some noise and lo and behold before they know it, they are enrolled in some music classes! Motivational problems? I did not have any. My parents did not send me to music lessons, nor art, swimming, cooking or speech classes. I picked up what I *want or need* along the way!

Why do our students have motivational problems? If they are '*kiasus*' (i.e. fear of losing out) as we have been told, then '*kiasuism*' is a very motivating factor.

I believe pupils who are *kiasus* are okay; the problem rests with those who do not care. How is it that when it comes to organising a class party, this group of students would have many ingenious ideas? The problem at times seems to be curbing them from becoming over-enthusiastic, yet when it comes to school work they present motivational problems. Peter Drucker (1982) said:

> In the study of motivation, we now know that we've been barking up the wrong tree...How not to quench motivation? We now know that the human being is a learning machine, and the problem is not to motivate people but to keep from turning them off. The quickest way to quench motivation is not to allow people to do what they've been trained to do.

I guess one way we quench motivation in class is not to allow our students to do the things they want to do. And you will rightly ask "How can we let them do what they want to do?" There's the syllabus to cover, the PSLE or the O-level examinations and so forth. My question is "Why not?" Can we marry the two? Must syllabus and examinations run contrary to what students want to do?

One way we quench motivation in working adults is not giving them opportunities to do what they have been trained to do. I have met frustrated adults who are doing things which they have neither the inclination, the aptitude nor the ability to do. There are many teachers who refuse promotion because they want to teach. They want to be in the classroom interacting with children. Many teachers complain and feel frustrated when they have to fill in forms, collect milk money and such likes because doing these jobs prevent them from teaching. They want to teach!

We are told that performance is a function of motivation X ability. I would like to suggest that motivation is a function of ability X interest. In-

terest is to me a very important factor.

As a teacher, am I excited about what I teach? If I am not excited about what I teach, how can I interest my students in the subject? For this reason, I actually spend time thinking not so much about the "what" (because that is something I should know) but the "how", i.e., the presentation. How do I "hook" my students into sharing the excitement I have for what I am teaching.

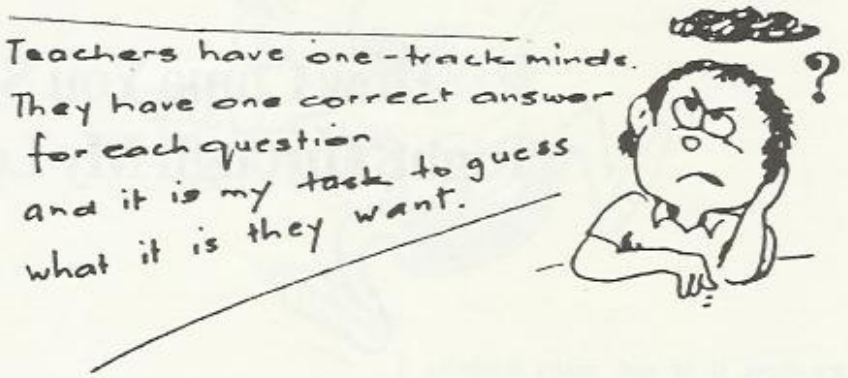
I realise that I may not be able to motivate students, but I believe I can create an environment that might spur them on. And part of that environment is myself.

Me - The Teacher

For a start, I must be excited about what I teach. Does my voice show the excitement? Do I show that I am interested in my subject non-verbally and verbally?

Secondly, what's my rapport with my students? Even in a lecture theatre, can I establish rapport with my audience? I have seen many great teachers who can hold a packed audience spell-bound. Each person in the audience feels that the teacher is speaking to him. Close rapport is established even though there are hundreds in the auditorium. (There are countless ways to do this.)

Thirdly, are we flexible enough to accept answers which are different from ours? Or do we have one-track minds? Are we prepared to accept answers other than what's in the textbooks?



Personally, the little knowledge that I have of Transactional Analysis helps. I aim first to "hook" my students' 'free child' - the spontaneous, excitable free child. And I do that with cartoons, jokes, puzzles and anything that is 'extra-ordinary' by classroom standards.

Fourthly, I talk or share with my students. I try not to talk down or talk at them. I laugh when they say funny things. I am not one of those who believe that "Teachers should not smile till Christmas".

I suppose it is much easier for me because I work with motivated adults and I am really excited about what I teach. Then again I am also very interested in the adults I work with. As a teacher it is most gratifying for me to see people's faces lighting up with the "Aha" look.

Me - My Method

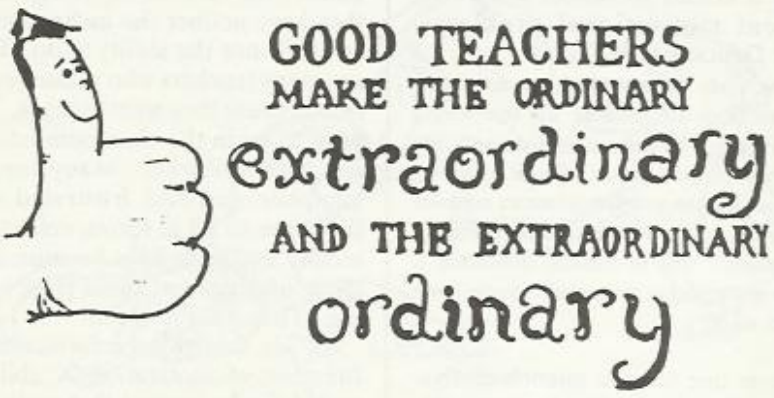
I am a firm believer of humour (See ASCD Review, Vol 1 (1) 1990). Let me quote from Highet (1977):

> One of the most important qualities of a good teacher is humour. Many are the purposes it serves. The most obvious one is that it keeps the pupils alive and attentive because they are never quite sure what is coming next...the real purpose of humour in teaching is deeper and more worthy. It is to hook the pupils and the teacher and to link them through enjoyment.

I believe in the use of humour. I believe in "hooking" my students to the subject I teach and I find that often as I search for cartoons and humourous materials to use in my lectures I become "hooked". The *Far Eastern Economic Review* (FEER) has a page on "Travellers' Tales" and if you plough through them, you can find great gems for teaching purposes. Let me share with you a couple of items from the FEER (these are signs put up in hotels and places of interest):

In the lobby of a Moscow hotel across from a Russian Orthodox monastery:

You are welcome to visit the cemetery where famous Russian and Soviet composers, artists, and writers are buried daily except Thursday.



We now know that the human being is a learning machine, and the problem is not to motivate people but to keep from turning them off.

In a Bucharest hotel lobby:

The lift is being fixed for the next day. During that time we regret that you will be unbearable.

At a Budapest zoo:

Please do not feed the animals. If you have any suitable food, give it to the guard on duty.

In a Paris hotel elevator:

Please leave your values at the front desk.

I try to use novel ideas. I also try to create dissonance. When there is dissonance, we are told that people will strive for consonance, they will strive for balance. In that process they learn. That is why I believe that "My greatest service as a lecturer is to upset you, for in that process you will LEARN" (Baruch and Low, 1992) and "When you experience dissonance - relax you're about to learn new things" (Low, Cheong and Baruch, 1990)

I try to say the same old things in different ways, i.e., put old things in new light. One of the benefits of doing this is that it helps me to get out of my mindset. Having to look at an issue or problem from different angles helps me to appreciate its complexity and the difficulties that some of my students could experience in trying to come to grips with it.

The issue of empowering students is important too. I encourage them to work on projects which they are interested in, projects which they want to do. I remember a 9-year old who was so interested in insects that he poured through any book on insects that he could lay his hands on. Then he built an ant-town. He collected ants of sorts that could survive in such an environment and he fed them and took care of them. He knew so much about ants but that knowledge was never shared with classmates in school. Why?

Conclusion

I have just discussed some of the strategies I use, yet I do not feel comfortable about strategies. To me there is no one strategy that one can turn students on. People differ and different things/different subject matter excite different people. We cannot therefore look for a single cause in motivational problems nor a single most workable strategy. To go in search of the best approach and then "turn it on" and expect our students to be suddenly motivated will be futile.

I often share this with my students:

God put teaching into my life, I will put life into teaching!

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M KAY ALDERMAN

Motivation for At-Risk Students

"Helpless" students need to learn to link their successes and failures to their own efforts.

Student motivation for learning is a major concern for most teachers, but especially for teachers of low-achieving or "at-risk" students, whose numbers are on the rise (Hodgkinson 1985). In today's classrooms, motivational inequality prevails: some students persists and work on their own for their own intrinsic interest, while others work because they are required to and do not believe their actions are related to success and failure (Nicholls 1979). The encouraging news, however, is that motivational research (e.g., Alderman and Cohen 1985, Ames and Ames 1989) and cognitive learning research (e.g. Weinstein and Mayer 1986) offer teachers an abundant repertoire of strategies to foster student success and self-worth.

Understanding Motivation Levels

The motivation theory of attribution has helped us to understand students who have a pattern of failure. The reasons one assigns for achieving success or failure are called *attributions* (Weiner 1979). Students' attributions affect their future expectations and actions. The following four attributions are used most frequently:

1. Not having the ability ("I'm just not a writer");
2. Not expending enough effort ("I could do it if I really tried")
3. Task difficulty ("the test was too hard")
4. Luck ("I guessed right")

Some students persist and work on their own for their own intrinsic interest, while others work because they are required to and do not believe their actions are related to success and failure

These attributions have been further categorized into two dimensions, stable-unstable and internal-external. Stable-unstable refers to the consistency of a student's pattern of failure. Internal-external refers to the student's beliefs that the cause for failure lies either within or outside the student. For example, Teresa fails an exam on reading comprehension - she has done this many times. Her attributions for her failure are that she can never answer those kinds of questions and that she is just not a good reader. These attributions have stable/internal characteristics: the student blames herself as someone who can never succeed.

Students with such internal/stable attributions for failure consider themselves "helpless" - they believe they can do nothing to prevent failure or assure success (Dweck and Goetz 1978). The "helpless" student actually expends less effort after failure, while a "mastery" student increases effort and looks for better strategies. Failure attributed to internal/stable ability is one of the most difficult motivational problems to remedy. And for the helpless student, simply experiencing success is not enough to ensure motivation.

For example, a student may not attribute his success to anything that he did - he attributes it to luck - so he

does not expect success again. Or another student attributes her failure to "stupidity," so failure becomes a self-fulfilling prophecy. The task for teachers is to help these students break this failure/low expectation/helpless cycle.

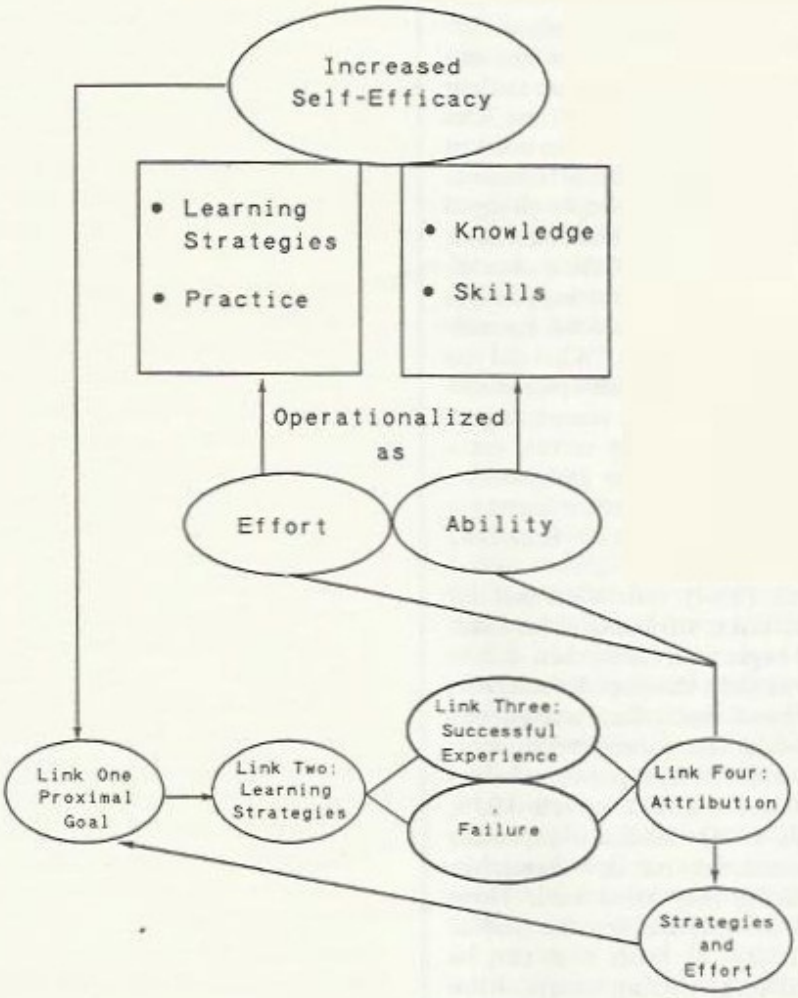
Efficacy and Expectations

Teachers who are successful in reaching low-achieving students combine a high sense of their own efficacy with high, realistic expectations for student achievement. *Teacher efficacy* refers to teachers' confidence in their ability to influence student learning and motivation. This sense of efficacy, in turn, affects teachers' expectations concerning students' abilities. Teachers with a high sense of efficacy are more likely to view low-achieving students as reachable, teachable, and worthy of their attention and effort (Ashton and Webb 1986).

The effects of teacher expectations on student achievement are well documented (Good and Brophy 1987): the key attitudes for teachers are confidence and determination. This does not mean that they are idealistic in their expectations. Instead, it means that, although teachers are realistic - aware that students have learning problems - they look for ways to overcome the learning problems (Brophy and Evertson 1976). They let students know they want them to succeed and that they will be expected to achieve the objectives. Then they assure them that they will be taught the skills or learning strategies necessary for achieving them.

"Links" to Success

It is not enough that the student achieve success; in order to acquire a high degree of motivation, the student must know how he or she personally contributed to this success. In other words, there must be a link between what the student did and the outcome. Drawing from research on motivation on learning strategies, I have developed the "Links" for helping the "helpless" student become successful and, in turn, develop an increased sense of self-worth. These links are shown in Figure 1.



Link One: proximal goals

The first link to success is the setting of goals for performance. Goals play an important role in the cultivation of self-motivation by establishing a target or personal standards by which we can evaluate or monitor our performances (Bandura 1986). Goal setting provides the mechanism for self-assessment. Morgan (1987) concluded that there is a reciprocal relationship between goal setting and self-monitoring: either process will lead to the other. For example, Harris and Graham's (1985) instruction and training program for teaching composition skills to learning disabled students requires students to set a criterion for performance and then keep graphs to show their progress toward their goal.

But all goals are not equally effective in providing standards for self-evaluation. To be effective, the goal should be specific rather than general; harder rather than easier (but attainable); and proximal (close at hand) rather than long term (Locke 1968). It is especially important for students with a history of failure to have proximal goals so they won't be overwhelmed. Bandura and Schunk (1981) found that children who had proximal goals performed better than those with distal or long-term goals.

How do we establish a starting point to forge this proximal goal link? First, we have to find out where students are so that we can establish a baseline. The baseline can be determined by pretests (formal or informal) and analyses of student errors. Teachers and students can then jointly decide on the proximal goals.

Goal setting seems to benefit everyone: it has been found to have a positive effect on elementary and secondary students (Gaa 1973, 1979), as well as learning disabled students (Tollefson et al. 1984) and college

Fig 2. Proximal Goals and Progress

Make your goal as specific as possible:

Planning

1. My specific learning goals for the week (today) are:
2. I will know I have accomplished my goals by:
3. Action or steps I will take to accomplish these goals:
4. Possible blocks, both personal and outside, that may interfere with my goals:
5. If I need help, I can go to:
6. My confidence in reaching my goal is:

   no confidence 0 — very confident 25

Evaluating

7. My satisfaction with my goal attainment is:

   very unsatisfied 0 — very satisfied 25

8. Reasons for attaining or not attaining my goal:

students (Morgan 1987). Figure 2 shows a form that can be used and adapted to teach students to set effective goals.

