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Quality Improvement in Schools: Expensive or "Free"?

Leong Wing Fatt

Managers manage for quality as demands for quality in goods and services are on the rise. However, before managers are able to manage for quality, they must first and foremost seek to clarify in their own minds the meaning of "quality". When it comes to managing for quality in the educational enterprise, it is pertinent to ask what do school leaders understand by quality? In particular, when school leaders think about quality improvement in their quest to provide quality education in the school or create a quality school, what do they have in mind with regard to the meaning of quality?

As a product or service variable, quality can have different meanings for different people. Deming (1982) had also warned that "The quality of any product or service has many scales." (p169). For example, quality may mean (a) satisfaction of

conformance to requirements, (c) value for money, (d) quantity of some desired ingredient or attribute possessed, or simply (e) innate excellence. When referring to quality in a product or service, one or more of the following aspects usually come to mind: expensive features; exceptionally good performance; acutely pleasing to the senses; reliable or dependable; up to high standards; long lasting or durable; or a brand name.

Two different meanings

In the light of present attempts to improve quality in schools, it is helpful to take a suggestion from the private sector and consider Juran's distinction between two general meanings of quality:

Some of the managers are thinking that a "higher

more than a "lower quality" budget hotel. Other managers are thinking that product from a "higher quality" process with yields of 98 percent will cost less than product from a "lower quality" process with yields of 80 percent.

(Juran, J.M. 1989, p. 15)

According to Juran (1989), quality is fitness for use and, consistent with the distinction he has made, quality has two rather different meanings generally defined as (1) product features that meet customer needs, and (2) freedom from deficiencies. Between the two meanings, 'cost' (including any non-monetary kind) is an important distinguishing factor in the following sense. Generally speaking, in the case of the first meaning, the higher the quality the greater the cost. In the case of the

second meaning of quality, the higher the quality the less the cost. These two different meanings of quality can be made use of to help think about quality improvement in schools. For easy reference, they are labelled here as, (1) quality that means "more costly features" in the product or service, and (2) quality that means "less costly deficiency free" product or service.

According to current practice in managing for quality, having quality that means only "more costly features" is not sufficient. It is crucially important to also have quality that means having a "less costly deficiency free" product or service as well. A good illustration of this practice is when a five-star hotel (which already has quality of the "more costly features" kind) tries to build quality assurance and implement a total quality management system. To the extent that the hotel is successful with these new quality improvement efforts, it would be improving quality of the kind that comes from having "less costly deficiency free" product or service. The hotel management would know that quality of the "more costly features" kind can be obtained by spending more money, but the "less costly deficiency-free" kind of quality can only be theirs through the painstaking effort and hard work of all the hotel's employees. Another illustration is provided by the fact that quality awards such as the Deming Prize in Japan and quality certifications such as ISO 9000 series are given to companies, not for their spending on putting in more costly features, but for successfully producing the less costly deficiency-free products and services. "The price of a product is not determined by the cost but rather by value of true quality." p.100 (Ishikawa 1985).

Which meaning of quality in school?

Which of these two different meanings of quality do school leaders have in their minds when they think of quality improvement? Evidence seems to point to the "more costly features" meaning. Typical of this thinking is a headline in a newspaper report (Sunday Times, 7.4.91), "Quality education, if not subsidised, can be costly". This report showed how in a private school or an expatriate school, quality education came with a high price tag. Thus the same report mentioned that for a school fee of \$1,000.00 a month, students could get "(a) air-conditioned classrooms, sports facilities and rooms for music, drama, (b) low teacher-student ratio of 1 - 13, (c) varied curriculum that covers electives like dance, drama, and photojournalism, and (d) in-house nurses". A report such as this fuels a widespread belief that good private school education does not come cheap. Another example can be found in 1988 when the introduction of independent schools sparked off a debate on the cost of providing quality education to Singapore students. The independent schools had maintained that "high quality education came at a price". This situation is not unlike that in the US where it was pointed out that "like corporate CEO's, school executives have emphasized quantity over quality." (Brandt 1992). It is reasonable to assume that school leaders commonly associate quality education with higher cost. In view of this, school leaders would be unlikely to be familiar with the other meaning of quality that refers to having a "less costly deficiency-free" product or service as explained by Juran.

If it is true that school leaders are presently less familiar with

quality that means "less costly deficiency-free" product or service, then it is about time something is done to rectify the situation especially when a better understanding of the two meanings of quality is expected to bring greater benefits to school quality improvement efforts. In this paper, the importance of quality that means "less costly deficiency-free" product or service is explained and how a shift in emphasis may be obtained for school leaders to introduce this understanding of quality into the school management system is suggested.

The importance of quality that means less costly deficiency-free product or service

As suggested earlier, the two meanings of quality can be contrasted mainly in terms of the cost element. Philip Crosby had said that "Quality is free... What cost money are the unquality things". This view of quality as "free" corresponds with thinking of quality in terms of a "less costly deficiency-free" product or service, and it is the dominant view in the productivity drive in industrial organisations. This view does not think of quality as coming "at a price". In fact it thinks of quality as coming with a saving in cost, a "productivity" view which is just the exact opposite. Quality, in this "productivity" view, can be obtained for free through a reduction in total cost of producing the quality result.

If the productivity view of quality is to be understood and adopted by school leaders, then it will need to be explained in terms of how any innovation or facility might be used in a manner that the productivity gain is substantial enough to make the innovation or facility no longer a costly feature. It would make clear to school

leaders that the two different meanings of quality will have diametrically different effects on quality improvement cost for the school. On the one hand, the "more costly feature" kind of quality will cost the school more to provide while on the other hand the "less costly deficiency free" (or simply "greater productivity") kind of quality will bring savings to the school and the Ministry of Education when it is successfully pursued.

It is interesting to note that of the two meanings of quality, it is the deficiency-free meaning of "greater productivity" that really underlies current managerial efforts to improve quality such as, for example, TQM, TQC, SPC, Singapore's National Quality Strategy and The Singapore Quality Award of NPQC, and NPB's TQP. Quality in industrial organisations is pursued largely from the greater productivity viewpoint. Can the pursuit of quality in schools benefit from an expansion of the meaning of quality from that of "more costly features" to include the second meaning of "greater productivity" or "deficiency-free". It should be noted that any "more costly feature" when introduced into a school as some sort of innovation or newly acquired facility does not usually increase the quality of a school straightaway any more than a five-star hotel can claim quality on the basis of its many costly features alone. What will really lead to an improvement in quality is how expertly any particular innovation, whether expensive or not, is made use of by "workers" to bring about superb results.

At present, a school would typically raise more money so as to acquire a new facility or innovation. For example, a particular costly feature like a new gymnasium or

multimedia production studio, might be thought of as giving the school an improved quality school characteristic. However, as it has often happened, an acquisition can effectively remain as just a mere possession without any effective quality change taking place in the productive effort of teachers and students who use the new acquisition or facility. School leaders would need to realize that if quality can be improved by simply buying an expensive feature but without making shifts in attitudes and habits of working, any school can then indulge itself with quality by simply spending more money. For example, when a person buys a violin or a piano but does not expend effort afterwards to practice painstakingly in order to master the technique necessary for producing music, he would only be able to obtain non-musical sound from the expensive acquisition, and as a result quality improvement for the person concerned takes on only the "more costly feature" meaning. Japanese car manufacturers have been credited as the first to install into medium-priced cars some of the more costly features formerly found only in expensive and luxury models. A simple add-on of the costly features would have made the medium price cars no longer medium in price. They were able to add on costly features and also keep the price of the cars down because they managed to achieve a concurrent shift in productivity gain quality.

If for school leaders, quality has only the first meaning of "costly features", then the initiative to improve quality in schools may be leading us in an undesirable direction. Schools would continue to believe that they must spend more in order to have quality especially on expensive, exotic or even

luxurious programmes or facilities. They would put in hardly any effort to pursue "greater productivity" as embodied in the second meaning of quality. As a result the cost of education is doomed to rise as more and more costly features are added on. It should be realized that when a school acquires a particular costly feature and installs it as a quality improvement effort, it would only have acquired a bought "solution" which has limited benefit unless the effort is also accompanied by productivity increase. Without any quality improvement from the viewpoint of productivity gain, a costly feature improvement to quality is likely to end up as an expensive waste. But if a particular costly feature improvement to quality is introduced together with a productivity increase to quality improvement to the extent that the total quality improvement cost is zero or even negative, then the quality improvement effort will be moving in the desirable direction in line with current thinking about quality.

The second meaning of quality should now be emphasized in the provision of quality education in schools. When school leaders understand this meaning, there is a possibility that as schools install new and novel programmes for the benefit of their students the cost of education need not rise but might even fall. Kondo (1993) had this meaning of quality in mind when he said that "When quality is improved in a creative way, cost is reduced and productivity is raised." p125. There need to be this radical shift also in the way school leaders approach quality, perhaps even developing new management processes that foster a quality culture. For example, there would be a need for a great deal of attention to documenting and discovering

processes, especially the processes by which students work and learn. Everybody would be encouraged to respond to the need for genuine work and consistency in performance by making a commitment to continuous learning and improvement in practice. School leaders need to turn much of their attention to schooling fundamentals, which are basic processes used on a day-to-day basis to bring about quality performance, in order to be able to exercise control over the quality of schooling. This shift in emphasis might be done in three stages as follow.

Obtaining a shift in emphasis for school leaders

First, school leaders would need to understand the "productivity meaning of quality". They have to modify their traditional view of quality as either costly feature add-on quality or inspection-produced quality. Quality for a school should refer to the excellence or quality in learning outcomes as received by the client or customer. Quality does not spring directly from inputs such as costly facilities no matter how good or expensive they may be. Also quality through inspection can be suspect because, as Deming said, "inspection with the aim of finding the bad ones and throwing them out is too late, ineffective, costly." Quality in learning outcomes is a direct consequence of quality in the learning process. School leaders will have to shift their thinking of quality from a fixation on inputs and inspection to that of work processes. The focus should be on the process of learning undertaken by students in the environment of the school towards the production of quality learning results expected of students by their parents, their future employers, and the society that needs them when they grow up.

In this regard, it is more helpful

to think of the student in school as a "worker" and not a client who must be served whatever his fancy. A low achieving student in school is like a worker whose work is lacking in quality control. A low achieving student produces a poor learning performance in the same way as a worker whose work lacks quality control produces a poor quality product or service. A low achieving student can be thought of as a "school worker" who has poor quality control over his learning efforts. Conversely, a high achieving student is like a "school worker" who has quality control over his learning efforts in the sense that he practices a high quality learning process.

In order to produce a quality result from making use of school facilities which might come with costly features, students with the guidance of teachers and painstaking effort on their part as workers, will have to strive to master the use of the facilities for their learning. They must painstakingly attempt to raise the quality of their own personal learning processes with respect to the particular use of the learning facility provided. Only in this way will quality results or learning outcomes be obtained by students to an extent that productivity gains associated with that quality outcome reduces or even cancels out the cost of any expensive feature in the facility. When this happens, the school can claim to be a quality school in the sense that it produces quality results by well controlled quality learning processes.

Second, school leaders would need to develop the attitude and learn the concepts and skills related to quality management and quality control of the schooling process. They will have to emphasize quality improvement of the learning

outcome as coming from a quality improvement and control of the learning process. An emphasis on identification of characteristics or features or costly facilities alone will have to be supplemented because such an emphasis is at best unhelpful and at worst misleading. Like the parent who has bought a piano (a costly facility) for his child with the hope that the child gets a higher quality musical life. But the child spends little or no effort to master the art of playing (quality process of using) the instrument. Without paying enough attention to the necessary hard work that the child must devote to hours and hours of disciplined practice (quality improvement process), the parent hopes in vain for his child to play the piano well (the quality performance that gives the child a high quality musical life hoped for by the parent). Everyone in the school must believe that quality comes from careful attention to the work they are doing, from giving to their "customers" their very best. Every worker, including the "student as worker" would understand his "customers'" requirements and concerns and is keen to provide them with service that will allow them to meet their requirements with full satisfaction. There is pride in giving quality service as if each worker is serving himself. This attitude goes beyond merely indulging in the provision of costly facilities or features.

Regarding the student as a worker in the school, school leaders need to see that a high achieving student is one who has already developed a personal quality learning process through painstaking effort on his part. His learning process is no secret yet the lower achieving student finds it difficult to emulate the process, perhaps in the same way as a novice

swimmer who, struggling to practise his swimming strokes and wanting to give up with every mouthful of water that he swallows, envies the expert swimmer who glides through the water with seemingly effortless control over his movements. The performance of good swimming is plain enough for all to see but for the beginner, it is so difficult to emulate. Perhaps another example of this was provided by Mr Lee Kuan Yew when he referred to a quality hamburger recently, "There is no secret in a McDonald's hamburger. But McDonald's keeps a certain standard and reputation that no other hamburger has been able to match" (Straits Times, 28.8.95).

Third, school leaders would need to work out and install a total quality management system and process control in schools. Such a system must involve everyone starting from the principal. The expected outcomes of schooling, including satisfactions and benchmark practices must be carefully identified and monitored within the schooling environment on a continuous basis. The schooling process continually experiments and installs work processes that work well, incorporating the use of new technology and innovative methods of operation. Teachers would need to teach less and manage more in order to facilitate and exercise control over the learning process of students. In order to be successful learning managers, teachers must be proficient in the use of monitoring and assessment techniques to help students achieve process control over the students' own learning efforts. Teachers manage the learning process with continuous monitoring and persistent elimination of inconsistencies. Students must strive to master the learning process through the use of

quality control processes and plenty of perseverance, to learn how to learn, until they become productive workers at achieving quality results. Like a champion swimmer who completes his lap effortlessly with perfect control over his motions, the students are "champion learners" who complete their learning assignments with ease and success. The outcome of school will become "deficiency-free" and lead to cost-saving and a level of productivity gain that makes quality improvement indeed "free".

We can learn from Japan's experience in raising quality in which "the key has been the dogged use of process analysis... for a long period of time". p204. (Ishikawa 1985). School leaders should also come together periodically at the Principals' Executive Centre for example, to share their experiences and work things out among themselves with the aid of the resources available at the Centre. In this way, the provision of quality education and the creation of quality schools will materialize and quality improvement will then move in the correct direction instead of moving in the opposite direction of increasing cost. More than an indulgence of "quality education at a price", when quality education is hard work and perseverance, a focus on the student as worker and consistency of performance in the learning process toward quality learning outcomes, quality education is "free".

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Collaboration in School: Square Pegs in Round Holes?

Allan Walker

Among influences on education in the mid 1990s are decentralisation, community involvement, teacher professionalism and an apparent rediscovery of the core purpose of schools, learning and teaching. These and other related factors have driven school-level education reformers to rummage for more effective school structures under the catch-all term 'school restructuring'. Much of the current restructuring discussion involves searching for innovations in work organisation that lead to school improvement and better student outcomes. A dominant thread in this continuing quest for improvement are strategies for increasing teacher involvement. Strategies which are anchored in a belief that for learning and teaching to improve, teachers cannot work in isolation and that collaboration, or working together

The 'collaboration' trend has become so powerful that schools may feel pressured to show the bureaucracy, and the community, that they are 'collaborative'. Some school leaders adopt such approaches for the sake of political correctness, or being seen to 'do the right thing', even though they see no benefit in anybody other than themselves making decisions. Another group of leaders, although unsure of the power of participative approaches, force staff to work collaboratively because it is a high profile current trend that is worth a try. Yet others, of course, attempt to establish participative structures out of a genuine belief in their potential. Even in such instances, unfortunately, collaboration may be doomed to failure because related aspects of the school's operation are incompatible with the values underpinning real empowerment.

meaningful collaboration for the wrong reasons, or without consideration of other school-level factors, risks building what Fullan and Hargreaves (1991) label "contrived collegiality". They claim that schools buckling under external pressure to be "participative" impose structural arrangements which are collaborative in name only. "Contrived collegiality is characterized by a set of formal, specific bureaucratic procedures to increase the attention being given to joint teacher planning, consultation and other forms of working together" (Fullan, 1991 p. 58).

In other words, attempting to get teachers to be collaborative through establishing shallow, unconsidered structures or processes may be equated to trying to fit 'square pegs in round holes'. No matter how hard you push, the pegs will not go in, energy is unnecessarily expended

and both the peg and hole can get scratched and damaged.

This article looks briefly at what school leaders may consider if they seek genuine collaboration and shared decision making. I do not attempt to define collaboration exactly but frame it simply as all staff 'working together' positively for the benefit of the students in the school. Whereas the considerations discussed are separated for the sake of discussion, in reality, they are intractably interrelated.

Shared Values

Whether staff work together effectively or not depends largely on the culture within which they operate. For collaboration to be successful, the culture of the school should be anchored in the fundamental values of openness, trust and participation. It would be a futile exercise to implement any collaborative structure, no matter how fancy, in a school, for example, that fostered secrecy or deception.

Developing such a culture is not easy. Any power sharing involves risk taking and risk taking involves, in turn, a willingness to make mistakes, something larger systems may not always value (often, despite claiming to value collaboration). Without a culture that communicates sharing, commitment and mutual support, however, the tendency is for staff is to play things safe. If collaboration is to have a realistic chance of working, the culture needs to emphasise co-operation rather than competition throughout the school and among colleagues.

Competitive environments tend to emphasise self-interest at the expense of shared purpose. Co-operative and collaborative cultures, on the other hand, are characterised by a widespread willingness to learn.

If schools are to be truly

collaborative, the purposes and values which drive decision making should be developed with, not for, staff. Dimmock (1995) suggests that tight coupling and synergy can be achieved when all parts of a school share common values, goals and practices. Teacher interaction must fit into this pattern. If the school's value system is incompatible with needs for trust, co-operation, responsiveness and risk-taking, staff are unlikely to perform effectively or to grow and develop. Supportive cultures may be determined in large part by the nature of structural arrangements imbedded in the school's operation.

Structures Reflecting Values

Schools today are recognising more and more that their primary function is the improvement of learning (Ashenden & Milligan, 1993). Collaborative arrangements in a thoughtfully restructured school may hold promise for shifting responsibility to teachers who, after all, are closest to the scene of learning. The aim of the school is to restructure the educational processes, placing learning theory and students needs before the custodial interests of parents, administrative convenience, and market forces (Dimmock, 1995; Murphy, 1991). Collaborative approaches are a way of creating and reshaping traditional structures to house learning and teaching.

For collaborative approaches to be successful they must be rooted in conducive structures, framed by open, co-operative cultures. As Gitlin (1987) points out, structures are not the only determinants of teacher behaviour, but they exert a substantial influence on such behaviour and reflect a compromise between individual ideologies, values and the structural intentions. In other words, structures should

reflect cultures. Recent interest in 'schools within schools' or 'sub-schools' recognises the value of teachers escaping subject-bound jackets and working together more intensely for the benefit of students.

More radical approaches to structuring suggest turning the organisational hierarchy upside down and shifting all power to the bottom. This is similar to the concept of backward mapping (Dimmock, 1995) proposed for education which places student outcomes squarely at the core of all school decisions, including structure. In a collaborative context, decisions about teaching and learning are made by teams of teachers and other actors, such as the principal, whose primary function is to support these endeavours, to provide linkage and to maintain overall school focus.

The precise nature of structure is not the most important issue, different configurations may suit different schools. What is important is that roles and relationships are congruent with the demands of collaboration. It is the responsibility of leadership to put the right structural framework in place so that involvement is facilitated. This is unlikely to come about by simply tinkering with structure and must be done in concert with the culture.

The responsibility of the leadership team in structuring collaborative environments is to forge both cultural and bureaucratic linkages between individuals and groups in the school and to create conditions in which the school's purpose might be achieved (Firestone & Wilson, 1985). Schools of the future can achieve tight coupling through developing common cultural linkages embedded in a minimum of bureaucracy, and not by exercising heavy handed bureaucratic and hierarchical

administration. Cultural linkages occur when the values of team members converge and manifest themselves in appropriate behaviours (Dimmock, 1993).

The message comes across clearly, if school leaders desire collaboration they must be prepared to collect, clarify and include the values and beliefs of their school community and allow these to anchor decisions and actions in the school. If these values, or the principal's values, do not place co-operation over competition or risk taking over 'playing it safe', for example, any attempt at collaboration may be doomed to failure. Structures constructed must be in line with the culture if collaboration is to happen. Actions and structures must reflect the espoused values. In other words, the holes and pegs must be the right shape and the right size if they are to fit together. If they do not, there is little point in trying to force them in.

Leadership

Changing roles

An equally important place for principals to start when thinking about collaboration is with themselves, and their beliefs about leadership. Principals need to reassess the role they and teachers have traditionally played. Recent thinking locates the principal in positions other than simply at the top of a pyramid-like structure. Margerison and McCann (1985), for example, place the leader at the 'hub', or centre of the organisation. Dick (1993) sees the leader as a 'boundary rider' and others see the principal as 'go between', 'buffer' or 'filter'. Such roles devalue traditional hierarchical positions but acknowledge that the leader has an important place in both linking people within the school and

connecting the school itself with the broader environment.

Murphy (1991) suggests the principal's role is changing from manager to facilitator and the teacher's from worker to leader. Principals in collaborative schools acknowledge that leadership resides in many people, and manifests itself in a number of ways. "The facilitator (principal) in schools would ease the way for others in the school community to emerge as leaders within a participatory environment" (Watkins, 1989, p. 32). Barth (1991), envisages the principal as chief learner alongside staff and students, as exerting a powerful influence on assisting teacher growth. Senge (1990) advocates the positional leader's role should change to one of designer, teacher and steward.

Changing Relationships

At the heart of the changing role of the principal then is the renewed relationship within the school, between formal leadership and the teachers. In many ways, this can be seen as an inversion of the hierarchical relationships typifying today's schools. As Murphy (1991) states, the key word is empowerment: "In many ways, the principal is the nexus of restructuring efforts - accepting additional autonomy and accountability on behalf of the school and passing it through to the teaching staff" (p. 17). The principalship then, in a collaborative environment, shifts more towards supporting teaching rather than controlling it. Every person involved has a stake in the school which no longer "belongs" only to those in the upper echelons of the hierarchy.