I have used adaptions of these steps for students of various ages and ability and have found that most students need considerable practice in learning to make goals specific.

Link Two: learning strategies.

Low-achieving students usually can be described as "inefficient learners" (Pressley and Levin 1987); that is, an inefficient learner fails to apply a learning strategy that would be beneficial. In Link Two, the students identify the learning strategies that will help them accomplish their goals. Examples of learning strategies are: basic and complex rehearsal strategies; comprehension-monitoring strategies (Weinstein and Mayer 1986); task-limited and across-domains strategies, with metacognitive knowledge about when to use them (Pressley et al. 1989); and various reading comprehension strategies, including summarization, question asking, clarification, and prediction. In the latter example, Palincsar and Brown (1984) reported improved reading comprehension scores after students were taught the four comprehension skills.

Link Three: successful experience

A learning goal rather than a performance goal is the key to success in Link Three (Dweck 1986). The focus in a learning goal is on "how much progress I made," not on "how smart I am," a performance goal. The student measures his or her success using the proximal goal as the criterion. As teachers, we may think that success is the final link. However, consider the student who is successful but still has low expectations for future performance. It is the *attribution* the student makes for the successful experience that affects expectation: the student must link his or her personal effort or strategy to the successful outcome.

Link Four: attribution for success

In Link Four, students are encouraged to attribute success to their personal effort or abilities. The teacher's role is to help the student make the appropriate attribution. The attributions most easily changed are the internal and unstable. Thus, since students control their own effort, this is the likely starting place to influence their attributions for success. Teachers can ask, "What did you do when you tried?" Examples of student effort might be: completing all homework, correcting errors, extra practice, redoing an assignment, going to a "help" or review lesson, or using appropriate learning strategies.

Schunk (1984) concluded that for difficult tasks, attributional feedback should begin with effort, then shift to ability as skills develop. Researchers have found that effort attributions were often less valued by students than attributions for ability (Covington and Omlich 1979, Nicholls 1976). Students, especially adolescents, may not view themselves as "smart" if they "tried hard." However, it is important that the student see "ability" as skills that can be learned (e.g. writing composition skills).

The teacher's role in Link Four is to model and give feedback about why the student succeeded or failed at the task. Attributional feedback is information (oral or written) about effort, strategies, or ability. Examples of feedback are: "Jenny, look at your test score, that extra practice really paid

When we help students take responsibility for their learning, we have taken a giant step in promoting motivational equality in the classroom.

Teachers who are successful in reaching low-achieving students combine a high sense of their own efficacy with high, realistic expectations for student achievement.

off' (effort); "Martin, the latest revision of your story shows you have improved because you have learned to summarize and find main ideas" (strategies).

This model then goes "full circle." Students who have succeeded and attributed the success to their own effort or ability (and not to task ease or luck) have concrete performance feedback that in turn will lead to increased self-efficacy. Self-efficacy is most enhanced by prior successful performance (Bandura 1977). This increased self-efficacy then leads to increased confidence about goal accomplishment.

In this "Links" model, we have focused on a successful experience. However, failure will occur; and when it does, students' attributions for it are important determinants of their future expectations for success. Students who attribute failure to not using the proper strategy, for example, for more likely to try again than students who attribute failure to lack of intelligence. This latter attribution for failure results in a dead end for the student. Teachers should be cautious in assigning lack of effort as the cause of failure; they should only use this attribution when they are sure the task was within the student's capability. Often students don't know why they failed (Alderman et al. 1989). When students indicate they don't why they failed, the teacher can provide them with a new strategy for accomplishing the task.

Classroom Structure to Support Success

To foster optimum motivation, classroom structure must support student goals, efforts, and use of effective strategies. A "mastery orientation" structure fosters optimum student motivation (Ames and Archer 1988). A mastery classroom emphasizes learning and progress (Link Three) over performance and ability. Thus, errors are viewed as a natural and important part of the learning process, not as an indication that one lacks ability. Teachers in mastery classrooms give students opportunities to relearn concepts and correct errors. Low-achieving students in particular need to know exactly what they are expected to do and the criterion for measuring their success (Covington and Beery 1976). This criterion takes the focus off ability in comparison to other students as the reason for failure.

Progress, Not Miracles

The Links-to-Success model is not an algorithm but rather a guide for fostering students' motivation for success and self-worth. It is flexible: any link of the chain can be the starting point. For example, when a student fails, the cycle can begin with attributing the failure to lack of effort or use of ineffective strategies and returning to Link One: proximal goals.

This model also serves to enhance the teacher's motivation as well, through the same dynamics used with the students. When teachers see progress in their at-risk students, their teaching efficacy increases.

Finally, I make no claim that these links will work miracles with at-risk students. They only provide teachers and students with a framework for beginning the cycle of progress that fosters self-responsibility for learning. When we help students take responsibility for their learning, we have taken a giant step in promoting motivational equality in the classroom. This type of motivational intervention takes time and patience; our focus is progress, not miracles.

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JAMES P RAFFINI

Student Apathy: A Motivational Dilemma

Below-average students protect themselves against failure in an educational competition they cannot win. But they could win if schooling tied success to effort, time on task, and performance standards - rather than to ability.

Student apathy and noninvolvement are as common as chalk dust in many of our nation's classrooms. Unfortunately, they are more lethal. Last year in Chicago, for example, nearly 40 percent of 9th graders ended the year by failing *two* or more courses (Banas 1985). Few cities of equal size can boast of better results. Paradoxically, the educational procedures that have contributed to this apathy have also produced many hardworking, competent, and intellectually curious students, often working side by side with the noninvolved. In short, schools are giving us winners as well as losers, and if we hope to increase the former by reducing the latter, we need to understand the motivational factors that have contributed to this dichotomy.

Ironically, one of the problems may be that many students are *not* willing to accept mediocrity, choosing instead apathy and even failure rather than "average" or "below average" performance. From a perceptual point of view, the essence of all motivation is enhancement of self. Given our personal perceptions of reality, we all strive to be the "best" we can be. When this sense of self-worth is threatened, we act in ways to protect it. Students' self-worth is directly related to their ability to achieve - and to achieve is to be of value (Covington and Beery 1976). When students see school as a threat to their self-worth, some are forced to choose apathy and noninvolvement as a defense.

Norm-Referenced Evaluation

The measurement and evaluation system that most schools use relies heavily on norm-referenced procedures that compare one student's performance with that of another. This allows for the determination of average performance, without which above- and below-average performance could not exist[1]. The institutional references to average, above average and below average are so ingrained in the educational lexicon that their continued use is unquestioned. College entrance exams, national achievement tests, final exams, grades, and often daily quizzes depend heavily on this norm-referencing. We often assume that only the dull, lazy or unambitious are below average; in reality, it's a fixed percentage of the population - regardless of achievement.

These norm-referenced, competitive evaluation procedures force 50 percent of the student population into the bottom half of their graduating class. In actual practice, the ranking and sorting of students starts much sooner. Allowing for few exceptions, most students conclude early in their educational experience that once below average, always below average. According to Benjamin Bloom,

> the correlation between measures of school achievement at grade three and grade eleven is about .85, demonstrating that over this eight year period the relative ranking of students in class or school remains almost perfectly fixed (1981, p. 133).

All of this has contributed to a superficial understanding of the term "average". If a local newspaper ran the headline, "Half of High School Seniors Reading Below National Average," there might well be a public outcry. Wisconsin's state superintendent of education was quoted as saying, "Without question our public school students are doing well when compared to the national average. However, we should not overlook the fact that although Wisconsin averages are high, there are a number of students who fall below the national average" (Bednarek 1983). I'm sure he's not alone in wishing that Wisconsin were as fortunate as Garrison Keillor's mythical town of Lake Wobegon, the place "where *all* the kids are above average."

By determining grades from the

The common defense against a sense of academic failure is to stop trying.

percentage of items correct rather than from curved frequency distributions, some teachers assume they are using criteria rather than norm-referenced evaluation. Criterion-referenced evaluation, however, requires formative or diagnostic progress tests that measure specific learning objectives. According to Bloom, the purpose of these tests is to help ensure that each set of learning tasks is thoroughly mastered before subsequent learning tasks are started.

> Formative evaluation tests should be regarded as part of the learning process and should in no way be confused with the judgment of the capabilities of the student or used as part of the grading process (1981, p. 170).

Ability vs. Effort

It is apparent that for many students success in school is equated with being above average. When students enter school with their varying academic abilities and individually determined effort, they quickly discover that they must compete with each other for a limited number of rewards. During this competition, the system teaches students that effort is less important than ability. The most desirable reward is being labeled "above average."

Assuming that everyone works hard, those with high ability get the As and Bs and those with lower ability get the Cs and Ds. (Fs are usually reserved for those who do not show effort.) Granted, teachers and parents often use praise and encouragement to reward effort, regardless of ability. These subtle reinforcements, however, are greatly overshadowed by the more official rewards of high grades, honor rolls, and top reading groups.

Competition and Self-Worth

The education system's reliance on ability over effort to determine reward results in a forced and unfair competition. To ease the pain for the losers and to encourage their continued effort in the face of hopelessness, we share with them the story of the tortoise and the hare. Most will remember that the tortoise enjoys the good fortune of the hare falling asleep during the race. It doesn't take long for "below-average" students to realize that the story is a fairy tale; few hares are falling asleep today.

It may be argued that this is simply the reality of the society in which we live. But in some ways the school's evaluation system is more brutal than the real world. Few in the work force are subjected to the humiliation of norm-referenced evaluation. According to Gardner, "The top corporate executive is apt to be particularly eloquent in defense of individual competition, but his ambitious subordinates will usually find that he has himself well protected against any unseemly rivalry on their part" (1961, p. 111). Even if valid criteria were available, how many public school teachers would allow school boards to develop a norm-referenced merit system that would force half of the teachers to be below the median? Such a system also would be catastrophic in a university setting where 80 to 90 percent of the faculty believe themselves to be in the top 10 percent.

Competition, in itself, is not debilitating. When students are free to choose and when they believe that they have a reasonable chance for success, competition often spurs them to high levels of effort and excellence. A sizable percentage of the school population thrives on the competition of our present evaluative structure. Competition is debilitating however, when it is forced on people of unequal abilities who do not have an equitable chance of winning.

Failure-Avoidance Motivation

As a result of forced academic competition, slower students become victims of a system that can reward some only by punishing others. They learn that the As and most Bs are reserved for the upper half of the students who have the ability and learn more quickly.

Failure, of course, is a subjective term that need not be restricted to an F. For some students, Ds, Cs or even Bs may be indicative of failure. Students who are motivated to protect their self-worth, however, are struggling to avoid a *sense* of failure rather than failure itself. While it may appear contradictory, the common defense against a sense of academic failure is to stop trying. Many parents and teachers assure students that they can fail only if they don't try. What they really mean, of course, is that if you fail you haven't *really* tried. It doesn't take long for students to learn that if you haven't really tried, you haven't failed.

Students motivated to avoid failure approach each new learning experience when apprehension and

Many students are not willing to accept mediocrity, choosing instead apathy and even failure rather than "average" or "below average" performance.

fear, which they mask with apathy, aloofness, or indifference. Their philosophy toward school becomes "Nothing ventured, nothing failed."

On the other hand, schools will not tolerate students who do not exert at least *some* effort. Failure to try results in being kept after school, letters home, or parent-teacher conferences. To avoid these unpleasantries, failure-avoiding student are forced to expend a minimum amount of effort, or at least feign the appearance of effort. As a result, they experience no clear cut failures or successes, and their philosophy becomes "just enough to get by." An outsider might see in their behavior the acceptance of mediocrity. The student might see it as a coping strategy to bolster a fragile sense of self-worth. It is less painful to reject school than to reject oneself. From either point of view, it's a tragic waste of human potential created by an educational system that rewards some only by punishing others.

All Can Succeed

We have no control over the innate ability we receive at birth. We do, however, control the effort we choose to expend on any given task. Bloom (1976) argues that 90 to 95 percent of our student population have enough academic ability to master all of the content and objectives of our curriculums, assuming maximum effort, enough time on task, and optimum learning environments. But it seems unlikely that those labeled below average will expend this effort in a norm-referenced, competitive environment. It is much more humane and productive to evaluate an individual against identifiable standards of excellence than against another's performance. By so doing we can make it possible for all to succeed.

There is considerable opposition to setting aside norm-referenced evaluation. It is impossible to shed the label below average unless we are also willing to eliminate the label above average. Students in the latter group often thrive on grade competition and are likely to feel cheated if it is removed. For them it is the scarcity of an A that makes it valuable.

Nevertheless, if our goal is maximum effort from *all* students, then our educational system must demonstrate to all students that increased effort *can* result in success. This requires outcome-based instruction in which formative tests are used to determine who needs enrichment and who needs additional instruction and more time on task. Only when grades are based on standards of absolute performance of clearly stated objectives, and differences in student ability are viewed primarily as differences in the amount of time students require to master these objectives, will it be possible for effort to result in success. When competition is replaced with differential amounts of time on task and quality instruction, Bloom reports that "about 80 percent of students reach the same final criteria of achievement (usually A or B+) as approximately the top 20 percent of the class under control group instruction" (1981, p. 134).

Educators must confront the discrepancies between the actual and stated goals of education. Only then will it be possible to forge an answer to the challenge John Gardner offered 25 years ago.

> How can we provide opportunities and rewards for individuals of every degree of ability so that individuals at every level will realize their full potentialities, perform at their best and harbor no resentment toward any other level? (1961, p. 115).

For those who are forced to choose between rejecting schooling or rejecting their sense of self-worth, let us hope that the process begins soon.

1 Statistically, the mean, median and mode are all measures of central tendency or "average" performance. The term "average" in this article refers to the median.

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WONG KAR FOON

What Motivates Teachers?

Why do so many teachers work so hard and give off their best effort in spite of the fact that teaching is often not accorded a high status and does not provide good monetary rewards? A small scale study was carried out to find out what factors motivate a teacher to work hard at his job. We interviewed 17 teachers from 4 schools. They were teachers identified by their principals as high motivated individuals. Their teaching experience ranged from a year to 30 years and they taught a variety of subjects and levels.

What did we find?

Some of the factors which teachers claimed to be a great source of motivation include:

- achievement, progress, success of students
- interest in the job, students and subject matter
- support from family, administrators
- religious factors, and
- students.

In order to get a more complete picture, the teachers were also asked the reasons why they joined the teaching profession. Some of the reasons cited were:

- limited choice of careers
- interest
- like children, and
- want to mould lives.

The study showed that apart from the first factor, the remaining factors were also the ones that have kept these teachers going. At the same time the teachers also complained of "de-motivators". The most common complaint was that of too much administrative work, followed by too much time spent on ECA.

Interviews

During the interviews, we posed these questions:

1. How long have you been teaching?
2. What kept you going?
3. What made you stay on as a teacher?
4. What attracted you to take up teaching?

During the interviews, some of the teachers also discussed the factors that de-motivate them.

Data analysis

Since this is only a small scale study, the actual number of responses was used for the data analysis. The factors that motivated these teachers were:

- achievement, progress, and success of students;
- interest in the job, students and subject matter;
- students;
- support from family and administrators;
- religious factors; and
- some other personal reasons.

In the following section we will examine each of these factors in turn.

Achievement, progress and success of students

This factor was cited most often. All 17 teachers said that to see students do well in their work and their lives was a joy to them. While some were satisfied as long as their students tried their best, others looked for more evidence in their work performance. It was important to note that most teachers have different goals for different students. They felt that some students were capable of better results and some were not; however, as long as the students put in some effort and made improvements in their studies, the teachers were satisfied. Perhaps the most appropriate statement was made by one of the teachers:

> It is whether they have done their best. Some of them really try very hard and they cannot improve, although some do. I'll (still) praise them.