It all sounds simple enough, but anyone who is 'in the know' realises how complex and confusing a

present day principal's role can be. Set against increased collaboration is the leaders position of systemic and community accountability. There can be no legal transfer of power, and principals who wish to build collaborative environments must accept this, therefore taking risks themselves. The principals job, should they wish to build a collaborative school, is to open communication channels, share power and facilitate the blending of inner school improvement with legislated, top down reforms. This supports the concept of principals moving towards supporting, linking and buffering roles.

Implicit in altering roles and cultures which promote collaboration and new structures are shifts in power relationships in the school. Where hierarchical power dominates, collaboration is unlikely to thrive. Fullan (1991) explains: "Effective managerial power includes, by definition, the ability to empower, sometimes by freeing up, and often times by propelling, others within the organisation. Ultimately, it will be the collective and subcollective professionalism of individual teachers and individual schools that will determine the quality of education" (p. 23).

Power through

Dunlap and Goldman (1991) describe what they label "facilitative power" which appears more suitable for promoting collaboration than traditional conceptions. They suggest that power in schools has traditionally been based on dominance, or power over someone, whereas facilitative power is power through someone. Facilitative power rethinks both top down and bottom up concepts of power. They suggest that facilitative power is rooted in a new kind of reciprocal interaction and negotiation between

members of the school community; and where the role of leaders is to establish and maintain conditions in which others can solve problems (p. 13). The emphasis in school shifts from principals using most of their energy in control related functions to a focus on facilitating others' talents, knowledge and expertise.

The concept of power working through others rather than exercising power over them is consistent with developing collaborative environments. Fullan (1991) reminds us that initiatives may travel from the top down, but to be implemented successfully there must be shared control and decision making. Patterson and his colleagues (1986) discuss empowerment as interactive power. They suggest that groups of teachers should be built to work on significant tasks and that peer interaction is a far more powerful form of pressure than can be exerted through traditional hierarchical forms.

In short, principals wanting to encourage 'real' collaboration must think carefully about their beliefs, or were they stand on issues such as empowerment, shared decision making and teamwork. If they see no value in these there may be little point in trying to be 'collaborative' - the pegs may not fit.

Support for

Finally, collaboration is unlikely to take hold if not given adequate support. Once again, this may necessitate different ways of thinking. For example, the way performance is monitored and recognised may have to be viewed differently. Schools have tended traditionally to structure systems in individual terms, but this may be inappropriate if collaborative approaches are adopted.

In many schools staff are given

information only when the principal decides it is necessary. If teachers are involved in decisions central to the school's primary purpose they must be fully informed. Supportive leadership leads to staff willing to expend extra effort for students. If the environment is supportive of collaborative efforts teachers will operate accordingly without even realising it.

Meaningful support involves promoting creativity and building a learning culture in the school. If such a culture is to grow, management must support staff willing to learn new skills, methods and procedures. Ongoing professional development is paramount for successful growth and must be recognised, rewarded and supported throughout the school. Stott and Walker (1995) stress that support and development do not stop once collaborative groups are operating successfully. Although a co-operative culture is imperative, working together requires specific skills which may not be present. Schools need to train and educate staff to together and to provide development opportunities continually.

Other forms of organisational support should also be considered. Resource allocation may be directed at groups rather than individual teachers. Similarly, the physical environment should be adapted to suit groups as well as individual work. Most importantly, the entire staff must become familiar with the essence of collaboration.

If schools implement structures and grow cultures that encourage co-ordinated effort, then important processes such as reward systems should match those strategies. Schools should recognise and reinforce teachers working together. This may mean playing down individualism and designing reward

strategies that support combined effort and performance (Walker, 1994).

Summary of Considerations

If schools deem collaboration worthwhile, and don't wish to waste energy trying to squeeze the wrong size pegs into the right size holes, or, the right size pegs into the wrong size holes, among their considerations should be:

- The values which anchor the schools decisions;
- Whom and where these values come from;
- Whether risk taking, openness and 'working together' are valued;
- Whether the structures of the school reflect the shared values;
- The message their structure/s send to the school community;
- The style of leadership they value;
- Whether others in the school have a right to leadership;
- What position the formal leader should take;
- The relationships between themselves and staff and staff and students;
- How power is/can be shared with others in the school; and
- The support they can provide in terms of physical and moral resources.

Conclusion

Collaboration is in many forums being promoted as the way that schools should be. But, is 'being collaborative' as simple as it is often made out to be? For people to really 'work together' for the improvement of learning and teaching, thinking must go beyond implementing trendy structures labelled as 'collaborative'. Certainly, it is easy

to use the word, but unless there are major shifts in thinking, for example, about whose values dictate actions in the school, little real change will result.

In short, imposed collaborative structures may look good, and indeed, at times and as a beginning, may have a place. In the long run, however, trust, collegiality, respect and partnership must feature prominently and be developed by the school community as a group, not a single person. For this to happen, principals must delve below superficialities. For collaboration to have a chance of working (and it is by no means guaranteed), schools, principals and teachers need to rethink power relationships and the meaning of leadership. All must review existing school structures and cultures and how they can be changed or developed to accommodate collaboration. A failure to deal with such fundamental issues may mean schools continue to waste bounded energy and resources on the Sisyphus-like task of trying to push square pegs into round holes.

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So You Want to be a Head?

Low Guat Tin

So you want to be a head and you want to be ahead too? Have you considered what you need to be a head? Have you considered what qualities are required for one to be ahead of heads? This is not a research paper, it is one written based on observations and having the observations confirmed with a few practitioners out in the field. (This short paper was written for those who are currently in the Diploma in Education and the Further Professional Diploma in Education programmes.)

Now what do principals need?

First, you need the patience of Job. You will have to work with all sorts of people and you will have lots of people reporting to you. You will have endless interruptions to your work, some so trivial you wish those responsible would grow up and make the necessary decisions.

Then there will be teachers who will send down to your office countless number of children who did not bring their books, did not do their homework and so forth. So part of your job is also to "frighten" the children into being more responsible. Yes, patience, patience to "deal" with myriads of people, patience to "deal" with those who are so slow to move and patience to allow parents and even teachers who come storming into your room to take their frustrations out on you! Patience to be wrongfully accused and yet not hitting out in self-defence. (Of course when tempers have cooled you will then in your wisdom show your accusers the error of their thinking.)

Second, you need a pair of ears because you have to do a lot of listening. Yes, your job is not to talk, yours is to listen. You will have to listen to parents, teachers, non-

teaching staff and to your pupils. Lots will come into your room to complain or to whine about things which are not going right in the school and there will be countless wrong things; to most, their way is THE way. It is also my belief that when you listen and listen carefully you will be spared many management errors. When your teachers feel that they have been heard and have been taken seriously by you, half your battle is won. You will find them rallying behind you.

Third, always have a helicopter view; sometimes I call this the top floor view. When you feel really cramped in and stuck too deep in meaningless paperwork, then climb to the top floor of your school building or better still to the highest floor on your apartment block and look down. You will realise that so many "big" things are really so tiny when you look down from the top and from that height you can see

many things and see them in perspective too. That is why always take time to go to the top and look down, always have the helicopter view and you'll get your blurred, stressed out vision clearer again.

Fourth, know your vision. Often a school's vision is in relation to what you and your staff want from your pupils. For instance, many a head I have talked to told me about what they want their pupils to be at the end of the 6 years in the primary schools or 4-5 years in the secondary schools. If you have a clear picture of what "products" from your school should look like, then bear this in mind for that image of what you want your pupils to be will influence your behaviour, your daily practices and your policies. For instance, if you want your pupils to be well-disciplined, polite and neat, then this vision you have must affect how you and your staff behave, work and dress. It will affect the way you discipline your pupils and a host of other policies. If you want your pupils to enjoy school then your staff and you should show that you enjoy coming to school.

But what is more important is to share your vision with your staff. If your teachers could see beyond teaching, homework and marking and more marking and see the difference they are making to young lives, particularly those whose parents are too busy to care, your teachers will find teaching much more satisfying. When people can see beyond the immediate, when they can see the impact they are making on others, when they grasp what they are all about, when they understand the overall significance of their contribution, it gives a lot of meaning to their work.

What I am today I owe it to my teachers and my principals. Of course my family had an important part to play. But it was at my alma

mater that I was taught a number of important lessons. My principal even wrote on my autograph book, "Remember thy Creator in the days of thy youth". The same lady even got a scholarship for me and sent me packing Down Under. Others, teachers in the school "knocked me into some shape". But of course it was from my parents that I learnt how to delay my gratification, how to appreciate the "givens" and from my mother I inherited the stamina to work long and hard.

Fifth, know your mission and do not allow the cares of this world to side track you. Very often we are distracted from our mission and we go off course. There are so many things that we have been gifted with, some of us have boundless energy, others can teach, write, act, cook, fund-raise and a host of others. Often we may know our mission but other equally good activities such as writing, fund-raising could consume our time and these distract us from that mission. So know your mission, stick to it and at times you need to be stubbornly single-minded.

Sixth, I think many of us need to learn to work smarter! I see many of my friends work till they are burnt out and I would say some of them are really not working smart! Why invent the wheel again? There are countless things to do in the school, countless people to meet, countless programmes to monitor. Now work smart. What can you learn from others who have walked the path before you? Fortunately or unfortunately, we are not octopuses so we don't have so many arms to do the numerous tasks. Have you ever thought of empowering others in your school? Have you thought of training others to do the job? On the surface it may look like you are losing control, but you are actually gaining more power and becoming lots more effective. Your people will

The illiterate of the year 2000 will not be the individual who cannot read or write but the one who cannot learn, unlearn and relearn
- Toffler

also become more involved and will also become more enthusiastic about work. In time they will learn the ropes of the trade and will be able to run schools of their own too. In this way you are contributing to the system.

As a result of our "*kiasu*" (fear of losing out) mentality many of us have the buffet syndrome, i.e., "everything also want" so you pile everything on the plate of your teachers! Has it ever crossed your mind that quite a few of your teachers may not be able to digest everything? They can't cope and end up real frustrated. Here in Singapore we are exposed to many ideas. Administrators and teachers attend numerous staff development workshops. Often heads want teachers to share what they've learnt and then all to implement the new way of teaching or a new programme. You hear people talk about colour cards -- red, green, yellow etc and you also want to do the same. Then someone shared about "race horse derbies" and you think it will be a good idea to try that out too. Some programmes may not be suitable for your school. Whilst they may work real well in school A it may not work in your school because of various factors.

Seventh, don't be in a hurry. If you have too many things going it might end up worst. Take one step at a time. You might in the first half of the year attend to discipline problems. Here don't try to eradicate all problems -- work on a couple of problems which are really urgent, when that's taken care of, move on to other issues. In the next half you might want to move on to programmes. Work with your heads of departments. Don't try to do too much at any one time -- you might end up "killing" your teachers. And of what good are "dead" teachers?