It is important to know why their students' achievement should be such a powerful motivator. One teacher said "their achievement is my achievement". I think this summarises this point very well. The teacher wanted the students to do well in her subject, and to her this was an achievement. This seems to lend support to Maslow's theory. Some teachers "actualise" through their students' achievement. What their students achieve is a reflection of their efforts, and the results of these efforts can be measured in the students' results.

Interest

All the teachers in our study said that they were in teaching because they are interested in it. In fact some had chosen this vocation out of interest and they had not regretted their choice. At the same time some of them mentioned that they were further motivated to teach because they enjoyed the subjects which they were teaching. One literature teacher found that she was not only transfer-

ring knowledge to the students, but she was also sharing with them something that she liked to do. She felt that she was doing something which she was born to do. She said:

> I like talking. I like telling jokes, entertaining my students. I like to see responses. I like to share things which I love with the kids. I love story books. I love the English language. I like sharing things which I like.

In a sense she was paid to do things which she enjoyed doing. It is no wonder that some of these teachers were so motivated.

Students

Research has consistently reported that students are the main motivating factor to teachers. We too found this to be true in our study. Almost all of them in one way or another said that the positive response of the students, especially when they showed that they appreciated the effort of the teachers, prompted the teachers to want to offer more in their job. Many of them said that it was important to build good rapport with the students. In fact one of them singled this out as one of the most important reasons for her wanting to teach.

At the same time, many wanted to know students personally and they wanted to be able to help them in any way. All of them also said that they wanted to reach out to students who have problems. One teacher told us about how she helped build up the self-confidence of a girl who was a loner. When asked if this experience was a factor that motivated her to stay in teaching, she exclaimed:

> It's something you'll never regret. You'll never forget the time you spend with them!

More specifically, teachers wanted to see students become better people. Seven of them placed character development as a greater priority than academic achievement; they wanted to see that they "made a difference". The fact that students showed that they enjoyed their lessons, by showing interest in their work, laughing at their jokes in class, showing sincerity in their work, showing appreciation to them was also a strong motivating factor for 5 teachers.

But of course, students are also the cause of heartaches and headaches for most teachers, for example, how some lazy "die-hards" refused to mend their ways despite all the talking and persuading. Discipline was also a factor that got onto the nerves of the teachers. They complained about naughty students and unhelpful ones too. But most of the teachers decided to look at the happy side of the story. They learnt to accept that a few failures was not unusual for a class. Nevertheless, it was evident that students were very important to the teachers.

Support

This refers to support from the family, administrators and colleagues. Not all the teachers felt that this was an important factor that would keep them going; some felt that it was only a plus point. Although good relationships with colleagues did not seem to be essential, recognition from their superiors was considered to be an important motivating factor. At least 7 teachers said that it was important that the principal supported them in their job.

Ten of them specifically praised their principal or vice-principal, saying that they had given them an extra push in this job. One of the teachers said that the "personal touch" of the principal was a very great motivating factor, especially when she was feeling down. An earlier study by Ferris (1989) also revealed that Singapore teachers needed the administrators' support in their teaching career.

A teacher praised her principal for having helped her to settle into the school by literally bringing her round the school. However, recognition need not come from the principal alone. In particular, 3 teachers from the same school said that they drew strength from their vice-principal. Another 10 cited friendly colleagues as a factor that helped. One more source of motivation was that of family support. In fact one of them said that a supportive husband was very important.

Although recognition was stated as an important factor for most teachers, there were two teachers who felt that recognition from the top or whatever external party for that matter, was not essential. They believed that they themselves would be the judge of their own efforts, therefore external support was not important to them. These teachers were also the ones who said that the factor that kept them going was themselves, that "inner drive", and the fact that they wanted to excel in whatever they are doing.

Religious factor

At least 3 teachers mentioned religion as a factor that had caused them to choose teaching as a career, and it was also their reason for staying in teaching. One of them, when posed with the question what was it that made her work so hard, replied:

> My only motivation is God. I know no other motivation. I think all other motivation pales in comparison to what God has done in my life.

Others feel that it is "a calling" for them to go into teaching, to "reach out to the students" and "to love them".

Other factors

All the teachers in our study said that they liked to work with young people, and almost all indicated that they would like to see their pupils grow into healthy, mature adults. Four felt that it was a challenge to teach creatively so that students could enjoy and learn. Two teachers stressed that it was important to keep a positive attitude towards teaching, otherwise "you will burn out quickly". Two others felt that setting a goal and striving to attain the goal kept them going. Two cited holidays as a motivating factor, while another two regarded flexible time which allowed them to spend time with their family as a bonus in this job. However at least 4 teachers said that holidays were not motivating factors as they were usually taken up by paperwork and remedial lessons. While 5 lamented that salary was "definitely not a motivating factor" to stay in teaching, 2 senior teachers were contented with their pay which they considered high compared with their colleagues

in the neighbouring countries.

Some unique reasons

There are some motivating factors which are unique to individual teachers. One teacher who taught physical education and chemistry entered into the teaching vocation after discovering that he could teach, while he was doing National Service. He chose to teach PE after his graduation from the university, because he wanted to prove that PE teachers were not all brawn and no brains. He said that he wanted to present PE teachers as an all-rounded, well-balanced persons. He wanted PE teachers to have a new outlook. Another teacher felt that being a teacher could help her bring up her own child in a better way. She said that being in the teaching profession enabled her to understand the education system better, which in turn would benefit her children. She got to know more teacher friends who could give her advice and feedback concerning her child's education.

Being new in the profession also gave one of them an extra push to work hard. Yet another states that teaching young pupils made her feel younger, and this made her happy.

Summary

Many teachers are in the teaching profession because they were interested in the job and are still interested in it. While some of them have their own unique reasons to motivate them, the most common factor is students. It is very important that this should be the main reason, after all these are the people whom the teachers spend most of their time with. The response made by the students in class, their enthusiasm to do their work, their capacity to improve, their willingness to learn, are all very strong motivating factors to teachers. The success of the students will inevitably be considered as the success of the teachers, and their failures, the teacher's failures too. The achievement made by the students are like reflections of the teacher's efforts, and hence the students' progress become the main motivators for teachers.

Teachers also like to invest their lives on the students' lives. The urge in every teacher to help a student is always detectable. All teachers are keen to help a student both in his academic achievement and in his character development. The fact that many lives have been improved and many poor attitudes corrected is also one of the reasons for teachers to go on.

In this seemingly thankless job, recognition is also very important to teachers. Support from the superiors, administrators, family, colleagues, students, all serve as a enormous push to go on in this job.

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SOH KAY CHENG

The 5M Route to Bilingualism

How is it that some people can learn a second or foreign language so easily and so well while others, given what seem to be the same opportunities to learn, find it almost impossible?

This question was asked by two eminent Canadian researchers of bilingualism, R. C. Gardner and W. E. Lambert, some twenty years ago. One wonders if it has been satisfactorily answered. Nonetheless, thirty years of empirical research in a large variety of language environments point out some common observations which can serve as a guide to the effective development of bilingualism in children. These can be summed up by the 5Ms.

M1: Motivation Learning a language is just like learning any other skill; it needs motivation. A language learner needs to know that after he has learned a language item, be it a simple word or a complex sentence, he will be rewarded. The reward may be material in nature when a child learns to ask for drinks, food, toys, or just some kind of assistance; he gets what he needs through language. Here, language is instrumental in making his life more pleasant and enjoyable. At other times, the reward may be psychological, such as when a child has learned to recite a nursery rhyme and is praised or given a hug. Language, here, is also instrumental in bringing about psychological gratification. Language learning of this kind takes place all the time in the natural social environment - using language to get something beyond the language itself. This is the *instrumental motive* for learning a language.

However, children may find learning a language an intrinsically interesting activity, finding satisfaction in learning it and not caring for other kind of rewards. This is very much like playing a game of chess or trying to put together a jigsaw puzzle. The fun is in the doing and nothing else is expected. Since language and its culture are closely related, language will be incidentally learned with little conscious effort by participating in cultural activities. On the other hand, having learned a language to some degree of proficiency, one may want to delve into its culture. Such learning does not seem to lead to any extrinsic rewards and one learns the language for its own sake. This is the *integrative motive* for learning a language.

When a person can get the material or psychological gratification through the use of one language, will he feel the need to learn *another* language? Unlikely. It will not be easy to make him want to learn it since he can get by with one language. Of course, this is not the same as saying that he does not have the ability to learn more than one language; he simply finds it unnecessary.

This brings out one obvious point: let the child learn some language and reward him, with tangibles or praise, so that learning the language becomes instrumental to his physiological or psychological needs. However, over doing this will have a adverse effect in the long run. Experiments show that children who are rewarded for what they enjoy doing became uninterested in the activity itself and gradually became interested in the rewards. This motivational shift suggests that extrinsic or instrumental motivation works up to a point only and should not be given undue emphasis.

When children are interested in cultural activities, through watching or participation, they immerse in the cultural milieu and will acquire the language in an emotionally relaxed atmosphere - in short, they simply pick up the language. Moreover, learning a language this way makes the language part of one's daily, normal life. In contrast to the contrived learning situation of a classroom, this does not involve pressure external to the learner and may inculcate a positive attitude towards the language.

M2: Models Models are essential for language learners. Without such models, there will be no input to the learner's mind. Having heard a meaningful and comprehensible input, the child may imitate and use it to meet his needs; or, he may 'process' such inputs and thus derive language rules for use when appropriate. Therefore, hearing comprehensible messages are important for effective learning and it is here where good language models are indispensable.

Modelling is not limited to language *per se* but also to attitudes. The parents' attitude towards a particular language influences the child's attitude towards and achievement in that language. As a Canadian study shows, whether the parents spoke French was not related to the child's achievement in learning French but parental attitude towards that language did. This suggests that if parents want their children to learn a language, one good way is to learn the language themselves, not so much for coaching the children but to give them a good model of language learner. Doing so sends the message to the children that the language is worth mastering and mastery of the language is valued by the parents. In a sense, this turns the language to be learnt a 'mother tongue' in reality.

There are three possible additional benefits: First, when parents serve as language models, the children will identify with the languages. Secondly, parents will understand better the difficulty in learning languages and therefore will not pressurize their children unduly. And, thirdly, when parents use two languages, this becomes a norm in the family and provides a natural environment for the child to become bilingual.

M3: Materials To help children become bilingual, there is a need to increase exposure to the languages. Who can help? Parents, teachers, people in the community, and artistes in the mass media may all influence the process and outcome of becoming bilingual. However, these people who serve as language models are not constantly available and children may not want to *purposely* learn language all the time, too. Hence, there is a need to find some ways to increase the ready availability of these models. For this, modern technology is helpful.

There are many products of modern technology that will extend the influence beyond immediate personal contacts with language models in providing the needed comprehensible language input. Such things as audio tapes, video tapes, photocopy machines and, of course, personal computers are so omnipresent that it is sinful not to make good use of them.

Although it is not impossible to learn an oral language without reading, reading does help, especially in an idiographic language like Chinese. After all, we are born with two brains, with the left hemisphere specializing in processing sounds and the right one in shapes. Thus, the two brains will complement each other in language learning through processing both sounds (the oral language) and shapes (the written language). Moreover, a more advanced level of bilingualism should mean 'biliteracy' - the ability not only to use two languages in their oral form but also to read (if not necessarily to write) in both languages.

Books have been held in high esteem in the Eastern culture as well as in the West. They are a source of pleasure to many people, children and adults alike. They are also an important source of knowledge. However, as far as becoming bilingual is concerned, books afford another important source of language input, although it gets into the mind of the child through a different neurological pathway.

Learning a language is just like learning any other skill; it needs motivation.

While the physical quality of books may decide to some extent their attractiveness or the lack of it to the child, the proper choice in terms of the language level and content should not be neglected. Books with a language level at the child's serve the purpose of practice and consolidation. Books with a language level slightly higher than the child's is challenging and provide an impetus to read on and an opportunity to 'conquer'; this gives the child a chance to have a sense of achievement. As for the content, books related to the child's interests and leisure pursuits serve information, recreational and motivational purposes. Although different children have different interests, generally speaking, boys prefer the more 'macho' stories and girls the more 'sissy' ones. Of course, books for children need not always be stories, they can be factual. In fact, young avid readers will read almost anything, from mother's recipes to shopping guides to encyclopedia.

M4: Methods The most fundamental issue in educating the bilingual is whether the two languages should be kept apart without cross references or should one language be used to facilitate the learning of another. A related issue is whether children should learn two languages concurrently or should the learning of one language be postponed until a solid foundation has been built in another so that the later-learned language can be 'grafted' to the one mastered earlier.

The *audiolingual* and the *cognitive-code* approaches are the archetypes of these two contrasting schools of thought, with a whole host of their variants. This seemingly simple question is in fact confounded by many other factors such as the age of the child, the language environment he is in, whether the teacher is monolingual or bilingual and, above, whether communicative competence or bilingual literacy is the main objective.

Within the context of these two broad approaches, many specific methods or techniques have been experimented on and advocated: Combining language and physical activities; restricting language learning activity to only listening for the first six months or so; exposing the learner to language input in a very well-furnished and comfortable room in a relaxed atmosphere, etc.

Notwithstanding these, no one seems to disagree that the most effective way of learning a language (at least, its oral aspect) is the *mother tongue* approach; when the mother speaks a language, the child learns it fast and naturally. This lends support to the audiolingual approach. Some eighty years ago, a couple of linguists experimented on their child by having the father spoke one language only to it and the mother in another language only. The child grew up effectively bilingual. In a sense, the child acquired two *mother tongues* in an environment in which each of the two languages had its own specific social and practical functions. Of course, what is viable in an *experimental situation may or may not* be feasible in the real world. However, there is a lesson to learn from this unusual case.

Researchers also noticed that keeping two languages apart from a bilingual child may not be possible, as the child is aware of the differences between languages and may insist on asking for the equivalents across languages. This *metalinguistic awareness* can be capitalized for effective learning of two languages. Helping the child to learn how to express the same ideas in two languages is consistent with the current thinking that languages have communality not only in form but also in a common knowledge base. In practical terms, this means that the child, to become bilingual, needs only to learn the *medium* (how to say it) and not necessary the *message* (what to say) all over again. This is where bilingual texts, dictionary, teachers, parents and friends will be helpful. Moreover, in a multilingual community, keeping two languages apart in one and the same mind of a bilingual is so unnatural and even impossible, unless one is prepared to shut oneself off from people who use languages other than one's own.

M5: Monitoring When we drive, we watch out for where we are heading for. This is monitoring. Learning languages likewise need feedback for two reasons. First, the child needs emotional satisfaction that he is on the right track and to feel secure in his adventure into the world of bilingualism. Secondly, he needs the feedback for a cognitive reason so that he can gradually refine his languages by acquiring the correct language rules and becoming aware of the exceptions within each and the differences between the languages.

Feedback may come almost immediately and in a natural manner. A child who learns to say "Please, may I switch to Screen 12" (be this in English, Mandarin, Malay, or Tamil) will certainly get a feedback that his request is understood. The actual outcome may or may not be to his liking; but that is a different matter. Here, the feedback is immediate and natural. People learn their first-learned language almost entirely through this real-life interaction. Hence, the *situational approach* of language teaching provides not only immediate and natural feedback but also the meaningful context of the language being learned. However, such situational feedback may not always be available or convenient to give. Besides, not all language learning can be packed into a natural social environment. Ways and means need be found to help the child in getting the feedback.

Formal assessment provides the most systematic and rigorous feedback, but this can be psychologically threatening (not only to the child but to the parents as well!) especially when it is to be taken at a given time in a tense atmosphere. To reduce the tension, tests in formal assessment can be given as quizzes to be taken when the child feels he is ready and in a more relaxed environment at home or in the classroom; and, to further reduce the tension, some kind of self-checking and self-scoring mechanisms may be devised. This will not put the child under the spotlight and will transfer the responsibility of learning and assessment to the child himself. Self-motivation may thus be enhanced.

For the child to keep track of his progress, some form of cumulative records can be designed. For instance, a colourful chart of new words learned can be displayed in the child's bedroom or the family's study. His recent and the latest writings can be mounted, too. If such display is not convenient, build up the child's portfolio for keeping samples of his works. This enables him to monitor his own progress and be proud of his achievement. There is no reason why both displays and portfolio cannot be used at the same time, one for recent achievement and the other for long-term progress.

Whether it is situational feedback, formal assessment, or individual record-keeping, the availability and visibility of feedback enables the child to know where he is heading and how much he has acquired. Such monitoring devices have a motivating effect. And, as the saying goes, nothing succeeds like success.

These ideas take us back to the question this article began with:

> How is it that some people can learn a second or foreign language so easily and so well while others, given what seem to be the same opportunities to learn, find it almost impossible?

The question Gardner and Lambert asked looks only at the opportunities to learn. It does not consider the conditions necessary to develop bilingualism. Research of the past three decades or so shows that the 5M's are the essential ingredients of developing bilingualism, much of which are within the capability of parents to provide.

When parents use two languages, this becomes a norm in the family and provides a natural environment for the child to become bilingual.

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CECILIA SOONG

Experiential Learning in Groups

What to teach and how to teach it? It is an undeniable fact that in teaching, content is important and that the subject matter itself can be motivating. However, I feel that the mode of delivery plays a vital part in reinforcing the learning of content or in making the content come alive. This article focuses on the 'hows' of teaching. In particular, experiential learning in a group context will be highlighted.

Experiential Learning

Experiential learning refers to the development of an action theory from one's own experiences and subsequently modifying it regularly so that one's effectiveness can be improved. According to Johnson & Johnson (1991), experiential learning affects the learner in three ways in that cognitive structures are changed, attitudes are modified and new behaviourial skills are learnt.

What then is the relationship between experiential learning and motivation? The primary motivation in experiential learning is psychological success, an intrinsic factor. Lewin, et al. (1944) listed four factors that contribute to psychological success:

- ability to define one's own goals
- goals are related to one's needs and values
- ability to define paths towards accomplishment of goals
- goals are realistic.

Experiential learning offers vast opportunities for the learner to experience psychological success by giving him/her the freedom to decide what parts of his/her experiences are to be shared, what skills are to be developed and how he/she evaluates the experiences.

Power of Group Experiences

Besides the intrinsic motivation of psychological success, other extrinsic factors also facilitate learning. The focus now is on the group - the support and approval given by group members that constitute an external motivator. Besides fostering a sense of community and belonging, giving support and assistance, the power of group experiences can be delineated as follows:

- heterogeneity and hence a variety of perspectives
- sources of comparisons
- variety of feedback
- use of a repertoire of interpersonal skills
- constructive peer relationships
- influence of attitudinal and behaviourial patterns
- opportunities for participants to understand and help
- remedial environment for solution of problems

(Johnson & Johnson, 1991)

Having discussed the theories espousing experiential learning and group work, it is expedient now to consider the group atmosphere. In other words, what are the conditions prevailing in the group that would facilitate learning? To Pine & Horne (1978), the learning conditions are:

- an environment of active people
- a climate of respect
- a climate of acceptance
- an atmosphere of trust
- a climate of self-discovery
- a non-threatening psychological climate
- a climate of openness
- an emphasis on the uniquely personal nature of learning
- a climate in which difference is considered good and desirable
- a climate that recognises the right of the individual to make mistakes
- an atmosphere that tolerates ambiguity
- an emphasis on cooperative evaluation and self-evaluation.

Warm-ups

As a facilitator of a group, I find that introducing a warm-up activity before a session helps in establishing some of the above-mentioned conditions of learning. To set the climate of the group, the *People Scavenger Hunt* activity where participants have to look for group members who fit certain characteristics, has been found to be effective in breaking down barriers and putting participants at ease. Having to move around helps them relax and release tension. Another action-oriented warm-up activity I have found to be

particularly motivating is the *action sociogram*. By getting members to arrange themselves in ascending order according to certain criteria, e.g. birthday, height or shoe size, certain commonalities are established and group feelings developed.

To further foster group cohesion, I have embarked on activities like *Knots*, where group members join hands with different people, later to untangle the knots to form a circle, and *Group Crest* or *Group Jigsaw*. In the latter activities, each member contributes his/her cut-out symbol or statement written on a jigsaw piece and puts it together with the rest of the group to form a bigger group picture, as a crest or jigsaw puzzle.

To demonstrate the important quality of trust in a counselling relationship, I have some group members blindfolded and led on a *trust walk* by a sighted group member. This warm-up activity certainly encourages trust and risk-taking, especially when the walk is done with obstacles along the way or at the swimming pool! Group members also learn empathy - what it means to be 'blind' in this case.

To stimulate creativity, brainstorming is often used as a warm-up activity to motivate members' participation as well as to enable them to take the perspectives of others. As a problem-solving strategy, brainstormimg has been widely used in the groups which I conduct. An initial fun activity is to get members brainstorm on the uses of a rubber band, a bicycle wheel or a toothbrush before they work on an actual issue like improving one's relationship with a sister.

As a motivator, warm-ups can be used at the beginning, middle or the end of a group session. To encourage proper closure, I have found using an affirmations activity both interesting and meaningful. Participants give verbal or written feedback to each other to affirm each other's contributions, in terms of their personal qualities and ideas/feelings shared. Group members are usually motivated to strengthen friendship ties as evidenced in the exchange of telephone numbers and addresses, or making arrangements to meet at a future date, very often for a meal. Thus, I find that selecting and implementing good warm-ups help to create a safe environment, to encourage participation and sharing and to build up an atmosphere of fun, humour and spontaneity.

Buzz Groups

At tutorials and workshops, this is a commonly employed method. Members discuss a topic and then put their thoughts on either OHTs or construction/'mahjong' papers. To add variety, they can use symbolic representations instead of words. One representative then presents the group's findings to the class. Whether they are discussing a case study or working on a collage on stress, the ideas generated by the groups are often far more superior in terms of quantity and quality than would be the case if I had just listed the points for them. My task then would be to summarise, highlighting significant points, elaborating ideas not presented and reinforcing those the groups have given.

A variation of this kind of group work is a strategy called simultaneous round-table. This strategy motivates group members to work together cooperatively towards a group product which is a culmination of each member's contribution. An example of a powerful activity is for each group to think of a mascot for the group, the aim being to foster *esprit de corps*. Each person is given a paper plate on which to draw the mascot. The group has first to discuss what the mascot is, e.g. a sailing ship. One member is the leader and gives the instruction for all members to draw a particular part of the ship, e.g. the sail, and they draw it simultaneously on their individual plates. After completing one part, everyone passes the paper plate to the right, and the leader continues with the instructions. This goes on until the mascot is completed on each member's plate. The members then take a look at all the final products and select the best, with each part contributed by every group member.

An adjunct to this strategy is one called sequential round-table where instead of each having a piece of material, there is only one for the whole group. A classic example in story-writing is where the first line of the story is provided by the teacher and each group member adds in a line sequentially to compose the story. Again the completed story comprises ideas from each individual member of the group.

I could see the delight in group members' faces as they presented their group products because they knew they had a part to play in the making of the final product. Students often feel good about being able to make contributions, even though what they have drawn is just the mast of the ship. Participating in buzz groups in a cooperative setting like this is indeed motivating.

Role Play

Role play is imperative for experiential learning as it is a tool whereby a specific skill is brought into focus and then subsequently evaluated. As for skills like communication skills, there is much evidence that role playing is an effective way to teach these skills to adolescents (Chandros,1986; Klobe & Zimpfer, 1976). This is because the goal of role-play is to give members experience in practising skills and in discussing and identifying effective and ineffective behaviours. Role playing in small group settings also provide adolescents with an atmos-

phere in which they feel they are safe to practise skills, express genuine feelings and be open and spontaneous (Anderson,1984; Forsyth,1983). In addition, through role play, the group experience increases the participants' sensitivity to others and this improves their confidence (Fertman & Long, 1990).

In a session on assertiveness training, each group member is given the opportunity to talk about a situation where he/she has a problem with not being able to demonstrate assertive behaviour. They then share their feelings regarding this. A member later role plays the situation, using an assertive stance. A discussion ensues with an analysis of the behaviour in the role play and further suggestions are given by group members to help that person exercise assertiveness.

Much role playing is also employed in my counselling classes, a simplistic one being the *listening triad* where one member role plays the counsellor, another the counsellee and the last acts as observer. The latter would rate on an observer's sheet counsellor's skills like attending skills (body language, voice quality, environmental surroundings) and responding skills (listening, questioning). At the end of the role play, the observer gives a commentary of his/her observations. The counsellor and counsellee too are given the opportunity to talk about their feelings playing that role. A more sophisticated method is to video-tape the role play and later have the group critique members' behaviours, e.g. whether the core conditions of counselling like warmth, respect, empathy, genuineness, self-disclosure, concreteness, confrontation and immediate feedback are evident.

Teachers have reported that they have found much value in role play as their experiences are not only being shared but also evaluated by group members. Done in a trusting and non-threatening atmosphere, their motivational levels increase as they gain insights into their behaviours. Self-confidence is enhanced as they develop further their skills in counselling.

Creative Arts

The use of the creative arts in work with adolescents has been well documented in the journal *The Arts in Psychotherapy* (1990, Vol 17) ranging from songwriting to poetry to art. In the classes that I conduct, I find that the use of art, especially cartoon strips, is a big hit with the participants. To assess their feeling states, cartoon strips using facial expressions, drawings of animals like dogs and birds are shown to them. They are asked to identify the state they are in which they then share in their small groups. These activities are energising in that as they talk and listen to others, they laugh about it.

In other instances, words in the bubbles of a certain cartoon strip are blocked out and as a group, members write their own dialogues in the bubbles. Amidst much fun and laughter, they present their scenarios relating to self-concept and relationships (*Peanuts*), communication (*Beetle Bailey*) or parent-child interactions (*Sun Tan*). To add local flavour, Tan Wee Hian's *Love and Hamburgers*, with sequences on examination pressure, parental control, boy-girl relationships and work have been found by group members to be useful when delving into the topic on adolescence. Besides its usage in teaching concepts, cartoons indeed provide comic relief.

Music, according to McNiff (1986),

> 'is a rich source of personal associations and it stimulates the recall of emotional memories. Recordings are also very useful in facilitating guided fantasy experiences. They can be selected ... to precipitate feelings ... to bring about relaxation and the removal of defenses.'

I have found that participants in my group sessions love music being played in class. They are particularly motivated to react to the lyrics, for instance, Janice Ian's *At Seventeen* on growing up, which sparks off their sharing with the group their triumphs and traumas at adolescence. I particularly enjoy the familiar favourite *El Condor Pasa* by Simon and Garfunkel, where participants talk about symbols that reflect their self-concept in responding to the line, *I'd rather be a ____ than a ____*. Roger Whittaker's *If I Were A Rich Man* or *Streets of London* have been effectively used to explore values like wealth and poverty respectively. Another favourite of mine is again Simon and Garfunkel's *I Am A Rock*, rich in symbolisms which bespeak much on issues like friendship and loneliness. Group members often feel warmed up to music and are encouraged to experience the use of creative media in their groups before introducing them to their own students.

Conclusion

Experiential learning has been found to be particularly useful in the courses that I conduct on adolescence, group guidance and counselling. In experiencing the group activities for themselves, participants have given the feedback that they have grown in terms of their self-awareness in that they are less inhibited and are more willing and free to talk more about aspects of their lives. In addition to fostering friendly and warm relationships, experiential learning in groups has motivated them to take on their tasks as, for instance, a counsellor in school, with added confidence.

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ALICE LEONG

Taking away the ugh... From physics

"Isn't physics very difficult?"
"Physics is so abstract! "
"Physics is so mathematical! "

Such are common reactions to the subject physics. How can we show our pupils that physics need not be difficult, nor abstract, nor very mathematical? How can we show our pupils that physics is about the physical world around us, that it is very relevant and practical and that principles in physics are not that difficult to understand?

I would like to suggest that pupils need to be shown clearly the link between theory and the physical world that it attempts to model. Otherwise, they would develop the wrong notion that physics is a subject with abstract concepts, and chunks of laws and equations to be memorised.

One way to achieve this is by means of experiments and demonstrations. Sure, don't we already know? But isn't this rather impractical? Pupils do not know what to observe, and experiments and demonstrations take up time and require much effort to prepare. True? No.

I would like to share some ways by which I managed to incorporate experiments and demonstrations into my lessons when I taught 'O' level physics. By demonstrations, I mean the teacher doing the experiment and the students observing. Experiments are hands-on by the students themselves.

Demonstrations versus experiments

Whenever possible, pupils should be given the opportunity to do the experiment themselves. But of course, this cannot always be done due to insufficient equipment, expensive equipment or even safety reasons. For example, experiments involving the cathode ray tube would not be suitable for pupils to do on their own.

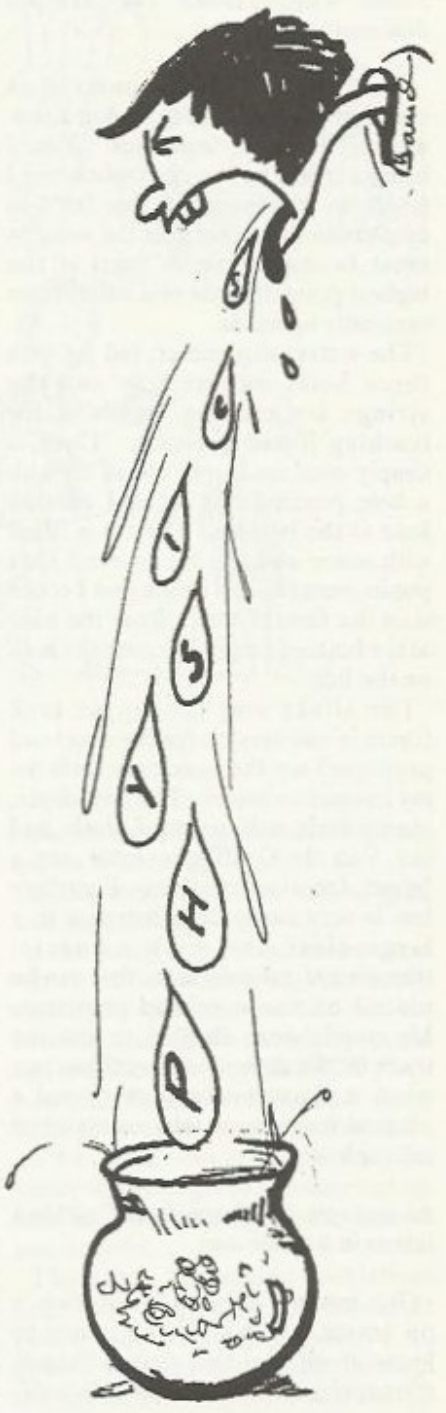
Sometimes, I chose demonstrations over experiments to illustrate certain principles due to time constraints. For example, instead of spending a double period lesson for pupils to determine the value of acceleration due to free fall using a ticker tape timer, I showed them how I would do the experiment. In this way, although they have not actually done the experiment, they would have seen the actual apparatus, and observed the procedures. This would have a more lasting impression than mere teacher talk.

While pupils do need to practise "examination type" of practicals, I think it is worth the time to also let them do non-examination type of experiments. For example, using ray boxes to trace the path of light rays through glass blocks. Verify the principle of moments. Verify the lens formula. Verify Ohm's law. These are simple experiments which will definitely "work". In this way, pupils need not be left with the impression that "experiments are difficult to do and do not always work."