And finally I think that heads

need to be open to their staff and to their ideas. I have met many who are so set in their way of thinking (who isn't?) that their mindsets hindered them in their work. It's not much use having an open door policy and when teachers come to give you alternative viewpoints you "pooh pooh" their views (at least at the back of your mind). I have met a head who tells me so many times that I am only seeing from my perspective (an academic in my ivory tower) and from his perspective what I suggested won't work. To him I will say at least cultivate the ability to put aside what he knows so that he can listen to another viewpoint without prejudice. This is what Waitley (*Empires of the Mind*, 1995) calls "portable ignorance". To Waitley "developing portable ignorance is essential to being a self-leader." Remember paradigms can trap us into seeing the world in only one way! Heads really need to be open to new ideas and to keep pace with what's happening in the world. You really can't afford to do more of the same thing or to become better at what you are doing. You will need to do lots of different things. In order to lead others you need to lead yourself.

Thus far the above are some qualities you need for your job but are there some other essentials that you may need to equip yourself with as we move into the next century? I believe that leaders need to learn to focus on the big picture. I am not sure if this is a skill that can be taught or learnt (maybe nurtured is more accurate). So many of us get caught with details and we can't see the big picture. That's why to me teams are so important for team members complement each other. There are those who provide the big picture, others zoom in on the details. As we move into the next

century, we need to learn to work in teams more and more.

You need to learn how to interpret the masses of data churned out by the computer. You can't say we will focus on this area next year -- the issue is on what basis did you come up with such a conclusion? You need to substantiate with facts and figures why this is your area of concern. You may need to come to grips with quantitative tools, for numbers are the fundamental language.

And, in this age of knowledge, you cannot afford not to upgrade and update. You cannot afford to be left behind. Again I quote from Waitley "Those who embrace new information technology today will of course have a crucial head start" Knowledge and information will be the most apt form of capital. And, to Toffler, "The illiterate of the year 2000 will not be the individual who cannot read or write but the one who cannot learn, unlearn and relearn."

Now that you have read through this short note, get yourself prepared. Whatever information you have acquired becomes outdated real fast. What we learn in classrooms have a very short shelf life!

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Schools As Learning Centres

Chong Keng Choy

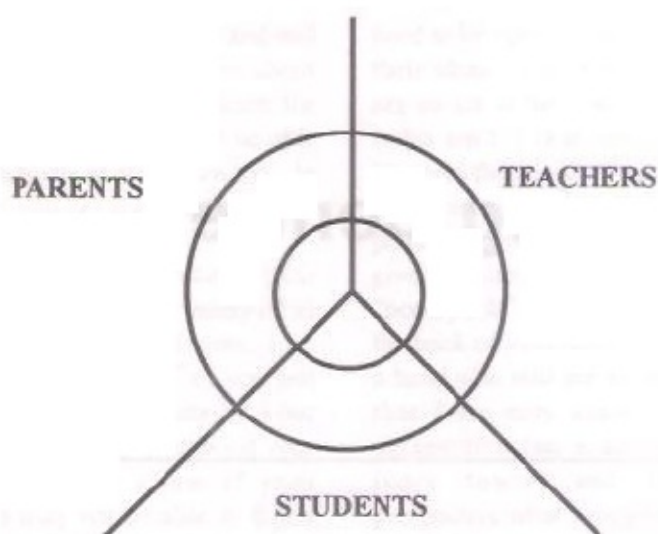
Schools are learning centres. Students come to schools to learn. Teachers expect to learn while they teach. Parents who come to schools for whatever reasons should leave the schools having the positive feeling that they have learned how to help their children. Schools are learning centres to which students, teachers and parents want to return for more learning opportunities. People should have such good experiences with schools that they want to return to schools again and again for more good learning experiences.

Think concentric circles. Look at the innermost circle. This represents your school. Divide this circle into three parts. One part represents learning programmes for students. The second represents those designed for parents. The third represents learning programmes for teachers. The school is a learning centre for students, parents and teachers. You could think of the school as three learning centres, each with a set of learning programmes for parents, students, and teachers respectively. Or, you could think of the school as

one learning centre with three sets of learning programmes. These programmes are interrelated because the common purpose of the learning programmes for students, teachers and parents is to help students achieve their greatest potential. Teachers learn to help their students better, and parents learn to help their children better. Such learning programmes for teachers and parents increase the wealth of resources of the school. Teacher and parent quality time could increase the quality of student time on learning tasks. Better quality student time gives students more time for more learning, relaxation, and fun — that is, better quality student lives.

What kind of learning programmes could principals think about? For students, learning programmes should focus on individualized learning. Information technology should be harnessed to facilitate individual learning needs. Group facilitation is used only when group learning is most appropriate. For example, learning teamwork is best learned in groups, and group facilitation is appropriate. For

parents, learning programmes should focus on helping them to support their children's learning. Parental involvement should be pursued as an opportunity for increasing the support resources for student effective learning. For example, well meaning parents could be pressuring their children unnecessarily, and such parents could benefit from learning about approaches that are based on appropriate human development and learning theories. For teachers, learning programmes should focus on their personal growth in skills, knowledge, and attitude. Andragogy should underpin these programmes, predicated on the belief that people become teachers because they want to do something worthwhile with their lives. Andragogy is founded on teachers' tendency toward self-directed learning, their experiences as a rich resource for learning, their learning needs as grounded on their real life tasks and problems in the classroom, and teachers' desire to apply what they have learned immediately. For example, principals could set up infrastructures like funds, facilities and programmes to support self-



directed learning efforts by teachers.

Look at the outer circle. It has three segments too. They represent learning programmes for parents, teachers, and students respectively. Think about these parents of children from other schools. These students and teachers are in other schools too. What could your school do for them? For example, parents with children in your school could bring their neighbours whose children are in other schools to participate in your learning programmes for parents. Teachers in your school could collaborate with teachers of other schools in mounting workshops that could give mutual benefits. Students in your school could participate in learning activities organized jointly by a group of schools. These examples are not new, but one must now think of the deployment of critical resources to such activities that could bring about mutual benefits for participating schools. The main question to ask is "How do these activities help your students achieve their greatest potential?"

You could keep drawing concentric circles that expand outward beyond the outer circle. They could represent parents, teachers, and students in the ASEAN region, in the Asia Pacific

region, and in the world. With the proliferation of applications in information technology, borderless schools are in the making. In this future scenario, you could have access to curriculum materials developed in other schools only when you have curriculum materials that other schools want. Otherwise, you could find sufficient money to buy them. Sharing of learning programmes will seem inevitable. Seeking opportunities for increasing your wealth of resources in your school could only be meaningful when mutual benefit is made available. Creative management is necessary for students, teachers and parents to work together for innovative learning programmes. Indeed, students, teachers and parents could work together for developing good curriculum materials. Our school system has been doing very well over the last thirty years by doing more of the same things better and better. I notice that many principals and teachers are now attempting in all sincerity to improve their ways of doing things. That is, they are doing the same things in new ways. It is good to think that there is still room for improvement always. In some of the things schools are doing, more drills and worksheets for example,

diminishing returns could be setting in. What students could be getting is more stress, less rest, and greater inefficient use of time and energy. Quality student time and quality teacher time are the two most critical resources for effective learning. Tired students and teachers do not learn very well. In order to level up the performance of schools, principals could look for new things that schools could be doing. Innovation is doing new things. Incorporating quality time of parents into curriculum design and development could be such an innovation. This short article gives a framework to help principals and teachers think about what they could be doing for the continual growth of their schools and in their professional lives.

Do you want to think about a network of learning centres? Could schools collaborate in mutual learning? This could be the subject of a different article. You are welcome to write it. Principals are not doers only. They are also thinkers. *Learning while managing*, as in cycles of trial ... feedback ... reflection, is the way for the principal's professional growth. Doing and thinking make the managing of learning exciting. Principals could become role models for teachers in learning while doing. Teachers could continue to learn while teaching. Think of schools in which teachers ask one another "What have you learn from your class teaching today?" Principals could ask one another "What have you learn from your school managing today?"

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Site-Based Decision Making: Its Potential for Enhancing Learner Outcomes

Elvis Arterbury and Shirley M. Hord

Schools are doing a very good job of doing what they were designed to do — decades ago. In the early twentieth century, when the country was moving beyond an agricultural economy into the industrial era, the goal of public education was to provide school attendees with a basic education; the curriculum was dominated by reading, writing, arithmetic (Joyce, Hersh, & McKibbin, 1983). In the current post-industrial period, however, our society has charged schools with delivering a high quality, multi-disciplinary education to all students, seeking to guarantee the promise of successful learning and adulthood employment for each of our children. To complicate this mandate, never before have students come to the public school from such diverse backgrounds, family patterns, and native languages.

Thus, "schools are searching for dramatic new ways to effectively

meet the needs of all children," states a study group representing the American Association of School Administrators, the National Association of Elementary School Principals, and the National Association of Secondary School Principals (Fulbright, 1988, preface). This search stems from the difficulties schools are encountering as they address the needs presented by an increasingly diverse student population. School and district governance are being re-examined, and educational leaders at all levels are focusing significant attention on restructuring schools and, specifically, on site-based decision making.

Considering the Possibilities of Site-Based Decision Making

Restructuring is defined by Corbett (1990) as making major changes in the school's

organizational rules, roles, and relationships in order to obtain different results. Corbett's conceptualization resonates with Cuban's analysis of change. Cuban (1988), in analyzing school change over the past several decades, has categorized change efforts as either first-order change, "trying to make what already exists more efficient and more effective . . . without substantially altering the ways in which adults and children perform their roles" (p. 342), or second-order change, which "transforms familiar ways of doing things into new ways of solving persistent problems" (p. 342). Such transformation might include, for example, more participatory roles for parents and community members, and broad involvement in decision making by all constituents at the campus level.

Cuban believes that first-order changes have allowed the system to remain "essentially untouched,"

resulting in insufficient success for all students. He maintains that change should be framed in terms of the second-order type, focusing on the fundamental arrangements by which schools operate in order to achieve different, and better, results in meeting the needs of all children. One example of second order change is site-based decision making, designed to promote shifts in roles and relationships away from the traditional bureaucratic model of schools and districts to a more open, participatory system. Site-based decision making is being proposed by many as a worthy "tool to increase student achievement" (Fulbright, 1988, p. 5).

What is site-based decision making?

Harrison and colleagues (1989) suggest that the new arena for decision making "brings the responsibility for decisions as close as possible to the school . . . defining how school staffs can work collaboratively to make these decisions . . . creating ownership for those responsible for carrying out decisions by involving them directly in the decision-making process and by trusting their abilities and judgements . . ." (p. 55). These ideas are embedded in many of the terms being used to portray the shift of additional authority, autonomy, and accountability to the school site and the personnel within. Included are such terms as decentralization, restructuring, site-based management, school-based management, participatory decision making, school-based autonomy -- to name a few.

These terms typically are meant to reflect changes in governance structures, and the identification of the school as the primary unit of improvement; redistributing decision-making authority is viewed

as a major vehicle for stimulating improvements (Malen, Ogawa, & Kranz, 1990). The new authority for decision making is used to determine programs, personnel, and budget. Further, decisions involve a wide array of actors at the site level: principals, teachers, parents, community representatives, and students. These site actors are frequently organized in a team or site council to represent their colleagues. Given discretion and influence, participatory decision-making teams can use their authority to consider learning approaches that are tailored to their diverse populations of students.