Scheduling experiments and demonstrations

One important rule I usually follow is to plan the demonstration or experiment to illustrate a particular principle or concepts in a lesson. Consequently, the demonstration or experiment is part of a lesson.

What if the lesson is in the classroom and not in the laboratory? Experiments and demonstrations need not take place only in the laboratory. Sometimes, it is possible to put the



apparatus in a plastic tray and carry them to class. (In my former school, science teachers are often seen carrying plastic trays of strange looking objects when they go for classes.) If the apparatus is too bulky, try to plan the lesson to take place in the laboratory. Whenever this is impossible, I try to ensure that the laboratory lesson is the next lesson. The time interval between the lesson and the demonstration or experiment should be short.

Some suggestions for simple demonstrations

Sometimes, the demonstration could be as simple as throwing a tennis ball vertically upwards. Yes, I bring a tennis ball to class whenever I teach the kinematics of free fall - to emphasise that point that the velocity must be momentarily zero at the highest point of flight of a ball thrown vertically upwards.

The water manometer, tall jar with three holes on one side and the syringe are exciting "exhibits" for teaching liquid pressure. Once, I simply used an empty cocoa tin with a hole punch in its lid and another hole at the bottom. The tin is filled with water and the lid covered. My pupils were thrilled to see that I could stop the flow of water from the hole at the bottom simply by cover the hole on the lid.

The slinky and the ripple tank (there is one version for the overhead projector) are the necessary tools for my lessons on waves. The hair dryer, plastic rods, soft piece of cloth, and the Van de Graff generator are a "must" for electrostatics. Faraday's law is very easily demonstrated to a large class now with a special transparent galvanometer that can be placed on the overhead projector. My pupils were thrilled to see the trace on the cathode ray oscilloscope when a classmate sang or played a musical instrument into an attached microphone.

An example of an "experiment" within a lesson in a classroom

One lesson I enjoyed conducting is on lenses. Pupils are required to know about real and virtual images, distant objects and how the image differs with distance from the lens. I found it boring to simply describe and explain the different type of images. So I obtained forty pieces of convex lenses of focal length about 10 cm - one for each pupil.

The pupils were asked to look at the scenery outside the classroom window through the lens. Immediately, they could see that the image is inverted and diminished. Also, if they place their eyes too near to the lens (< 10 cm), they would not be able to see the image. Next, they could "capture" the image on a blank page of their exercise book. In this way, the concepts "distant object" and "focal plane" could be easily conveyed.

To observe how the image change with the distance from the lens, the pupils looked through the lens at a coin placed on their desks. They could see for themselves the magnifying glass effect. When the pupils were instructed to lift the lens away from the coin, they would be unable to see the coin. As the image would be some distance away from the lens, they would need to stand up and place their eyes further from the lens in order to view the real, magnified image. The diminished, inverted image is easier to observe - when the lens is lifted up above the coin. In this manner, the pupils could see the various types of images that are formed by a lens. The ideas of "magnified", "inverted", "upright" and "diminished" are now no longer abstract terms.

In order to "discover" the lens formula, I would teach them ray tracing using scale diagrams. As an exercise, they would go home to complete a series of diagrams to locate the image due to a lens of focal length 10 cm and objects placed at various distances from the lens. During the next lesson, we complete a table on the chalkboard:

Object distance u/cm	Image distance v/cm	1/u	1/v	1/u + 1/v

The measurements were from their scale diagrams. They were then led to observe that the values in the last column were almost a constant and approximately equal to the reciprocal of the focal length (1/f). They might argue that it "didn't work" for one case - when the image is virtual. Then I would show that it would "work" if I replace the distance with the negative value. Here, the ideas of accuracy and significant figures could also be discussed.

This exercise is usually further followed up by the actual experiment with an illuminated cross wire as object. In this way, the images formed by a lenses need not be simply a list to be memorised. I think, pupils would remember the concepts better too.

Sources of ideas for demonstrations and experiments

Where can a teacher obtain ideas for demonstrations and experiments (that really work) ? A good source of ideas is The Physics Teacher, published by the American Institute of Physics (obtainable from the National Institute of Education Library). Colleagues are a good source too. In fact, I owe much of my ideas for demonstrations and experiments to my colleagues and most of all my former Senior Subject Teacher, Mrs Chan Chen Fen.

Ultimately, the main purpose of demonstrations and experiments is to relate in a concrete way the abstract concepts and the real physical world. Of course, not all concepts and principles can be demonstrated with some piece of equipment. Other methods need to be use, such as audio-visuals like films and slides and even computer simulations.

In this article, I attempt to share my experiences of incorporating demonstrations and experiments into lessons. I find that such an approach works for me; it actually makes teaching more enjoyable and hopefully, learning more interesting.

Wouldn't it be heartwarming to hear more of comments such as "Physics is interesting!"?

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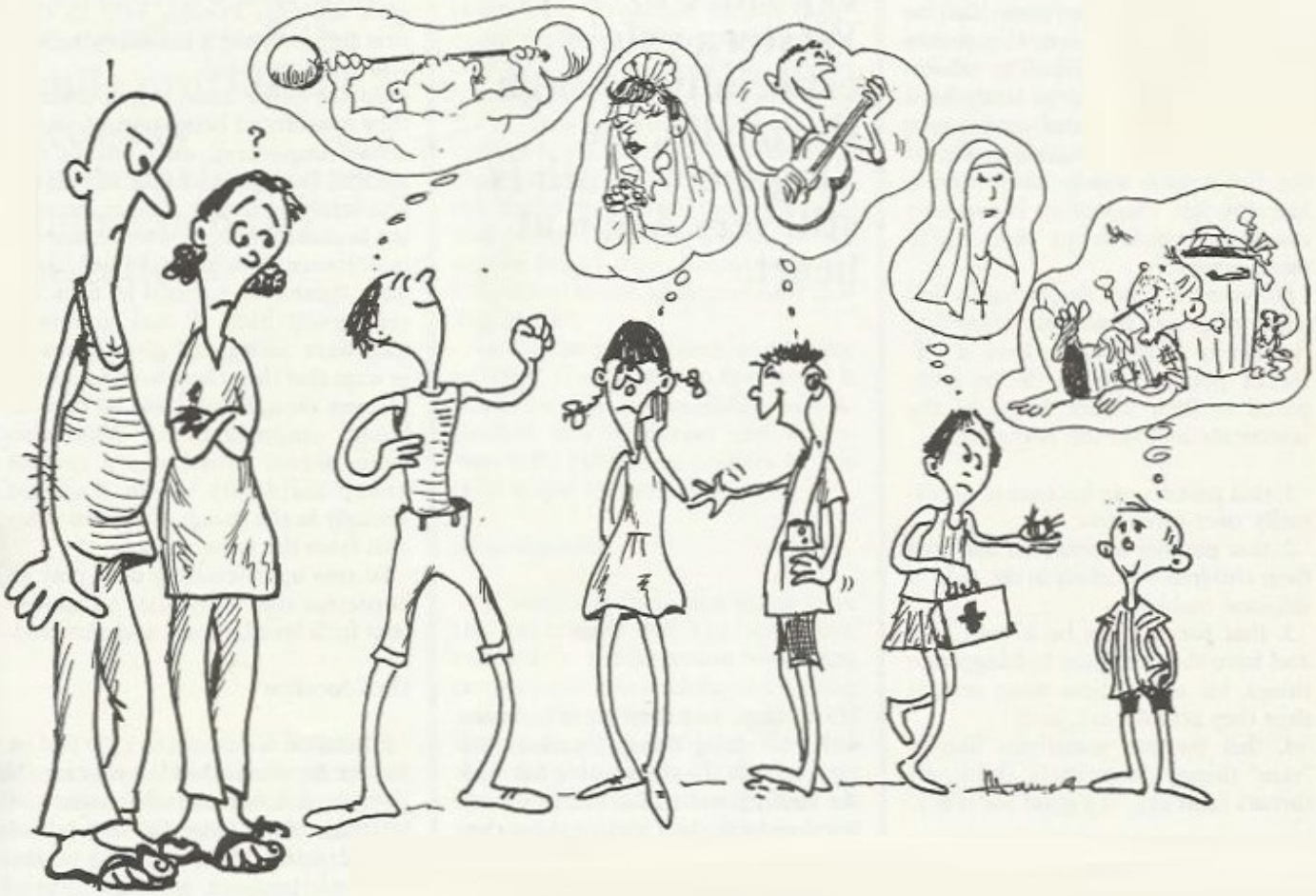
FLORENCE LEE

Some Insights into Teenage Values



"For where your treasure is, there your heart will be also."

(Matthew 6:21)

What we deem as significant to us can reveal a great deal about ourselves - who we are, our values and our attitudes, our beliefs and our lifestyles.

The aim of the project which involved 20 youths (10 male, 10 female), aged between 15-17 years, from five secondary schools, one junior college and two Pre-University centres, is to do precisely that: to analyse from the answers given to the task, "List three things you value most", just what are the values of our teens today. The sample is limited in range and scope. Nevertheless, there is a general consensus amongst most of the participants that what they have expressed are commonly felt and agreed upon by their contemporaries.

THE FINDINGS

On Family

While not considered a top priority, the family is still important to the 20 youths for the main reasons given below:

1. the family will always be there for you no matter what happens;
2. the family will accept you for who you are;
3. the family provides you with the basic needs as long as you're dependent on them;
4. the family is often encouraging and supportive;
5. the family is the place where some values are inculcated, e.g. the family sometimes provides models for behaviour, the family is where moral and traditional values like filial piety, respect, loyalty, are handed down from generation to generation; and
6. for those who are Christians, the family is a God-given blessing and we have the biblical command to honour our parents.

These are fascinating revelations because, in spite of the incessant (even relentless) exposure to Western values especially through the media, the Singapore youth is still

very Asian at heart. Whilst there are fears in the West concerning the disintegration of family life, the family is still very much alive here as long as the Asian values are preserved and emphasized, as it is constantly being done by the Government. When asked if the family always exerts pressure on them to excel academically and whether they are compelled to perform well in school, the youths replied in the negative. The reason they gave for wanting to study hard and acquire good grades was because they knew that paper qualifications is the ticket to a stable future and a lucrative job. *Pragmatism* is certainly one value which keeps surfacing in these youths.

However, it is not surprising to find some negative comments regarding the family since youths have a different perspective on things compared to their elders. Some of the comments include the perception:

1. that parents can become unnecessarily over-protective;
2. that parents at times do not trust their children especially in the area of decision-making;
3. that parents can be a "real nag" and have the tendency to exaggerate things, i.e. make them more serious than they actually are; and
4. that parents sometimes like to "ram" things down their children's throats (and say, "it's good for you").

The youths ended with the plea for parents to be more patient and understanding, not to be bigoted and hyper-sensitive ("hysterical" was one word a teenager used) and to give their adolescent children "more breathing space".

On Friends

As one teenager remarked:

> People are generally more important than things, (so) it's very natural for them (friends) to come into the picture.

This is especially relevant as youths desire to lead balanced lives and to many, friendships outside the confines of the family provide the necessary counteracting force against familial obligations. This can also be seen in the way teens require a social life of sorts and they get it by being with and doing things together with their friends. To them, going out with the family is not half as fun as spending time with their friends since they cannot "do all sorts of wild, crazy things".

In spite of the incessant (even relentless) exposure to Western values especially through the media, the Singapore youth is still very Asian at heart.

Friends also provide the support that parents sometimes cannot give. For example, teens do not feel comfortable talking to their parents about boy-girl relationships and sex. Another example is when teens like to study together with their friends during the examination period because then they can encourage and support each other. Other subjects like, leisure pursuits, pop stars, fashion, the latest fads, and so on, are also not appropriate for discussion with parents because "they won't really know what we're talking about".

One issue which arose in the course of this discussion is the idea of acceptance and peer pressure. Most of the youths agreed that there was certainly the pressure to conform to friends' expectations. This meant avoiding being the odd-one-out in a crowd and being given nicknames like, "square" and so on. One youth said that adolescents are generally unsure of themselves and needed "models of behaviour" other than the family. Friends provide some of these models and hence to conform meant one was doing the right thing, and this gave security. Friends help to confirm their identities and knowing who you are is essential.

On the other hand, when asked if they considered being part of an "in" crowd important, only one or two agreed, but stressed that it was not absolutely necessary. This is interesting because the ones who denied the importance of being in an "in" crowd were those who seemed to form the very group itself. It was as though they were acting and giving answers in ways that the others would approve of, even though there was no obvious leader amongst them. What also came across to me was a certain group solidarity which I sensed strongly in the group of sixteen-year-olds from the same school.

To sum up, friendship does play an important role in whether an adolescent feels loved, secure and accepted.

On Education

Education is a means to a job and an answer for survival in the rat-race. If given a choice, most will choose not to study. Many complain that school is a stressful place because of the academic pressure, although surprisingly, two found school positive. Students study not because they are keen on the subjects, or because they are eager to pursue knowledge, but because an educational certificate is the key to survival (remember, they are real pragmatists). Thus most of them agree that the education system is too rigid, pressurizing and meritocratic. They feel that the system is not conducive enough for critical thinking and leaves little or no room for independent and creative learning and expression. They also complained that the system did not recognize the uniqueness of individuals. Quite a number considered going abroad where the pace is considered more relaxed, the environment more free, open and creative, and the range of subjects offered more challenging and wider

Youths desire to lead balanced lives and to many, friendships outside the confines of the family provide the necessary counteracting force against familial obligations.

to select from. However they fear that this might not become a reality as they cannot afford the fees and the competition for scholarships is too keen.

As to whether a person can still survive without paper qualifications, most of them did not give a clear response because of the clash between what is ideal and what is realistic.

On the Future

Few of the youths in the sample know what they want in life, apart from making lots of money. Only three or four had career plans in mind and they are: teaching, social work, business and clinical psychology. Marriage also enters into the picture as an alternative. Yet all of them (especially the girls!) want to establish themselves successfully in their careers before going on to consider other things. In conclusion, most prefer to adopt the "step-by-step", "wait-and-see" approaches. The future is not bleak, just hazy.

On Freedom

It was interesting that although all of them said freedom was very important, none actually wrote it down in their lists. Freedom means independence - the ability to make their own decisions, the ability to support themselves financially, the space to do as they please and the opportunities to explore life for themselves; even if it means making mistakes, and the ability to express their thoughts and feelings. Although none of the youths found their parents restrictive, nevertheless, they yearn for that "big break".

As for the government, most were satisfied, though quite a few hoped it would be less paternalistic, less inflexible, less intolerant and "close-minded". However, politics is not their major concern (yet).

Miscellaneous

An insightful thing that arose from the interview was the way they reacted to the common view that people have about adolescents being selfish, materialistic, disrespectful and generally apathetic. Many of them felt that people with such views did not understand teenagers at all and had forgotten that they too were once teens. They voiced concern about being "misunderstood" and that it was wrong for people to generalize just because they had encountered adolescents who really were selfish, disrespectful, materialistic and apathetic.

When asked if they would participate in community service, most of them said they had no time, but they pointed out that schools have "interact clubs" which arrange for the students to do voluntary work as part of their ECA (I had forgotten to ask if any one of them were in such clubs; the result should be most revealing). One of them summed it up saying:

> Just because we're caught up with studies and all that doesn't mean we don't care. You can talk to us, you know. We're not that hard-hearted and unreasonable and we do care.

Conclusion

In this project, I hope to have shown a little of the values of our youths today. By revealing the things which are important to us, we begin to get some ideas about ourselves and our value systems. At the same time, we may even discover the sources (internal and external) that influence us and shape the ways we think. Youth can be a thrilling, challenging, enriching and even trying time. It is that stage where we are most vulnerable. Yet it is also a wonderful period for growth, learning and discovery.

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YAP CHWEE PHENG

What do students want from teachers?

THE TOP TEACHER

Our group of five embarked upon a mini-project to take a peep at some students' perception of what a top teacher is. All our subjects were 15 years of age and we surveyed a total of 50 students. All the students completed the "Teacher Effectiveness Appraisal Instrument". Based on our reading and instruments used in other studies we constructed the instrument. The instrument is divided into 2 parts, with the first comprising the various skills that an effective teacher is supposed to possess both in and outside the classroom and the second portion is a list of a top teacher's personality traits. For both sections, the subjects were required to indicate their choices from a scale ranging from "Very Important" to "Not Important". Attached to this instrument was another form entitled "What do you think?" whereby the subjects were given freedom to air their views concerning any three teachers who had taught them well.

The instrument consists of 26 questions and we classified them into 3 categories, namely:

- Instruction and Presentation;.
- Management of Student Behaviour; and
- Instructional Monitoring and Feedback.

What did we find?

1. We found that students from both the Express and Normal streams claimed that the following were important:

- the teacher's clarity in the delivery of the lesson;
- the teacher's ability to provide examples and demonstrations to further exemplify the meanings of certain terms and concepts;
- the teacher's provision of clear instructions about homework;
- an outline of the lesson to be given at the start of a lesson;
- the teacher's ability to stop inappropriate behaviour and to give fair treatment to all students;
- the teacher's setting of reasonable work standards and due dates;
- the teacher's provision of helpful comments; and

Most students wrote about teachers who were warm and friendly, patient, cheerful, have a sense of humour and a willing listener. Teachers who delivered their lessons in a clear, organised and thorough manner were regarded very highly.

- the teacher's provision of individual feedback and guidance to enable students to improve.

2. The same students claimed that it was *not* important for a teacher:

- to have a variation of homework or classwork to make the lessons more interesting;
- to get the class started quickly without wasting time;
- to prevent students from leaving their seats during lessons; and
- to monitor students' behaviour both in and outside the classroom.

The second part of the instrument asked students to list what they considered to be personality traits which they expect to see in a top teacher. The following are the key findings:

- 95% and 69% of the Express stream and Normal stream students respectively feel that being "warm and approachable" is very important;
- 86% and 90% of the Express and Normal stream students respectively claimed that "being understanding" is a very important quality. To them a "top teacher" has to be able to see things from the students' point of view.

They also feel that a "top teacher" should be a "just" teacher and does not show favouritism. Patience is also another desired quality of a "top teacher".

In the open-ended section of the instrument, students were asked to write about the three best teachers who have taught them. Most students wrote about teachers who were warm and friendly, patient, cheerful, have a sense of humour and a willing listener. Teachers who delivered their lessons in a clear, organised and thorough manner were regarded very highly. They also wrote about teachers who were able to motivate and challenge them and in a sense "pushing" them into an exploration beyond the rigid textbook materials.

Conclusion

This is a brief summary of what we found in our study on top teachers - who are they and what they are like. In my opinion, a top teacher is one who has an infectious enthusiasm in her field of study. She must be so interested in the subject she is teaching that students are able to share her love for the subject. A top techer also has to to bear in mind that she is not merely a transmitter of content but more importantly, her role as a facilitator to enable the students to learn.

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RON BRANDT

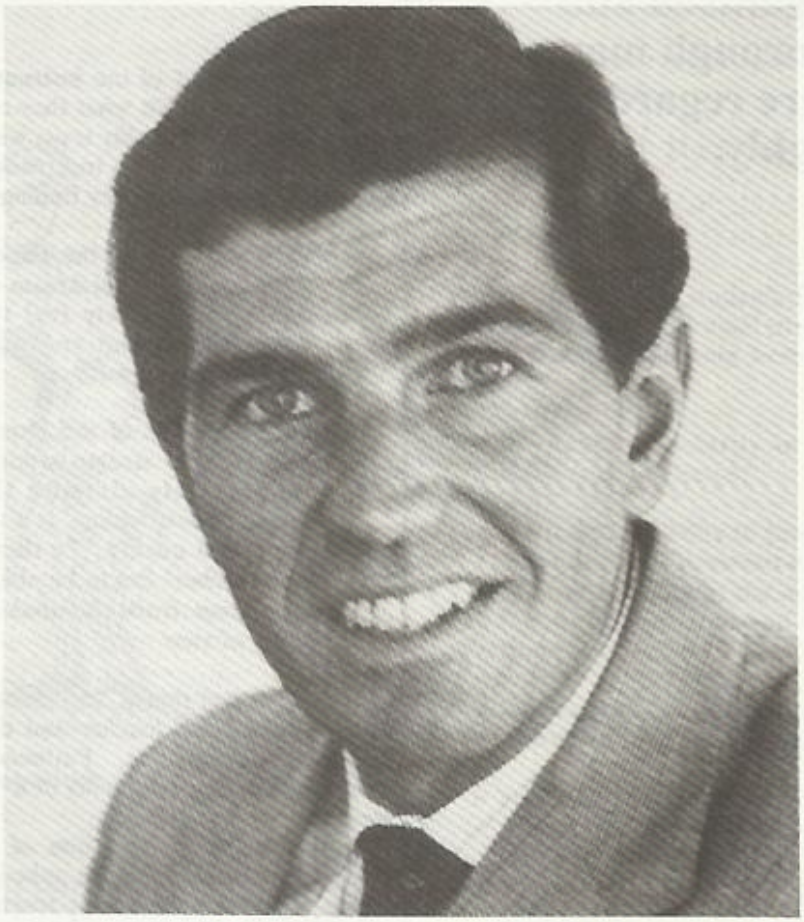
On Local Autonomy and School Effectiveness: A Conversation with John Chubb.

You contend that local autonomy is the prime factor affecting school performance. Why is autonomy so important?

Because it leads to the development of effective school characteristics. In our study, we took a careful look at the qualities found in successful schools - schools that were good at promoting achievement gains. We found that what mattered most were not such things as how much was being spent, or what teachers were being paid, or what class sizes happened to be, or even what the graduation requirements were, but rather various aspect of school organization.

First, the successful schools had an unusually clear sense of purpose, what the literature calls a sense of mission. Second, there was strong leadership. The principals in the good schools were said by the teachers to have a good vision of where they wanted to go, to be especially knowledgeable and forceful in getting the teachers to pull together and move in that direction. Third, the teachers in the successful schools were treated as true professionals. They were involved more in school decision making; they were given more freedom within their classrooms; they viewed one another as colleagues.

Overall, in fact, the schools seemed to work like a professional team. The atmosphere was very supportive of academic work; for example, students were much more likely to be



Senior Fellow in Governmental Studies at the Brookings Institution and lifelong student of American politics and public policy, John Chubb is co-author, with Terry Moe, of the controversial *Politics, Markets, and America's Schools.* Here he explains the reasoning behind his proposals for a system of public education based on market principles.

taking an academic program of study. In brief, we found that these qualities - a clear sense of purpose, leadership, professionalism, high expectations for academic work - were what really seemed to matter.

You're saying these are the characteristics of schools that promote achievement gains?

Yes. After taking into account the kinds of families the students were from, the peer group influences they were subject to, and the aptitude of the students, we found that schools matter a great deal. Going to an effectively organized high school, as opposed to an ineffectively organized high school, is worth at least an extra year's achievement over the course of a high school career; and the qualities of effectiveness that matter most are leadership, professionalism, coherence, and academic expectations.

But after determining what these valuable qualities of schooling are, we then wanted to know what conditions are necessary to promote them. So we turned to our data once again, looked at our 500 schools, and considered various explanations of what would promote effective school organization. After allowing for all possible other explanations, we decided that the most important determinant was the degree of freedom from external control that the school enjoyed.

How did you define that? What is school autonomy?

What we looked at in particular was the influence principals had over the hiring and firing of teachers, over curriculum decisions, instructional methods, and disciplinary policy. We found that the more influence principals had in these five areas, relative to that of key outsiders - superintendents, district offices, unions and school boards - the more likely the school was to be effectively organized.

Influence is a rather soft word compared with autonomy, which implies complete discretion. Can you clarify that?

Well, *autonomy* may seem like a black-and-white term, but we think of it as a matter of degree. It's a continuum, running from complete constraint to complete freedom. And we found that as you move along that continuum from constraint to freedom, the effectiveness of school organization increases.

Your measure of that was what principals reported, right?

Yes. The data we used here were the principals' (and in some cases teachers') responses to a very lengthy battery of questions about who has how much influence over various areas of policy making. I also should stress that we looked at a number of areas of decision making, and the one that turned out to be most important was personnel. In the good schools, the principals had a lot of control over who was teaching in their schools, whereas in the unsuccessful schools, principals had very little control over personnel.

I might point out that it's not just superintends, central offices, and school boards who impose constraints, but unions. In the name of protecting teachers and providing a better life for their members - which unions have done to a substantial extent - they have also helped create rules and regulations that end up making the lives of teachers miserable and the performance of schools less effective.

On the basis of your research, you propose a very different way of running American education. What is that?

I think we need a new system of public education where the control of schools is not vested primarily in democratic authorities, such as chief state school officers, district superintendents, school boards, and state legislatures. Instead, the important decisions - curriculum decisions, instructional decisions, personnel decisions - would be made at the school site. But also - and this is very important - parents would have the power to choose schools. Basically, what we're recommending is a system of public education based more on market principles than on political and bureaucratic principles.

You're actually arguing against democratic governance?

Yes, because the politics that flows from direct democratic control is what gives us the bureaucracy, which then gets in the way of creating effective school organizations. We don't think it's likely that you're going to get decentralization and school-based management and professionalism and leadership within the public system as it's now structured.

Why do you say that?

For many reasons. One is that people who are in positions of authority to control schools right now are very unlikely to willingly give up their power and really put it in the hands of teachers and principals and families. But even in places where you can imagine successful decentralization in the short run, as long as authorities sitting on school boards and other agencies have the authority to tell schools what to do, they're going to be under political pressure to use that authority. As soon as some school decides to teach something that somebody doesn't like or to fire somebody that somebody else thinks shouldn't be fired, there's going to be pressure to reimpose controls.

Finally, it's very difficult to give schools autonomy under the present system, because you still have to hold them accountable. Unfortunately, in a top-down system, we don't have effective accountability mechanisms for promoting academic achievement. People turn most naturally to standardized tests, but we know how inadequate tests are for that purpose. So I don't know of any top-down accountability mechanism that will do anything except generate more bureaucracy. For political and technical reasons, the idea of trading autonomy for accountability won't work. But if you turn to a market mechanism, it's much easier to have autonomy *and* accountability.

You begin your book with the familiar litany comparing results of American education with those of other countries. Much of the high achievement you refer to is in countries where public schools are controlled by

bureaucracies. How do you explain that?

Well, there is bureaucracy, and then there is American bureaucracy. *Bureaucracy* generally has a negative connotation, but it simply means formal organization. When Max Weber and other early social theorists were writing about bureaucracy, they saw it as a mechanism that would set people free by increasing productivity and efficiency. And there's a lot to that; through large-scale organization, it's possible to accomplish great things. In the private sector, for example, there are lots of large organizations that are enormously successful. The question is whether the organization is well organized. Is it a rational bureaucracy? Is it structured in a fashion that gets the most out of people?

In the United States, because we have a system that is highly accessible to all groups, because we have separation of powers, which means that no one is really ever in charge, we end up - not just in education but in many areas - with bureaucracies that are Byzantine, incapable of providing necessary discretion at the grass roots level.

If you compare the education bureaucracy in the United States, which is a highly open, competitive, heterogeneous political system, to the bureaucracy in a system like France or Japan, where you have a much more homogenous society and a much more closed political system, you'll see that they're very different. They have bureaucracies, yes, but they don't operate with all the problems and distortions. Their bureaucracies are less politicized and more professional than ours.

Let's talk in more detail about the research that led you to your conclusions. What data did you examine, and how?

We very carefully analyzed the largest comprehensive data set on American high schools that is currently available. It includes 500 schools, randomly sampled nationwide. Some 10,000 students participated in testing and surveys of background, and 12,000 teachers, roughly 25 to 30 from each school, provided in-depth information about decision making and classroom environment and about their perceptions of the problems in schools. In addition, the principals and administrators in all the schools were surveyed.

What makes this survey unique and especially useful is that it's the first large-scale survey that provides information not only about students and student achievement, but also about the schools they attend.

Another thing that makes it quite different from most large-scale data sets is that the students were examined and surveyed twice. They were surveyed and tested when they were sophomores and then again when they were seniors. So when we tried to determine what promotes student achievement, we weren't looking at a one-time snapshot; we looked at how much the kids actually learned over their high school years. That's very important, because it's easy for researchers to be fooled by schools with high test scores into thinking that they must be good schools, when lots of schools with high test scores are simply benefiting from able parents.

We didn't classify schools that way; instead, we looked at how much progress they made. For example, we found schools that were successful in getting kids from the 25th percentile up to the 50th percentile. Now, that's a successful school. Other schools might have tested in the 80th percentile, but they weren't doing much for their kids. We didn't consider them successful.

You're familiar with the effective schools research by Ronald Edmonds and others. Are your findings consistent with that research?

Yes. In fact, we were influenced by the effective schools research in designing the surveys. The student data set we worked with was collected by the federal government as part of the High School and Beyond survey of public and private schools. Analyses of those data were showing that schools were making a substantial difference, but the data had so little information about the schools themselves that it was hard to figure out why. We got support from the Department of Education to interview teachers and principals in the schools to try to find out.

In trying to decide what we should ask, we were strongly influenced by the effective schools literature. We built into the survey many questions about goals and leadership and teamwork and professionalism and ethos. Now, that stuff might not have turned out to be important after all, although in fact it did. But one of the main criticisms of the effective schools research prior to what we've done was that it was based almost entirely on anecdotal evidence and small-scale studies. What we are able to say now, after looking at those 500 schools and carefully controlling for differences in family background, student aptitude, finances, and everything else, is that school organization - our shorthand for "effective schools characteristics" - is what really distinguishes good schools from bad.

We can express it quantitatively in two ways. We found that the most important determinant of what students gain in high school is the students' individual aptitude. Kids who come to high school prepared do better in high school. That shouldn't be surprising.

But the second most powerful predictor of achievement gains in high school is effective school organization. If a school had effective school characteristics as opposed to not having them, the difference in achievement over the high school period was one and a quarter years' worth of achievement. That's a big difference. And we're not talking about the very most effective versus the very least effective schools; "effective schools" are the ones in the top quartile - the top 25 percent - and the ineffective schools are the ones in the bottom 25 percent. Now, these are big groups. We're classifying half the schools as either ineffective or effective. And it's between those two groups that you get the big difference in achievement, due to school organization, of at least a year and a quarter over the high school years.

You were looking for something a little different from what Ronald Edmonds and other effective schools people were looking for. You were looking for total gain scores from the entire school population. Ed-

monds was especially concerned about achievement of particular groups of students - especially the urban poor. In your terms, the more effective schools tend to be those that serve middle-class white kids.

Not exactly. As I said, we were looking not for high levels of achievement as such, but rather for schools that promote substantial *gains*. Some of those successful schools were at the top of the achievement distribution, and some near the bottom. We found that effective schools characteristics are important if you are a suburban school serving middle-class kids or if you're an inner-city school serving disadvantaged kids.

Now, as for where you find these schools, we did find that it's easier to create an effective school climate if you have middle-class, well-behaved kids with well-educated parents. However, we didn't find that that was the most important determinant of whether schools were effectively organized. We found the most important determinant of whether a school was effectively organized was whether the school was given the freedom to develop its own program, to recruit and promote good people as leaders, and to treat teachers as professionals.

There's something I don't quite understand. The schools in the original effective schools research were all in bureaucratic, urban school districts. How do you explain that?