Despite the advocacy put forward by numerous writers and organizations, Malen and colleagues (1990) suggest from their review of the literature that site-based decision making is not a new idea, but is a "recurrent reform . . . surfacing periodically when public education is under fire" (p. 289). Such efforts, these authors contend, seem to reappear in times of "intense stress -- when broad publics are criticizing the performance of schools . . . when, in sum, a turbulent environment generates a host of highly salient demands and the system is pressed to search for solutions to . . . intractable problems" (p. 297). Malen and colleagues' observations may give reason to consider carefully how the introduction of site-based decision making into a district will contribute substantively to improved outcomes for students, rather than serve as a pro forma response to public criticism.

What role changes may be anticipated with site-based decision making?

Corbett (1990), Cuban (1988), and others maintain that restructuring schools entails a major

re-design of the ways that schools operate. Governance structures, including decision making, take on very different forms. As Corbett suggests, new roles and relationships differ from those traditionally found in schools and districts. A brief look at the new roles of the various stakeholders in the district and local site follows.

Groups expected to be included in site-based decision making are students, parents, and teachers. Their new roles are described by Gibbs (1991). In the traditional model, students were isolated from operational and policy decisions. In the new shared decision-making model, students, especially older students, may influence policies by providing advice and input through participation in decision making.

Close to students are parents who, in yesterday's model, were mostly uninformed and underutilized resources and, like students, were isolated from decision making and the operations of the school. An abundant literature advocates training parents to develop understandings and skills relative to the education system's purposes, and to act as colleagues in planning and decision making, and as advocates and partners in the local school's change efforts.

Teachers, too, have been isolated from active involvement in significant decision making and have been dependent on administrative and external (to the school) policy development. In the past, they have had limited communication with each other in their own buildings and have been underutilized as sources of ideas and information to each other and the staff as a whole. In site-based decision making, it is expected that they will develop interactions across the campus community and become broadly connected with staff and

parents. These interactions provide the setting for their sharing of ideas and concerns, and participation in making decisions for their campus.

Teachers who are professional organization representatives will find their roles also changing (Steinberger, 1990). Whereas they had frequently acted as guardians of teacher rights and the teachers' contract, the new model requires flexibility from the organization's representative. Yesterday's model found these representatives in direct confrontation with the school system, and serving as negotiators of issues; the "new" model embraces collaboration and cooperative participation in decision making in all areas. The typical organizational liaison was a representative of either teachers or administrators; they now need to act as partners with teachers, administrators, the school board, and the broader educational community.

Many school board members also will experience new role expectations (Gibbs, 1991). Certainly not all, but many board members, once advocated uniform procedures across the district and maintenance of the status quo. They had been unilateral policy makers. Their roles, too, will become more collegial as they become advocates of flexibility, support change and improvement, and accept partners in policy making.

Gibbs also pictures changed roles for superintendents, other central office staff, and principals. As the chief administrative officer and general manager of the district, director of operations, and deliverer of top down mandates, the superintendent will exhibit new behaviors. These new behaviors will be characterized by inviting participation and serving as an executive team member, encouraging bottom up change.

Rather than delivering uniform treatment to all campuses, the superintendent will support differences and uniqueness.

New behaviors of other central office staff will be required. Rather than delivering policies made in the central office and monitoring their implementation in schools, they will respond to schools and serve as resources and facilitators for them, to assist them in their change efforts. Many central office staff have been viewed as isolated from the campuses, as experts or specialists in particular academic areas. In site-based decision making, they will become integrated into various campus activities. They may provide training, coordinate district level human and material resources for the campus, support schools' autonomy, and share decision making.

Perhaps no other role will be more affected by site-based decision making than that of the principal. The principal has been described as the middle manager, enforcer of policies made elsewhere, and maintainer of alignment with the district status quo. In addition, the principal has been characterized as a lonely, isolated person, but nonetheless, the "hero" of school improvement, championing the cause of school change, guiding and managing its success. This individual will continue to have responsibility for the individual school's operations (Jenni, 1991). And, yet, many other players are expected to share in making decisions for the school.

Thus, the principal will need to develop collegiality with the faculty and staff in order to participate in and invite staff participation in policy development, and ensure that the needs of his/her school are met. A framework for decision making, such as that

Teachers, too, have been isolated from active involvement in significant decision making and have been dependent on administrative and external (to the school) policy development.

provided below, can be very useful as the principal and staff embark upon the new structure of site-based decision making.

How can site-based decision making link to learner outcomes?

The purpose of site-based decision making, as suggested in this paper, is improved educational outcomes for all students. The substance of decision making, therefore, should address issues for improving teaching and learning. To support this purpose, campus decision makers may find it helpful to classify decisions into three types: mandated, expedient, and essential (Dick Foster, personal communication, July 1988). After categorizing decisions, decision makers then give their time and attention to the type of decisions that hold the most promise for quality learning opportunities for students.

There is seldom any need for site-based decision makers to spend significant time discussing whether to implement a mandated policy. There is little reason to discuss the merits of an issue over which the team has no control. Each state's minimum required number of days in the school calendar is an example of a mandate. The principal has the responsibility to communicate this type of decision to the staff through standard administrative practice; however, it may be productive for the staff to plan the way in which a mandate is implemented.

The expedient type of decision improves the efficiency and management of the school. This is the type of decision many board of education members and too many professionals prefer to address. Use of facilities, driveway surfaces, brand of copy machines, and use of energy sources are examples of expediency concerns. There will be

a strong temptation for the campus team to want to address matters of expediency as part of the shared decision-making process. There are multiple and competing demands on school staffs' time. If they use it for the expedient type of decisions, they will likely decrease the time and energy that could be focused on essential decisions.

Essential decisions impact the teaching/learning process. These are decisions that involve one or more dimensions of that process, i.e., what we teach (curriculum), how we teach (instruction), or the culture within which we teach. Alteration of curriculum documents, proposed staff development directions, and staffing patterns are examples of this type of decision. Issues that impact the teaching/learning process should demand the major portion of each agenda for a team meeting. The campus decision-making team that expends a major portion of its time and energy on essential decisions has a stronger potential to produce positive results in student learning.

In addition to setting priorities for decision making, the campus team or site council may wish to consider the degree of participation of various role groups or their representatives in particular decisions. Participation can be characterized on a continuum from "no involvement" to "total participation." One schema (adapted from Wallace, et al., 1990) delineates seven levels of involvement:

- 1) do not participate, where teachers, parents, or community representatives show no interest in the decision or are not given the opportunity by the principal;
- 2) provide information to the administrator, where various role groups provide relevant

information to the principal to assist him/her in making a more informed decision;

- 3) formulate alternatives, where various role groups are solicited by the principal for their ideas and solutions to problems;
- 4) suggest specific alternatives, where role groups generate solutions and advance opinions on how best to proceed, with the principal selecting from the alternatives suggested;
- 5) review and comment on proposed decision, where role groups are given responsibility to review and comment on the principal's proposed decision;
- 6) jointly make decision, where the principal and role groups analyze problems and arrive at decisions together, with the principal reserving the right to veto or adjust decisions; and
- 7) make the decision, where all members of the team, council or school community strive for consensus and share equally in decision making, with the principal an equal member of the group.

In sum, participating in essential decisions that address teaching and learning is proposed as a primary focus for the campus decision makers. The degree to which the various decision makers are involved, as delineated by Wallace and colleagues above, is another variable that may influence opportunities for succeeding more effectively with all students. Schmuck and Runkel (1985) assert that reaching consensus through participatory decision making is most desirable. It makes good sense that a broad array of persons representing various knowledge bases, experiences, and expertise can contribute more meaningfully to discussions and decisions about the

increasingly diverse needs of students and how to address them.

Learning from Those Who Have Tried It

In a review of the literature about site-based decision making, Kolsti & Rutherford (1991) discovered that information about its effects on students seldom appears, with any evidence in the form of testimony. Johnson (1991) reports that research studies have failed to find a relationship between site-based management and student achievement. (However, she found patterns of directionality in her study of middle schools. In schools where students were achieving, there was a significantly higher level of shared decision making and less central control.) Most prevalent in the literature are reports of what was learned when implementing site-based decision making at district and campus levels.

In a four year longitudinal study of two Minnesota school districts, Jenni (1991) concluded that issues of power tend to interfere with a school's goal of site-based decision making. Further, whatever their position, individuals in schools tend to resist change. Third, the "activities of site councils tend to be observational and discussional rather than advisory and decisional" (p. 137).

In a study of five school systems across the nation (and documentaries of additional communities), Hill and Bonan (1991) draw conclusions focused on the relationships between the school, district system, and parents. These authors concluded that

- site-based decision making is a reform of the whole school system even though it focuses on individual schools;
- change at the school level will

result if site-based decision making is the school system's basic strategy for reform, rather than one of several projects for reform;

- site-managed schools that have their own unique attributes and operations are likely to develop over time;
- the balanced relationship of the district system and individual schools that represent variety, not uniformity, will require new thinking about accountability; and
- parental choice, where parents are free "to move among schools," is the ultimate means of accountability for site-managed schools.

In a study of 14 schools in Oregon (whose leadership teams controlled resources of \$1,000.00 per teacher for the projects), Conley (1991) reports changes in the behaviors of principals and teachers. Principals in the schools were acting as developers and facilitators, rather than as "bosses." They helped in creating a common vision, or clear sense of purpose, by using a wide array of data. They allocated resources (space, scheduling, personnel) to achieve the vision. They broadened decision-making structures through development of ad hoc committees and task forces. They supported teachers in becoming decision makers through helping them "navigate the sometimes treacherous shoals of the district bureaucracy" (p. 41) and providing information to the total school community about the internal functions of the school (fiscal allocation, available resources, class loads/staffing, etc.).

Teacher changes occurred in new roles, skills, perceptions, and relationships with their peers. Teachers developed a greater sense

One of the dilemmas many schools have faced in their school improvement efforts is lack of sufficient decision-making authority to bring about their desired plans for increasing student gains.

of efficacy and control, as well as the ability to influence their work environment. They began experiencing more participation and satisfaction; their increased energy, they thought, appeared to impact their instructional practices and teacher-student interactions.

Lessons from these authors and others, most clearly articulated by Jenni (1991, p. 149-150), include the following: Teachers are reluctant to take on new role definitions as decision makers, as they see their primary role in the classroom and the principal as decision maker. Training and retraining are essential but often are nonexistent in site-based decision-making programs. Accountability and decision-making responsibilities are vague, with the principal rather than the school team assuming the ultimate responsibility; if responsibility for decisions rests outside the purview of the decision-making group, what real function does the group serve? Clear purpose and direction must be established for site councils, or school teams, with decision-making parameters clearly delineated; council control of resources also helps.

Preparing for Implementation

In order for a school district to be successful in implementing site-based decision making, the various constituencies involved in decision making must operate synergistically. Each campus should be part of a vision of decentralization whose purpose is improvement. However, uniqueness needs to be maintained. The campuses should not all be alike nor think alike; but, each should be part of an overall effort that "thinks together." The fundamental vehicle for developing a synergistic school district is planning.

How does the district office

provide guidance and support?

Initial planning is done at the district level, possibly by a team representing the schools and all constituencies, whereby goals and priorities are articulated for the entire system. These goals form the parameters within which the schools will function so that there is, in fact, a system of schools. Further, the boundaries within which schools will operate are established through district policy development and through the clearly defined and communicated limitations of budgets and program and personnel options. It is neither reasonable nor fair to deliver a decision-making apparatus to schools without accompanying guidelines that inform schools about the amount of flexibility they will be able to have. Campus decision making presents opportunities to develop individualization and uniqueness, yet it also represents the opportunity to proceed toward accomplishing goals common to the campus and to the district.

In addition, there must be a district vision and commitment to shared decision making and planning. Adequate time is a necessity; shared decision making cannot occur if there is insufficient time for meeting. The district can demonstrate its commitment through the provision of time presented to the schools in optional scheduling formats from which they select the most useful.

The district should also provide the resources for training in communication skills, team building, use of decision-making models, conflict management, and understanding of the change process. Some level of technical assistance should be available in order for school staff to receive feedback and suggestions, plus opportunities for improving their

decision-making and planning skills.

Central office staff must also model shared decision making. It requires very little time for central office staff members and other instructional leaders to develop rhetoric related to site-based decision making. However, support for the process will erode quickly if leadership advocates shared decision making, but continues to formulate and demonstrate administrative procedures that ultimately inhibit the process. In school districts where site-based decision making is successful, central office staff members assume the role of facilitators. Their new role and behavior patterns exhibit a helping attitude, responding to the decisions and declared needs of the schools.

If central office staff members are to be able to respond appropriately to site-based decision making, they will need to understand change. Site-based decision making is a change of Cuban's "second order" mentioned above -- and is very complex. First and foremost, there must be a clear understanding of what site-based decision making is, acts like, looks like. A clear conceptualization of how it will work, with its boundaries and privileges, is highly important. This image of site-based decision making should be consistently held by all persons across the district -- at central office, campus, and community levels. Consistency will reduce unnecessary frustrations based on misunderstanding or lack of information.

Another important facet of change is that the individual must be considered at all times. The uniqueness of people and their circumstances cannot be overlooked; this idea resonates with the new expectation that schools will become increasingly unique.

How is collegiality developed at the campus?

Site-based decision making will be more successful on a campus where the principal, teachers, and staff members function as a team. Conversely, decision making will be minimal if the group is unable to work in harmony toward achieving the goals they identify. It should be noted that research suggests that schools' instructional processes occur more effectively as a collegial effort (Little, 1981). Various factors can support the collegiality and the viability of educational decision making on a campus. These include knowledge, understanding, and skills needed for the shared decision-making process.

As already cited, the district makes resources available for supporting the campus staff to function as a team and for developing new skills that contribute to collegial site-based decisions. Another factor is a school's organizational culture, which is characterized as, or in the process of becoming: open, accepting, trusting, and risk taking. Patience and perseverance demonstrated by the staff in developing their approach to decision making are equally supporting. Resources for time and training may be allocated; central office staff can contribute help and assistance; a pleasant, respectful and caring atmosphere may develop at the school site -- and substantive, student-related decision making may never occur if the cultural values and norms are not student-directed.

Maintaining the Focus on Learners

This paper suggests that learner outcomes and site-based decision making can be linked. The site-based decision-making process

should be thoughtful, purposeful, and well planned. The purpose to be served is increased program quality and equity in the schools; thus, the results should be enhanced outcomes of success for all students. The concluding section of this paper makes a final argument for the tight coupling of site-based decision making, student learning outcomes, and effective leadership.

The literature is mixed in its reports of the motivations for implementing site-based decision making in schools. Some schools adopted the strategy as a pro forma response to increasing external demands for change; others adopted it because it seemed to be "a good thing." It would appear in many cases that site-based decision making was introduced as an end in itself. In others, it served as a schema to professionalize the work environment for teachers, as a way to involve parents in the life of the school, or as a way to "democratize" the school organization. While these latter purposes are worthy, site-based decision making should be explicitly considered as a means to increased learner outcomes. Therefore, the initial emphasis should be on school and classroom improvement, followed by a focus on site-based decision making as a way to strengthen and support the school improvement initiative. This "works" in the following scenario that was developed in a collaborative effort by nine of the ten U. S. regional laboratories funded by OERI (Office of Educational Research and Improvement), and reported by Corbett and Blum (1992).

A district and its schools are mobilized to examine broadly their goals and the end product or outcome of their educational system. Organizing campus improvement committees, the district and school

leaders guide a process for describing what students will be able to do and for identifying student attributes. Having articulated the end result, the school committee (representative of the school community) focuses on instruction and the teaching/learning conditions needed for successfully realizing the student outcomes desired. In turn, new structures (i.e., decentralizing governance or decision making to the school) are designed and instituted to support the school in addressing the vital processes of teaching and learning and in more effectively making the changes deemed necessary for success with all students.

Those schools that have been engaged in an effective school/school improvement process have a head start in several ways. They have focused on developing a team that represents the school community and shares in decision making (although it typically has lacked broad authority). The team is an existing structure for instituting site-based decision making. Second, the effective schools process focuses on examining a wide array of data that are aggregated and disaggregated as input for making decisions. A third focus is on implementing the effective school characteristics. These characteristics include focus on instruction, instructional leadership, monitoring and measuring of progress, high expectations for all learners, and a school climate conducive to learning -- each one important to site-based decision making where the priority attention is on teaching and learning.

One of the dilemmas many schools have faced in their school improvement efforts is lack of sufficient decision-making authority to bring about their desired plans for increasing student gains. Site-based

decision making, accompanied by appropriate accountability, autonomy, and authority distributed from the district level, allows schools more flexibility to meet the unique needs of their students. Because of the increasing diversity of students, many of whom are at risk of not succeeding, schools will need to be less uniform in programs and instructional strategies and less conforming to a singular pattern.

It appears that the effects of site-based decision making on student outcomes have not yet been proven. However, in an environment of decentralization, school leaders have new opportunities to guide their school communities in collegial decision making that addresses more efficiently the vital processes of teaching and learning for all students. As the school community and its leadership study and reflect on the school's goals and the needs of all its students, especially those at risk, their collective wisdom and shared decisions have the possibility to strengthen the selection of strategies that hold the highest potential for student success.

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Some Thoughts on Teaching Social Skills

Maureen Ng

The great educator Rousseau wrote that the end that one should set before oneself in the education of a young man is to "form his *heart*, his *judgement* and his *mind*" in that order. This echoes what was written by Locke :

'Tis virtue, then direct virtue, which is the hard and valuable part to be aimed at in education.

With the explosion of knowledge, teachers have been pressed to provide academic instruction focusing on the *hard* disciplines. According to Rusk (p 3), knowledge is the new power defining man's superiority over fellow citizens. This has led to the crowding out of, and to some extent prejudice against, the *softer* goals of developing persons who are morally and ethically upright, compassionate, fair and genteel.

The task of educating has become such a complex endeavour today that teachers, hence schools, appear to have lost their social and moral focus. I do not mean to say that schools do not recognise its importance. Rather, the historical emphasis on the moral and social training role of teachers has been surpassed by the greater demands of intellectual rigour and new technologies.

Nonetheless, social training is too important to ignore. There is no doubt that social competence - a person's ability to deal with other people - is an important life-skill. And, this skill has to be acquired through instruction and practice.

What is meant by teaching social skills?

Social skills can be defined broadly as the skills required to deal with people. They include skills in

"communication", "leadership", the ability to engage in "fruitful controversy" and "manage conflicts" (Johnson, 1990).

Social skills training is needed because people do not develop critically important social abilities naturally. The concept of teaching social skills is based on the assumption that learning these skills will reduce the occurrence of adjustment problems arising from lack of social abilities (Jackson & Jackson, 1983).

Current work in this area supports systematic training approaches which equip people with knowledge and mastery of individual skills. Such programmes take the position that the teacher should *tell* the students what to do in situations identified as problematic, *show* the student how to do it and have the student *practise* the new skill and use it in real life.

Social skills training usually

adopts the following approach :

1. break down behaviours into learnable components
2. instruction of the behaviours
3. management of the child's social behaviour.

Teaching social skills through cooperative learning

The nurturing of social skills cannot be left to the school's hidden curriculum. But, we do not want yet another addendum to an overcrowded curriculum.

One approach that can present good opportunities for teaching and learning social skills is cooperative learning. Cooperative groupwork brings out the need for social interaction. Whatever its form, cooperative groupwork engenders interaction. The interaction which occurs should be lively and positive.

However, the research evidence shows that merely putting people in groups and telling them to cooperate will not automatically lead to positive interaction or effective teamwork. In Kagan's (1992) observations, students may not *want* to work together or they may not *know* how to work together, causing cooperative groupwork to fail. In short, some students lack the prerequisite social skills for effective group interaction.

The content of social skills training

There is no social skills curriculum as such. Cooperative groupwork provides opportunities for teachers to observe the types of social skill problems among the students. This provides the base for deciding which social skills need to be taught. The social skills that are needed can then be drawn out for discussion and practice (see Table 1).

Teachers of primary children should best start with simple skills such as "speaking in soft tones", "using each other's names" and "taking turns". Secondary school teachers may work at more complex skills such as "expressing disagreement nicely" and "resolving conflicts".

Using the T-chart strategy

The T-chart strategy has been developed to help teachers analyse specific social skills with their students. It entails 2 aspects - defining the skill in terms of verbal cues and defining it in terms of nonverbal language.

For instance, if the skill *giving compliments* is chosen, the teacher asks the students : "What does giving compliments sound like?" "What does it look like?". Three T-charts shown on the next page were developed jointly by a local school teacher and her Primary 5 students.

Once the T-chart has been drawn up, it can be displayed and students reminded to practise those behaviours during their groupwork activities throughout the week. Such

T-charts help both teacher and students to define an array of social skills. The social behaviours are likely to overlap, and this should not present a problem as it serves to encourage reinforcement and further practice.

Practising the skills

Roles or duties assigned to individuals to encourage practise of specific social skills. A pupil who is assigned the role of "encourager" is made responsible for a period of time for encouraging the shy or reluctant members of his/her group using words like "Let's listen to Peter". Specific roles associated with several social skills have been identified (Kagan, 1992) (see Table 2).

The conditions for teaching social skills

For children to learn social skills:

1. a cooperative context must be created. It has to be a classroom in which groupwork and interaction is encouraged.