Within every large bureaucratic system, there are schools that are toeing the line, behaving like bureaucratic underlings in a bureaucratic system, and other schools that are not. This is an issue that the effective schools people have not talked too much about. In fact, a great weakness of the effective schools literature is that it did a great job of identifying the characteristics of schools that made a difference and a poor job of explaining how they got that way.

We were as concerned with finding out what promotes effective schools characteristics as we were with finding out whether effective schools characteristics affect achievement. But I would bet my bottom dollar that, if you took a look at the particular schools that were identified as effective, you'd find that they were characterized by principals and teachers who found various ways to get around the system. They *took* autonomy.

Speaking of looking, to what extent do your findings come from firsthand experience with schools? Did you personally visit schools and talk to teachers?

The analysis reported in our book is based on an anonymous survey of 12,000 teachers, and principals and 10,000 student questionnaires administered in schools whose identities we don't know, randomly sampled from around the country. In other words, our study was highly impersonal, but also very objective.

However, as we analyzed the data, we began coming to some preliminary conclusions about how schools and school systems work. We then spent a great deal of time going out and talking to educators to get some idea of whether our conclusions made sense.

Your study isn't quite like Ted Sizer's and John Goodlad's studies, which were based on extensive visits to schools and classrooms.

No, ours is a very different kind of survey. But one of the reasons we did this kind of study was that the work of other researchers interested in school organization has been extremely limited in comparison to ours. When you have limited observation, it's difficult to allow in any systematic way for all of the other factors that influence the performance of schools: the kinds of students they have, the parental authority, and so on. With a large sample such as we were working with, it's possible to control for other influences.

In the American political system, it's probably unlikely that the changes you propose will happen very soon, so what's the message from your research for our readers, who are leaders in today's schools and school systems?

Well, first of all, I don't agree with your assessment that major change is hopeless. There's a tremendous amount of frustration with the school system as is. The business community in particular is in a panic about the quality of the work force, and there is a growing feeling that the public school system has been given a pretty good shot at turning things around with very little result. Lots of people are saying that something major has to be done. The question is, what? And I think the "what" we're proposing has a lot to recommend it.

But, in the short term, I think the main lessons of the book are not about choice, but rather about district and school organization. It seems to me that educators ought to be cutting back on regulations governing personnel, curriculum, and instruction. They should be doing everything they can to treat teachers as professionals, to encourage principals to be leaders, and to give schools more freedom and incentive to chart their own courses. These are now somewhat familiar lessons, but our research shows more clearly than ever that if they are practiced, they make a real difference.

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PETER BODYCOTT

Practising What They Preach: Teachers Who Write with their Students.

At first it seemed chaotic but this impression did not last. I soon recognised that there was organisation underneath the chaos and became aware that this classroom was a genuine place of learning. Children spread before me, on carpet squares engrossed in reading, games and activities while others worked in small groups on their writing.

I wandered, seemingly unnoticed, eavesdropping on the children's discussions. The children were reading and responding to one another's writing. Suggestions were offered to problems in the process, questions were being posed where uncertainty lay. A booming laugh rose above the work noise. It was then that I noticed the teacher sitting in a corner, a small group surrounding him. Anxious to find out more I rose only to have my hand grabbed by a small girl who literally dragged me to her desk. Stacey introduced herself and then asked me to respond to her latest written piece. She was articulate about her writing, confident and professional in the way she fielded my comments and questions. Without prompting she noted several of my ideas, thanked me for my help and proceeded on to a classmate.

Working my way toward the teacher I perused the walls of the room. They were completely covered with the children's work. Poems, stories, science reports, recounts of various field trips. Samples of work at various stages of completion. "That's our conference chart and this is a list of our most recent publications" came a voice from behind me. "Want to know how they work?" Lee was focused and knowledgeable. She spoke with clarity and confidence as she explained the established editing and conference procedures. She was only interrupted by the teacher's request that the class get their carpet squares and join him.

With the children gathered around he explained that he felt this was a good time to share their writing. The class listened intently as the nominated sharing group for the day individually read their stories, explained difficulties and discoveries. The children provided encouragement, offered suggestions and constructive criticisms to each writer. The teacher inquired into their thinking, requested writers and responders to clarify and justify their comments. The atmosphere was business-like, organised and extremely positive.

Following student sharing, the teacher produced his own piece of writing, written on large sheets of paper. He proceeded to read through his piece. The children were constructively critical of his work. They questioned and offered suggestions. He discussed each comment, took notes and rejected others. Rejection was made on the basis that the suggestions didn't match with his purpose.

The children had been sitting for almost 20 minutes when the bell rang. Undistracted, the group then watched in silence as their teacher continued writing his piece. As he wrote he provided a verbal commentary of his decision making. Exposing the private world of his composing process and publicly displaying his writing ability. Later, a closer examination of the surrounding published material revealed the teacher's work displayed with the children's.

Making Sense of the Confusion

Similar scenes of writers, in classrooms from kindergarten up, engaged seriously in the craft of writing are becoming more frequent in modern language classrooms (Himley, 1986). Language teachers today are responsible for conducting a classroom orchestra of drafting, conferencing, writers' circles and workshops. Building toward the climatic publishing of the children's writing. Always aimed at developing better informed and more competent writers. Children who understand themselves as writers and the written mode of language.

It is from such classrooms, research into children's language development and in particular writing development over the past decade, that we have learned a great deal about how children go about writing (Murray 1982; Bereiter and Scardomalia 1982; Graves 1981, 1983; Calkins 1983, 1986; Collerson 1988; Derewianka 1990; Bodycott 1991a). We have also gained new insights into how children learn through the resources of written language (Clay 1975; Halliday & Hasan 1976; Holdaway 1979; Bissex 1980; King and Rentel 1981; Dyson 1983; Smith 1983a; Harste et al 1984, 1988; Cambourne 1984, 1988 and Christie 1990).

Insights gained from this writing research has necessitated not only changes in classroom organisation,

but changes in teachers' learning theory. From once popular psychological views of learning to what Holdaway (1979) described as "developmental learning". Learning which is strongly modelled upon the type of learning which infants engage in before they enter school. Learning which is "highly individual and non competitive, it is short on teaching and long on learning, it is self regulated rather than adult regulated; it goes hand in hand with the fulfilment of real life purposes; it emulates the behaviour of people who model the skill in mature use" (Holdaway, p.14).

The characteristics of developmental learning are similar to the conditions prevailing when an infant learns to talk. The learner sees their "mentor" (Howell, 1986) or "role model" (Sloan and Latham, 1981; Graves, 1981), "demonstrating" (Smith, 1981b) specific skills in purposeful ways. The language experiences are provided, firsthand. We have learned from research into children's oral language development (Halliday, 1975; Painter, 1985; Krashen and Terrell, 1983; Ventrigula, 1982; Cambourne, 1988 and Bodycott, 1988) how children learn from models or demonstrations of spoken language which surround them. Oral language learners focus upon selective aspects of the language which interests or is relevant to them. For the learner the shape and form of these oral language "demonstrations" vary, some are deliberate, others inadvertent. Language demonstrations allow learners to see how something can be performed. Children naturally are exposed to countless demonstrations. However for learning to occur, there must be also a cognitive focus or "engagement" (Smith, 1981b) with the demonstration. When this has been achieved the learner approximates or tries out the language to the best of their ability. These oral language approximations are generally encouraged through the positive reactions of the parent.

In the writing room described, the teacher subscribes to this developmental or "natural" approach to learning. That is, he believes that those conditions which make learning to talk so successful can be applied to the learning of the written forms of language. The displaying of written models around the room exemplify efforts to immerse children in written language. This is also achieved through daily reading to the children. These written models are the primary source of children's learning. From them learners are directed, through teacher demonstrations, to the various forms and functions of written texts.

The children in this class are encouraged to examine texts, through a process of deconstructing and reconstruction (Bodycott, 1991b). This process is designed to stimulate and sustain engagement with the text. The process is modelled by the teacher many times and the children try out or approximate the specific written form. Feedback is provided by the teacher and peers in the same constructive supportive way a parent provides the developing oral language learner.

The teacher's personal modelling of his writing process provides the children with firsthand demonstrations of how a proficient writer writes. The teacher does not claim to be a "good" writer but sees the importance for children to witness his writing process. To learn from him, and his mistakes.

An examination of his writing programme revealed his modelled writing demonstrations to be divided into two related yet distinct types.

Writing Processes

These demonstrations saw him take a piece of writing through the process. The children witnessed writing as it occurred, from the inception of a topic, rehearsal (thinking about it, deciding what was to be written) through the composing, editing and publishing process. Further details of the teachers language organisation can be found in Bodycott, (1991a). Each of his writing process demonstrations followed a similar general plan:

Day 1: Prewriting- thinking of a topic, getting the main points down. Noting down information which could be included. Determining purpose and audience.

Day 2/3: Rereading, adding information.Changing,getting suggestions and feedback from students.

Day 4: Rereading, clarifying. Editing for meaning. Conferencing on content. Making decisions about value in publishing.

Day 5: Editing for form, punctuation, spelling. Revising and preparing for publication.

In reality the 5-day cycle acted only as a guide. With 10 minutes allotted each day there were instances when the plan ran over 10 days. The second type of modelled writing involved the teacher demonstrating specific aspects of writing in "selective focus lessons".

Selective Focus Lessons

In these lessons the teacher modelled how aspects of language relate to the written language form (tense, cohesive structures, grammar), demonstrated practical strategies used to overcome difficulties (brainstorming, cognitive webbing), and provided feedback (conferencing). These demonstrations were linked to syllabus requirements and to the assessed children's needs as developing writers. It was the teacher's belief when demonstrating these selective aspects of language that the language items should not be broken into meaningless fragments. That is, they were always examined and presented in the context of whole texts. This enabled students to see firsthand the relationship between an item and the context in which it is used. This facilitated the engagement and understanding of the need, form and function of the item.

Benefits

From the intuitive pursuit of their own literacy, teachers cite many benefits, some personal, others professional. The two being closely linked. For some the writing experience allowed them to view themselves in new ways. Writing provided the vehicle for them to find out how "one thinks", and what they "believe" (Newman, 1983). It enabled them to come to a better understanding of the world in which they live. Teachers learned to love and value writing (Parker, 1984) and this influenced them as professionals. It affected the ways in which they approached writing with their pupils (Susi, 1984).

When teachers write and share their writing, the writing process becomes visible to their students.

The recursive nature of the writing process becomes more evident as the teacher writes, questions, answers, rewrites, and rereads with the children (Hampton, 1983). A fellowship of writing develops when teachers "demonstrate" how they overcome writer's block. This helps children see how a proficient writer overcomes writing problems and to realise that they are not failures because they can't get a good lead sentence.

This fellowship, or bond develops between teacher and student as the teacher experiences the same difficulties in writing, a "sympathetic bond" which enables the teacher to better assist the student writer (Susi, 1984).

Another benefit is that teachers become better listeners (Hansen & Graves, 1986) and the opportunities for learning rapidly expand. Teachers and students find themselves listening with a more genuine interest.

"When teachers listen in their classroom, they not only learn more about their students, but they learn what kind of help the students need. Teachers who share their own writing can empathise with a writer's sensitivity and know they must ask questions with care." (Hansen 1985, p.837).

When teachers write and share, they "model" or "demonstrate" the starts and restarts, the scratching out, the deletions and insertions (Silvers, 1986), the mechanics, the decision making and the place of spelling (Susi, 1984). Students can see the process of writing as teachers actually experience them and share in the working out of solutions.

"These days I'm also finding out what it is like to become a writing partner. Now if I want students to learn to create word pictures, I create word pictures too. Then when it is sharing time, I can show what I mean rather than just talk about it. If I want students to write about what really matters to them, I write about what really matters to me. Then as I show what works for me in my writing, they can begin to see what might work for them in theirs. I can teach more than rules. Now I can teach writers. I've become one too".

"Becoming a writing partner is also helping me to become a better reading partner. As I create word pictures and shape narratives of my own, I have more interest in discovering how other writers, both professional and student writers solve composing problems. Writing thus sends me to books which I can share with children. Books bring us back to writing too, for children reading fiction and poetry want to work in these modes. And when they do, I have learned I must meet them halfway." (Mikkelsen, p. 710).

By writing, teachers establish their credibility, as students see them learn (Hansen & Graves, 1986). Silvers (1986) summarises the writing benefits.

"Having gone through the learning process myself along with the students, I have experienced teaching through collaborative interaction with them. Through learning and exploring together, I was able to understand the students more completely, thereby teaching and guiding them more effectively. I've experienced the success of group interaction and the effectiveness of peer involvement. I have learned to value writers thoughts and ideas as insights into their thinking and mental processes." (Silvers 1986 p.687).

Implications

From observations and review of research, teachers who model writing come to a better understanding of the writing process, provide more appropriate writing "demonstrations" and, it is implied, provide better role models. The teacher models or demonstrates that writing is important, something to be valued - *the teacher as human*. The teacher demonstrates or models how they learn through their writing - *the teacher as learner*. The teacher models or demonstrates aspects of the writing process based upon the needs of the children - *the teacher as teacher*. The implication of this, in the classroom, is that teachers must be willing to expose themselves as learners, as well as teachers - to be willing to have children openly challenge them as learners. A role unheard of in traditional classrooms. This change leads to the question being asked, "Is there an intrinsic quality required by teachers which will enable them to see the value in 'teaching by revealing' as opposed to the more traditional 'teaching by telling'"?

Perez (1983) implies that teachers who proclaim writing as important, something worth learning, and who enjoy writing are the best writing models for children. Accordingly one reason that students fail in their writing is that their teachers and parents do not write often or well. The teacher must be seen as the main role model for children (Sloan and Latham, 1981; Perez 1983).

In today's world where parents work long hours and quality family time seems continually under threat, positive language role-models are required for our children. Teachers who write and share their writing are an important step toward connecting what happens naturally in the home with the child's learning experiences in school. Teachers who write are better able to address the needs of their students with the syllabus requirements in a positive and supportive environment, where mistakes are seen as a natural part of the learning process. Where knowledge of written language function, form is balanced with practical experience and ability. Teachers then need to write, to practice what they preach, if not for themselves, then for their students. Especially if the students are to become functionally capable in an increasingly complex world.

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SIM SOCK HOON

Cooperative Learning - Strategy that Works!

To quieten my noisy class, often all I had to do was to quiz them. Miraculously, everyone would suddenly find their desktop or a book cover in front of them so compellingly interesting that they could not tear their eyes away. They would steal glances at me but no one would dare look up for fear of catching the teacher's eye and be called upon to answer a question. Can you blame them? If for years you have been made to feel stupid, would you hazard an answer and risk becoming a laughing stock?

I think I found the answer to my pupils' low self-esteem and lack of confidence at the recent workshop on Cooperative Learning by Professors Roger and David Johnson. They offered practical tips for the everyday classroom, not some airy fairy theoretical stuff. So impressed was I that I couldn't wait to try out their methods with my Secondary Three Normal class. And I am glad to report that I had some very positive results.

The fact that pupils could discuss, share and check their answers before being called upon to present them does wonders for their self-confidence. I found pupils who otherwise almost never speak up or participate in class, excitedly explaining or defending their stand and questioning other pupils' claims too. However, strict ground rules must be laid to help pupils stay on the task at hand. There is a danger of them quickly lapsing into empty chatter.

Making the individual pupil accountable for his own learning as well as that of others in his group ensures that there are no "sleepers" in the group. This is helped by the fact that groups are deliberately kept small - usually three and no more than four to a group.

I particularly liked Professor Johnson's suggestion that we get pupils to say aloud how they plan to teach the given material. This teaches pupils to seek clarification, rephrase, elaborate and reconceptualise the given material. Because pupils must first understand the material before they can teach it, learning is more meaningful and they remember it better.