Table 1 - Social Skills to be Learned

<i>Social skill problems</i>	<i>Social skills to be learned</i>
Students :	
- use put-downs	Positive talk
- talking all at once	Taking turns
- not offering help to one another	Helping skills
- not asking for help	Questioning skills
- not listening to one another	Listening skills
- not expressing appreciation	Giving compliments
- not respecting opinions of others	Disagreeing nicely
One student :	
- does all the talking	Taking turns
- does not participate	Encouraging participation
- is too bossy	Taking turns
- is hostile to others	Resolving conflicts

T-Chart 1 : Giving Compliments

<u>Sounds like</u>	<u>Looks like</u>
1. Smart girl	1. Thumbs up
2. Clever!	2. Pat on the back
3. Excellent	3. Big smile
4. Good work	4. Thump on the back
5. Keep it up	5. Clap
6. Fantastic	6. High five
7. That's very good	7. Give a Cheer
8. Great	8. Pat on the head
9. Marvellous	9. Shake hands
10. Good for you	
11. Right on	

T-Chart 2 : Giving Encouragement

<u>Sounds like</u>	<u>Looks like</u>
1. Try again	1. Pat on the shoulder
2. Good try	2. Give a nod
3. Try harder	3. Give a smile
4. Don't be upset	4. A pat on the back
5. You'll do better next time	5. A pat on the head
6. Don't worry about that	
7. At least you tried your best	
8. Nobody is perfect	
9. Don't lose heart	
10. It's okay, we can try again	
11. Give it a go	
12. Just keep trying	

T-Chart 3 : Resolving Conflicts

<u>Sounds like</u>	<u>Looks like</u>
1. Stay cool	1. Time out
2. Let's share	2. Peace sign
3. I'm sure we can solve it	3. Shake hands
4. Let's settle this	4. Hug
5. Let's stop this	5. A raised hand
6. Let's not fight	(to signify quiet)
7. Let's take a vote	
8. Take it easy	
9. Sorry	
10. Okay, it was my fault	
11. Let's control our tempers	
12. Let's cooperate	

Table 2

<u>Social skills</u>	<u>Corresponding Social Roles</u>
1. Giving encouragement	Encourager
2. Giving compliments	Praiser
3. Equalizing participation	Gatekeeper
4. Giving help	Helper
5. Asking for help	Question Commander
6. Checking for understanding	Checker
7. Energizing the group	Cheerleader

The following roles pertain to maintaining orderly groupwork:

1. Keeping on task	Taskmaster
2. Recording ideas	Recorder
3. Not disturbing others	Quiet Captain
4. Distributing material	Materials Monitor

2. the social skills must be carefully identified and taught directly.

3. they should be encouraged to practise the skills in and out of class.

Practising social skills should be a regular feature of groupwork. A social skill is selected for practice each week, so that the students will be able to use it sufficiently to internalize the behaviour to the extent that it becomes part of their natural behaviour.

A strong motivator for students to learn and use the social skills is recognition and reward. If the students receive praise and can earn points for their team by using social skills, they will surely try to engage in them.

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Meeting the Challenge of Explanation

Phyllis G. L. Chew

The promotion of language use and communicative competence is the predominant focus of the primary and secondary syllabuses in Singapore. Current textbooks by the Curriculum Development Institute of Singapore advocate key concepts inherent in communicative methodology, such as, thematic, communicative, integrated, learner-centered, contextualization, interaction and multi-media. (See for example, *New Clue* for the Secondary Schools and the *Pets* coursebooks for the Primary Schools)

There is nothing wrong with the word *communicative* except that it appears to make language learning seem so easy. There is an assumption that conversations are happy and felicitous without potential conflicts of interest, even though such misunderstandings are commonplace in the outside world.

There is an emphasis on the smoothness and untrammelledness of the process of language use. Little effort is made to highlight the relationship of language to constructs such as race, gender and power.

It is time for educators to adopt an explanatory perspective in addition to the main tenets of the communicative syllabus. Language education should begin to highlight how language is involved in the arena of conflicting values, ideologies and beliefs, and be involved in the demystification of hidden presuppositions and world views against which meanings are co-constructed by participants.

Explanation, Interpretation and Description.

The term *explanation* was originally associated with the Lancaster group of linguists

focussing on unequal discourse (Candlin 1987, 1990). Influenced by the prominence given to language in recent social theory - most notably the work of Foucault and Habermas - as well as the work of Halliday coming out of grammar, and the critical linguistics of Fowler et al. (1979) emerging from literary stylistics, semiotics and language education, the Lancaster group responded to what they perceived as a neglect of questions of power and status in the current state of discourse analysis (cf Thomas, 1989, Fairclough, 1992a, 1992b).

Explanation is better understood in the context of two other terms, *interpretation* and *description*, and which altogether gives us a wider and more complete perspective on language learning. Interpretation is concerned with a pragmatic array of functions, strategies of communication and actual spoken text. It examines discourse as the

skilled accomplishment of participants in the service of some social goal and gives importance to contextual variables like who the interactants are, their relative statuses, the topics being talked about, etc. all of which determine the appropriate forms of language to use. Description, on the other hand, is concerned with the formal study of text, the decoding of form or surface features and analyst-constructed sentence. The boundaries between description and interpretation are however more apparent than real because a descriptive account of social practices cannot be attempted without some form of interpretation (and vice versa). For example, no teacher merely produces just mere description of language items but picks out socially significant patterns and this implies interpretation.

Explanation means going beyond description and interpretation to the exploration of how ways of talking are actually powerful indicators of sectional interests, beliefs, values, and how the use of language is determined by the unstated values and interests of the social situation or generic form. Here, the context of situation moves far beyond the immediate situation of spatial and temporal categories (e.g. setting, participants, mode, etc.) concerned with Interpretation. It views language in society as "owned" and "operated" by socio-culturally defined groups of people. These people are accepted as "members" of the language they possess, using it to play various "roles" and give various "performances" with it. Learning to explain means learning ways of talking, acting, interacting, valuing and believing, as well as indicate the spaces and material "props" each institution or generic form uses to carry out its social

practices.

Language Education in Singapore

In the '50's and '60's in Singapore, language teaching and learning were basically descriptive and knowledge-seeking. Text was viewed as object and language education was synonymous with the learning of surface features of language. English was taught as a content subject aimed at providing students with a reading knowledge of English through the study of English grammar, where facts had to be analyzed and paraphrasing sentences were arduously imposed (Chua, 1990). The methodological approach adopted was basically that of grammar translation.

The preoccupation with description continued with the adoption of the structural method in the mid-sixties. Whatever changes which resulted from the influence of behaviorist psychology and structural linguistics in the sixties were superficial since grammatical categories were now defined in terms of distribution rather than meaning (Lee, 1983). The audio-lingual approach, then the favored approach, stressed the presentation of language materials in a particular sequence and resulted in the formulation of pattern practice and grading now so firmly established in the English classroom in Singapore.

This was the general practice until the 1982 (Ministry of Education, 1982) secondary English Language Syllabus introduced what Ho (1994) described as the "rationalist" phase of language teaching. Emphasis was now explicitly placed on planning and stated objectives rather than the content to be mastered (Mok, 1987). However, this syllabus continued to remain essentially descriptive,

concerned mainly with usage rather than use. For example, while the grammar component was, in principle, only one of the features proposed in the syllabus, actual implementation in the textbooks gave it prominence. Each grammatical structure was, for example, represented as a separate exercise in the initial Language Use section of each unit in the CLUE textbook (CDIS, 1983).

By the mid-80's however, language teaching had begun to look towards interpretation, towards an emphasis on use rather than usage, and towards the actual strategies that people use to communicate. The 1984 RELC Seminar, for instance, was devoted entirely to communicative language teaching (cf Tickoo, 1987). It attracted papers on the application and adaptation of communicative language teaching in different indigenous contexts within the region. During this time, the Institute of Education language department also began to introduce communicative methodology to their trainee teachers. Discourse began to be viewed as the skilled accomplishment of participants in the service of some social goal and the importance of socio-cultural knowledge, such as spatial and temporal constraints, as part of context began to be recognized.

Such ideas were officially given sanction with the issue of the 1991 primary and secondary school syllabuses by the Ministry of Education, in a move viewed by many as a "paradigm shift" (Lim 1995). Implementation of the new secondary syllabus, began in January 1992, with full implementation in all secondary schools expected by 1995. The syllabus is, however, only one of a series of policy statements regarding language education needs in

Singapore. In addition to the English Language Syllabus (1991, the English Department Handbook (1988) and the textbooks themselves are the clearest articulations of a revised educational policy.

Pre-selection and sequences of structural items to be learnt, as in the traditional syllabus was drastically minimized. Language was now widely regarded as learnt social behaviour and a vehicle for communication. Sociolinguistic competence was recognized as essential and defined as the ability to understand and take into account the social context, in which communication took place (CDIS, 1991b).

Towards Explanation

Essentially centered on interpretation, the 1991 syllabus placed emphasis on the importance of context in the teaching and the use (rather than knowledge) of language. Its concept of context was based upon a positivist postulation of an idealized version of the sociolinguistic order as a stable and balanced synchronic state which existed "as a matter of observable fact." Context was more often than not the immediate context and patterns of appropriacy simply "there" to be learnt. There were no attempts to challenge the illusion of naturalness. Neither was the ideological shaping of language taken into account. Recognition of the differential social valuations of varieties and reference to the relation of power which lay "behind" language was not a consideration.

There is then a need to go beyond the interpretive to the explanatory, to go beyond what is said and meant, so as to infer and explore the social conditions which govern particular performances and interpretations. There is a need to see transparent ways of talking as powerful

indicators of social views and group values. Discoursal features and pragmatic markers characteristic of particular types of counters should be seen not just in terms of "correctness" or "appropriacy" but reflective and reproductive of social relationships between participants, and importantly between groups.

A Framework for the Classroom

An explanatory section could be added to the six language components in, for example, the Singapore secondary textbook *New Clue* (CDIS, 1993); and which would contain materials pertinent only to the objectives of explanation. The six sections are Getting Started, Reading, Language Use, Building Vocabulary, Listening and Writing, all of which provide varied and interesting communicative tasks for the students.

Basically interpretive in design, *New Clue* provide opportunities for students to inter act and to acquire communicative competence through an integrated sequence of activities around a topic of interest. There are opportunities to learn how to speak in certain situation, that is, "learning to develop the capacity to activate the potentials of language, action and meaning with regard to the context" (Ministry of Education, 1988). Opportunities abound for student to interact with one another, to attempt tasks jointly and to produce an outcome which would be shared with the class.

Materials in the suggested explanatory component would however equip students for the apparent and hidden realities of communication in the real world. Materials here might focus on how the talk of significant texts whose nature is immediately recognizable to the learners and whose messages are of striking and immediate personal relevance, such as

educational, medical and legal discourse, affects one's life chances. A study could be made on the specialized vocabulary and syntax of such texts which, while appearing conventional and "normal", actually serves to increase the distance between speaker and listener or writer and reader (cf Chew, 1994). An attempt could also be made to increase awareness of the exercise of power by some groups over others as they are revealed in speech and writing (for example, the use of the inclusive "we"). Such materials would greatly contribute towards educating students to understand the odds, to make their own informed decisions about their language practice in the light of an understanding of individual and collective benefits and costs.

The following are descriptions of some lessons representative of an explanatory perspective:

Oral Work: Role Play

Role plays in communicative teaching textbooks are often based on the establishment of a situation or series of situations (for example, bus stop, encounters in the workplace, shop, etc.) and structured exchanges and improvised exchanges based on the basis of assigned roles. Their central aim is frequently for students to explore language in use, to gain experience and to try out different linguistic situations. However, since there is usually no analysis, issues of context and identity are not addressed and therefore there cannot be any sense of significance for the students.