In the process of helping oen another learn, pupils picked up valuable social skills too. I discovered that though they belong to the same class, some pupils, especially the shy timid ones, have never spoken to other members of the class before. By changing groups often, each pupil would eventually have worked with every member of the class (I haven't got to that stage yet though.) They not only learn to cooperate to achieve group goals but also learn to share, to care and to get along with others. I think this is one of the most valuable skills they will keep with them for life.

All in all, cooperative learning is a refreshing change from the usual classroom organisation. More importantly, it made learning fun and I must add, pupils found expressing support for one another thoroughly enjoyable.

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YAP SIEW KEE

Project MODEL

Towner Primary tackles low achievment in mathematics

The low pupil achievement in mathematics at Towner Primary was an area of concern. Performance in the subject at the Primary School Leaving Examination (PSLE) was consistently below that of the national average, with a significant drop in the percentage of pupils passing the subject between 1985 and 1987. While the performance of pupils in the Normal course recovered in 1988 and 1989, the achievement of pupils in the Extended course deteriorated further and hit an all-time low of 17.7% passes.

The Challenge

The challenge before the school was two fold. We have to attend to the needs of pupils in the Extended course separately, without discriminating them entirely from the mainstream of pupils in the Normal course. In the years ahead, we have to progressively narrow the gap in mathematics achievement between pupils in the Normal course and pupils in the Extended course. In the long run, we could raise the overall pass rate of mathematics to equal or exceed that of the national average of about 75%.

Before we conceived project MODEL (**MOD**ules for **E**ffective **L**earning), the school introduced a remedial programme based on *Mastery Learning* and *Learning through Modules*. The aim was to help weaker pupils improve themselves in the learning of mathematics through specially prepared, graded remedial materials. This remedial programme was part of the total mathematics instruction programme in the school and included the use of pretests, posttests and summative tests to monitor and assess pupils' progress. Each module consisted of exercises which were based on learning objectives derived from the analysis of pupils' errors and diagnosis of pupils' difficulties in learning mathematics. Pupils had to attain mastery in one module before proceeding to the next. Hence the sequence of remedial learning was determined by the pupils' pace of learning. To develop a more supportive mathematics learning environment, the school organised an *Integrated Mathematics Camp,* a strategy to immerse pupils into the fun way of learning mathematics. The review and evaluation of the project by teachers in 1990 concluded that

- the existing format of the modules in the remedial programme could no longer meet the specific learning needs of pupils who were weak in mathematics,
- the modules need to be improved to increase the time pupils spent on remedial learning, and
- the entire concept of *Mastery Learning* and *Learning through Modules* need to be finetuned so that attention is focused more on pupil learning than on teacher-centred instruction.

Project MODEL

Project MODEL emerged progressively as an improvement to the previous strategies and sought to address most of the causal influences on pupils' achievement in mathematics. The project aimed at motivating pupils to learn by boosting their confidence in attaining mastery of mathematics. It is towards improvement in educational practices and pupil performance that a school-based curriculum was developed in project MODEL.

In principle, each module of remedial exercise is based on the systematic error analysis and diagnosis of the different kinds of difficulties encountered by pupils in mathematics. These were items that were found to be difficult and had discriminated strongly against pupils who were "below average" in mathematics achievement (see Fig. 1). Each module of remediation was operationalised by a set of objectives in terms of pupils' knowledge and skills. The exercises in the worksheets of each module were targeted at the attainment of these objectives. Pupils have to attain mastery in one module before proceeding to the next step or unit of the remedial exercises in the instructional sequence. Hence the sequence of remedial learning was determined closely by the pupils' pace of learning (Fig 2). It is thus crucial to attain complete mastery at the *knowledge* and *comprehension* levels because *problem-solving* at a later module depends on the deductive application of the rules already established in earlier modules. The total number of remedial mathematics items for each module may vary according to the degree to which remedial learning needs to be reinforced.

The effectiveness of project MODEL in bringing about improve-

Fig 1. Examples of items which pose difficulties to Primary 4 & 5 Pupils

Topic	Sample item
Place Value (1 - 100 000)	50 000 + 600 + 8 is equal to ___
Finding Equivalent Fractions	3/17 is equivalent to ___
Addition and Subtraction of Fractions	What must be added to 4 1/3 to give 6 1/2?
Multiplication of Whole Numbers	The product of 742 and 36 is ___
Addition and Subtraction (Simple Word Problems)	After spending $720, Mr Yang found that he had $35 left. How much did he have at first?
Area and Perimeter of Squares and Rectangles (Simple Word Problems)	The area of a square is equal to the area of a rectangle. If the area of the square is 64 cm^2 and the breadth of the rectangle is 4 cm, find the length of the rectangle.
2-step word problems	A businessman shipped 6 cartons of bags to Australia. Each carton contained 58 bags. The freight charge for each bag is $9. (a) How many bags were there altogether? (b) How much money did the businessman pay for freight charges?

ment in pupil performance in the learning of mathematics is not only monitored within each year but also tracked over three years. Notwithstanding the target of 75% overall pass or more in mathematics by 1993, another indicator of success is whether or not the pupil has improved from one occasion to the next and from one year to another. Replication with a second cohort of pupils will permit comparisons across two different cohorts of pupils and thereby help to verify the effectiveness of the project.

As school-based action research, the goal would have been accomplished if there are clear indications that

(i) the weaker pupils do improve, be it in slow sequential steps

(ii) pupils of different abilities have mastered and improved at their own pace

(iii) the pupils' performance at the continuous and semestral assessments have improved, as compared to previous cohorts (assuming that standards of assessment remained the same), and

(iv) both teachers and pupils feel a sense of achievement at the breakthrough in working with and helping weaker pupils to learn.

The most sensitive and difficult part of this project is the designing of alternative instructional materials, i.e. the modules. There may be difficulties in identifying teachers to be good writers of materials. It will take time to train writers and the services of National Institute of Education lecturers and the Ministry of Education's specialist inspectors may not always be available when required.

Testing and evaluation requires trained staff, the necessary resources and materials, feedback and modification of the adopted procedure. This is the essential cycle through which any proposed solution must go if it is to have a maximum chance of acceptance in a school setting.

These are all practical difficulties to be considered. But practitioners who strive for concrete improvements in creating educational opportunities for their pupils must not be daunted by the complexity of real experience in the classroom as they assume the responsibility for improvement in educational practices.

A word needs to be said about the construction of modules. In choosing process problems for problem-solving instruction, care has to be taken to select problems that lend themselves to solution using a variety of strategies that require little formal mathematics. These problems should also be interesting to pupils. Process problems have an appeal to children; they enjoy solving them. Every opportunity to teach problem-solving is used, especially those that arise from classroom, school or community events. The topics, questions and activities should be so developed and arranged that the child discovers mathematical ideas by and for himself, with little guidance from the teacher. Words and sentences in the modules should be kept short and concise to make the mathematical operatives and concepts easier to understand.

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Fig 2. Sequencing of Remedial Learning

An Example

For the learning of the concept of Fractions at Primary 4, a series of modules could be designed as follows:

Type of Error or Difficulty	Levels of Cognition Knowledge	Comprehension	Application
Identify fractions	A1 Items 1-10	A2 Items 11-20	A3 Items 21-30
Fraction as Proportion	B1 Items 1-10	B2 Items 11-20	B3 Items 21-30
Equivalent Fractions	C1 Items 1-10	C2 Items 11-20	C3 Items 21-30
Differences in Fractions	D1 Items 1-10	D2 Items 11-20	D3 Items 21-30
etc...	E1 Items 1-10	E2 Items 11-20	E3 Items 21-30
Mastery criterion	100%	100%	80%

Note: The number of items may vary according to the nature and complexity of the type of error and therefore the breadth and depth to which remedial learning needs to be reinforced.

In the above example, there could be a series of, say, 5 modules that are sequenced in a logical conceptual order. This implies that mastery of modules A1-A3 is a prerequisite for subsequent modules B1-B3 and so on.

Similarly, within each module, the mastery of each module is sequential, i.e. mastery of B1 is a prerequisite for B2, etc. For example:

B: *Fraction as a Proportion*

Knowledge	B1:	Identify and describe 1/3 in pictorial forms such as 1 in 3, 1:3, 1 part out of 3 parts.
Comprehension	B2:	Transfer to new situations: 1/3; 3/9; 4/12, etc.
Application	B3:	Solve problems in words and numbers.

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CHRISTOPHER N. PALMER AND CAROL MUSCARA

Educating for the Environment

By linking timely issues with imaginative technology, the National Audubon Society's Science Institutes help teachers enhance their students' interest in science and technology and their concern for the Earth.

Attending an Audubon Science Institute field trip to Huntley Meadows, Virginia, in 1990 are: (kneeling) Al Coleman, science teacher, Backus Junior High School, Washington, D.C.; (leaning over Coleman's shoulder) Chris Palmer, President of National Audubon Society Productions; Mary Johnson, co-editor of ASI and director of special programs at Washington, D.C., Public Schools; and Ernest

The crisis in American education is converging with another, equally significant concern: the unchecked destruction of our natural environment. America is losing valuable resources. As more and more young people leave school without the necessary skills in science and technology to become successful citizens, our planet continues to lose many of its animal species and wilderness areas.

The plight of schools and the fate of our Earth are vitally linked. Without citizens who have adequate scientific knowledge, our planet will deteriorate further. Science education fosters appreciation for the natural world and produces the know-how to conserve it. In fact, environmental education, an important component of science education, is the single most important and effective tool for environmental conservation.

Bringing Environmental Issues to Life

The National Audubon Society is working vigorously to sharpen that tool. Building on its popular conservation program for elementary schools (Audubon Adventures), Audubon has developed a program that introduces teachers to the latest issues in environmental science and to innovative uses of science-related video and computer resources.

The program, funded by Citibank, is now entering its third year in the District of Columbia Public Schools and

Environmental education, an important component of science education, is the single most important and effective tool for environmental conservation.

its second year in Montgomery County, Maryland, Public Schools. The skills and materials teachers receive at this series of workshops help them bring environmental issues to life for their junior high and middle school students.

Back at their schools, the teachers help their students learn by making their own discoveries: through hands-on experimentation, group projects, decision making, and state-of-the-art technology. By designing experiments, manipulating images and computer graphics, or planning active projects, they can see, explore, and understand wetlands and pollution problems, for example, or study endangered species.

Because computers command children's attention while simplifying and enlivening complicated subjects, they are especially effective for explaining the interdependence of humanity and the environment in the classrooms. Therefore Audubon has been working with innovative companies to produce software and multimedia technology for use in the classroom and at home. *Grizzly Bears* and *Whales* are two topics already available in the Audubon Wildlife Adventures line of software, and we are developing mystery-format, interactive multimedia products combining laser disc, computer software, and television technology.

Exploring Classroom Uses

At each pilot Audubon Science Institute, held in June 1989 and 1990, about 20 teachers attended daily workshops on specific issues led by Audubon experts, followed by hands-on work with videodiscs, videotape viewings of relevant Audubon television programs, and analysis of computer-collected data from scientific probe. Audubon's new environmental science software, databases, and simulation software were included as instructional tools. Among the topics studied were endangered species, population effects, urban pollution, wetland issues, and protection of parks and wildlife.

During the afternoons, after each day's seminar, teachers worked with experts to design instructional units. By the end of the week, they had developed 36 modules for 7th and 8th graders, outlining objectives, activities to spur student creativity, and a variety of resources. The goal of this activity was not to produce professionally developed curriculums, but, rather, to solidify teachers' awareness of the rich potential of the media and print resources made available by Audubon and to explore the ease with which these materials could be introduced into classrooms.

After each week-long workshop, the teachers were eager to return home and expand the existing environmental programs at their schools. They left the institute with computer software, videotapes, books, and other supplemental teaching aids provided free by Audubon. Later, in follow-up workshops, teachers have told us that the infusion of environmental topics into the required science curriculum frequently stimulates student interest and improves test performance.

Transforming the Science Curriculum

This year, with a grant of $210,000 from the Federal Department of Education, the Audubon Science Institutes will initiate a trainer's workshop at Audubon's highly acclaimed Greenwich, Connecticut, ecology camp. The 2 trainers from 5 school districts who attend the workshop will then conduct institutes in their own jurisdictions for 25 middle school science teachers. After evaluating this expansion, Audubon hopes to extend the program eventually into a self-supporting, nationwide network, with special effort to target districts serving minorities.

Audubon believes that teachers are the key to transforming the science curriculum; they can provide the expertise to stimulate students' interest not only in environmental issues, but in science and computer technology in general. And, when teachers employ technology to explore environmental issues, they are doing something about the crisis in education and helping preserve the Earth.

Christopher N. Palmer is President and Executive Producer of National Audubon Society Productions. **Carol Muscara** is Director of the Audubon Science Institutes. For further information, write or call the National Audubon Society, 801 Pennsylvania Ave., SE, Washington, DC 20003; 202-547-9009.

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BOOK REVIEW

by Brian Merrick

The 10- Second Wisdom Book

Janice Baruch and Low Guat Tin. Published by Times Books International (Singapore and Kuala Lumpur) 1992. The book is available in all Times and MPH book stores.

For those with a penchant for a little brightness and cheer, take note! Hot from the press of Times Books International, and following the style of their earlier publication "Refocus your lenses", comes "The 10 Second Wisdom book" by Low Guat Tin and Janice Baruch.

Pulling no punches, the authors state their underlying belief that Singaporeans are generally too serious and too intense, spending more time than is healthy in contemplating the unpleasant and unimportant things of life. To remedy this the reader is encouraged to relax, look around, explore and enjoy the funnier sides of living. The book centres around eleven fairly sober themes concerning different aspects of self and existence such as "You are you", "Material things" and "A way of seeing". We are warned that in this materialistic world we can no longer discern items of real and lasting importance in our pursuit of status and image. We are slaves to materialism, to opinion and to past experiences, each of which control or place fences around the way we see. But take heart. All is not lost. There is time to change. Let the depressed, the downtrodden, the overworked, the overstressed, the underpaid, the unappreciated, the overexamined and the low self-esteem afflicted.... all be of good cheer! We are not what we are but whatever we want to think we are, we can be as contented and happy as anyone. Life is for living so why not soar like an eagle, gallop like a horse and be as free as the wind! We are but travellers in the world and the most contented ones are those who travel light!

With such ego boosting optimism in mind, each of the eleven themes is heralded by shrewd and insightful observations of daily life, common sense tempered by personal philosophies in keeping with writer Low Guat Tin's apparent cheerful disposition and sincere inner convictions. Laughter, we are told, is internal jogging, so once a theme has been outlined, it quickly gives way to numerous chuckle generating cartoon cameos. Indeed the strength of the book lies in its 150 or so pages packed with these entertaining cartoons, sayings and fun-provoking sketches. Characters to whom we can all relate are caught in situations which kindle that all-knowing grin, generate spontaneous chuckles or leave you beaming from ear to ear. Humour, like beauty, is in the "I" of the beholder. The roguish caricatures, illustrated most perceptively by the very capable pen of Janice Baruch, amusingly reflect Low Guat Tin's accompanying witty but very pertinent pearls of wisdom. It would be difficult not to find ones with which you can empathise and when you do, they may cause you to you sit back, ponder and consider them for a longer period than the book's title would suggest.

Since both writer and cartoonist have many years experience in the teaching profession it goes without saying that some of the situations have a relationship or are applicable to education and to children. Not surprisingly, one section is given over exclusively to "teachers". If you want humour in the classroom then this might be a good place to start. It also has other uses. During a recent visit by two officials concerning yet more teacher workshops, I was able to select for them a page which succinctly and graphically indicated what many feel. There are more workshops for teachers in Singapore than there are in the Sin Ming Industrial Estate! Thank you Guat Tin.

In "The 10-Second Wisdom Book" there is something there for everyone. It is light hearted yet sincere, moralistic yet practical. As its cheerfully bright cover does declare, the book is for the family to enjoy. So, straighten yourself up, breathe deeply, exercise those facial muscles and be prepared for some internal jogging.

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