An explanatory lesson would begin by, for example, asking students to draw up their own role play situations and defining the following:

- the participants in the role play
- the social identity of the different

- participants and their roles
- the kind of language they speak and what special features it is characterized by
- the topic, or topics of the role-play situation
- the perspective or perspectives taken by each participant
- the institutional context or contexts, that has a bearing on the role

One preliminary activity for this exercise is to ask students to examine three role-play situations so that they would be able to see the differences in the forms of encounter. It would be better if they could find examples in real contexts and draw some conclusions from them. This would help them when they construct their own role-play situations. Such comparing and contrasting of different contexts of role play would enable students to discern the genre characteristics of each type of discourse so that they could better anticipate and explain potential areas of conflict especially where sectional interest and power relationships are salient issues of life.

In this way, a new kind of emphasis on knowledge and research -- both largely absent from the practices of description and interpretation -- would emerge. Knowledge about how language works in specific social situations could be usefully communicated, and students could be given the means to conduct their own research projects into matters like linguistic role play.

Vocabulary: Building Awareness

Where the teaching of vocabulary is concerned, an explanatory lesson would be concerned not so much with the description of forms of grammar and vocabulary per se or of the ways and

means of text interpretation, but rather with how their use reflects and expresses social differences or inequalities between participants in an interaction. The basic focus here is the discarding of the idea that the "vocabulary" of a language is some sort of neutral label which comes from nowhere in particular and belongs to everyone independent of class, gender and race (Chew, 1992).

The following is an exercise aimed at sharpening students' awareness of vocabulary. Students are first asked to work in a small group to agree on an order of importance or an order of interest of the following:

abortion, drugs, peace, euthanasia, capital punishment, nuclear weapons, etc.

Once this has been done, they would then proceed to discuss questions such as:

- What are the main aspects of the issue?
- What different opinions/opposition are there in relation to this issue?
- How do different kinds and different groups of people regard this issue?

While a communicative approach would have stopped at this point or continued with a follow-up activity such as an expository writing assignment based on this discussion, a concern with explanation would mean going a step further. It would mean, for instance, asking students to consider carefully the kind of language used to express different positions taken up by people in relation to the issue they are dealing with. (This can be done as a speech, dialogue, as writing work or assignment). This

further step would reveal ideologies and beliefs which are associated with lexical items.

Reading: Genre Identification

The task of any successful speaker or writer is first and foremost to understand the demands of generic form (Elliot and McGregor, 1989). As structured or staged ways of getting things done by means of language in a particular culture, a knowledge of generic forms afford us the opportunity to narrow the range of possible interpretive frames a participant may find being employed in a given situation (Kendon, 1990).

A lesson on genre may begin by the examination of two or three texts. The procedure can involve the construction of a "structure box" (Peim, 1993) which would identify elements and the ways they tend to get organized. Such a box would offer the opportunity to look at general features of the genre, or discourse, of selected texts. Inside the structure box may go in elements such as identities, places, events, time, and so on.

Structure Box

including, for example:
 identities
 events
 beginnings
 endings
 time
 places
 objects

The extent that these elements themselves produce certain kinds of meanings can be examined by looking at the possibilities that the genre may offer for redefined meanings. In this way, the creation and the reading of meaning may be understood as at least partly as a property of genres. Since genre

codes the effect on social changes of social struggle and present themselves as uncontentious, if not natural forms, such an activity would aid students to explore how naturalized ways of talking are actually powerful indicators of sectional interests, beliefs and values or how the use of language is determined by the unstated values and interests of each generic situation.

A further explanatory activity is to examine whether the reader and/or the author is inside or outside the structure box, thus prompting questions about the very identity of the text.

Writing: "Think Book"

Besides just emphasizing the process of writing as in the current syllabus, there would be a stress on procedures for making the writing process transparent. One technique suggested is to encourage children to keep a "think book", in which they jot down their thoughts, feelings and reasons for choices made in words or grammatical structures of language, etc. Besides enabling learners to share thoughts and experiences, such a book would encourage them to reflect critically on their individual perceptions in relation to whom they are writing for and what context they are writing in. In this way, a critical sense of readership may be cultivated. In writing an event, learners may decide to provide different versions for different audiences, and this in turn might affect language choice, and decisions about what to include or exclude. Through discussion, the teacher can help learners see how a change in wording or in the structure of a sentence or in the order of a paragraph might change the whole perception entirely.

Enrichment: Advertisements

Language materials in this section would focus on the use of "persuasion" by the mass media. In advertising, for instance, language is often used to manipulate not just ideas but the emotions of the reader or listener. Because the media is the dominant socialization influence today, language teaching should begin to focus upon developing the critical and analytical capacities of children and their ability to creatively transform and challenge the conventions of discourses and practices.

The study of advertisements (similarly, of television programmes, soap operas, popular music, stories and cartoons) would be a good way to study how the media attempts to persuade people directly and indirectly. While a communicative task might involve students in the writing of advertisements or the answering of questions on advertisements, a concern with explanation would require students to, for example, uncover the ideology inherent in advertisements through the following questions:

- who is the advertiser?
- what is the explicit purpose of the advertisement?
- what kind of person or company is the advertisement advertising?
- how does the advertiser relate it to the audience's self interest?
- what common interests does the advertiser claim that he share?
- does the advertisement call into play a widely accepted value or belief?
- what language does the advertiser use to suggest harmony
- how abstract are the words? Why? Why not?

In this way, it is possible to highlight once again how language

is involved in the arena of ideologies and beliefs. It is a tangible step towards the demystification of hidden presuppositions and world views against which meanings are co-constructed by participants.

Conclusion: the Challenge of explanation

Explanatory procedures are needed in the classroom as a means to engage participants in explaining things, connecting events and placing these events and objects in the context of patterns, structures and causes.

It should be noted that explanation does not supplant but actually augment the main features of the 1991 syllabus by introducing an additional dimension to language teaching and learning. Flexibility is maintained since it is not so much a syllabus for classroom action for immediate transmission, but rather a principle, a curriculum framework for debate which will properly allow for a range of different tactical realizations by teachers in their distinctive classroom settings.

Teaching strategies continue as essentially task-based and student centered. The teaching of the four skills remain integrated through a thematic emphasis (CDIS, 1991a, 1991b). Teachers continue to relate English lessons to a wide range of "real life experiences through a specific social problem, for example, drugs, sharing of fears, story telling." (Ministry of Education, 1988: 1-1). The teacher remains in a much fuller sense of the term, "a facilitator of learning, an advisor, a classroom manager and one who provides psychological support for language learning in the classroom rather than as a dispenser of knowledge" (Ibid.: 12).

If we wish to educate students in language and not just train them, we must begin to consider the

incorporation of the explanatory aspect of language teaching into the syllabus. Only when learners understand the reproductive and ideological capacities that lie behind the choice of the "appropriate" language, can they become empowered, both personally and socially. Only in this way can one realistically fulfill what is stated as the "official function of the schools", which is:

to develop our pupils to their greatest potential and to prepare them for all aspects of adult life ... the English curriculum should help pupils to develop their linguistic and communicative competence to meet both their present and future needs in the personal, educational, vocational, social and cultural spheres.

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Explaining Explanations

A conversation with NRCSL senior scientist
Gaea Leinhardt by Kathleen McCarthy
Young

Explanations abound in the classroom. Teachers explain things to students, students explain things to teachers and to other students, and teachers and students work together to clarify explanations offered in textbooks. For the past five years, NRCSL senior scientist Gaea Leinhardt has been studying the nature and function of instructional explanations in math, history, geography, and writing classrooms. She's interested in what classroom explanations do, how they work, and why they succeed or fail. NRCSL research assistant Kathleen McCarthy Young recently spoke with Leinhardt about her work.

Why did you choose to study explanations?

Explanation is central to both instruction and learning. One of a teacher's primary goals is to help

students understand the concepts, procedures, and principles of the subject they are studying. To accomplish this goal, teachers develop instructional explanations that invite and challenge students to think. As students learn to reason about a topic, they explain aspects of it to their teacher, themselves, or their classmates. The explanations that students construct as they talk, act, or write are evidence of the nature and extent of their thinking and understanding. Likewise, the explanations that teachers construct reveal what they themselves understand and value about the topic. So explanations are important both for what they do and for what they reveal about how teachers and students reason. Teachers explain in order to teach, and students explain in order to learn. If teaching and learning are going to be successful, then the activities students engage in should

swirl around a well-constructed and well-orchestrated sense of explanation.

How do you go about your work?

Some researchers who study the nature of teaching and learning think about broad theoretical issues and ask themselves, "If theory X is correct, what would it look like in the real world?" Then they conduct controlled experiments in learning labs or classroom interventions. They gather data that supports their theory, forces them to change their theory, or sends them looking for still more data. I work a bit differently. I've learned about instructional explanation by identifying and analyzing a set of practices I've seen in classrooms.

In studying the nature of teaching and learning, I link up with expert teachers and focus on particular

aspects of their practice and critical units of instruction. I don't tell the teachers what to do, or ask them to tell me what they do. Rather, I watch them carefully -- first to understand how their classrooms work, then to see how they teach critical topics in their curriculum. Together we choose a topic that is particularly rich, traditionally troublesome, or comes at an important juncture in the subject -- for example, subtraction with regrouping in first-grade math, or the concept of scale in middle school geography. I videotape all classes, interview the teacher and students before and after units and lessons, and collect all teaching materials and student work.

Then I systematically document, analyze, and interpret all this information. Throughout the work I ask myself questions such as, What prompts an explanation? How do teachers nurture student explanations? What factors shape or constrain an explanation?

What do you mean by explanation? What is an instructional explanation?

An explanation is a response to a direct or implied question. We know many ways to ask and answer questions, and we sense that different situations prompt different kinds of inquiries that require different kinds of explanations. We ask for common explanations when we want or need to know something about our everyday experiences. We might ask how to operate an appliance, what the difference is between two insurance policies, or why the doctor prescribed a given medicine.

Mathematics, history, geography, and chemistry have their own particular forms of disciplinary explanations, with their own ways of posing questions and constructing answers. To understand a discipline

you need to understand what is a worthy question and what counts as a worthy explanation. In geometry, for example, you need to be able to explain why two triangles are similar by using a special set of re assertions and reasons called a proof. In geography, you need to be able to analyze landforms and climactic features to construct an explanation of why Europeans settled the East and West coasts of the United States before settling the Midwest.

Instructional explanations help students develop an understanding of the content, questions, and reasoning patterns of a particular subject. I've noticed that effective instructional explanations, whether given by teachers or in textbooks, usually do certain things. They respond to an explicit or implicit question about a concept or procedure; they identify the conditions under which that concept or procedure applies; they employ various explanatory devices, which I'll explain later; and they apply the principles of the given discipline.

Unfortunately, not all instructional explanations are effective. Too often, the underlying principles of a subject and the pairing of questions and answers are invisible in textbooks and in the practice of beginning teachers. Teachers may ask students key history questions without providing any models of how to use evidence to explain their answers. Or students may learn a mathematical formula or algorithm without understanding why it works. For example, a novice teacher might announce, "Today we will do equivalent fractions," then offer bits of teaching and practice but never present a question or problem to which equivalent fractions are the answer. And "doing" equivalent fractions does not explain why or when they might

Instructional explanations help students develop an understanding of the content, questions, and reasoning patterns of a particular subject.

Learning to Explain Scientifically

Antibiotic drugs can bring sick people back from the brink of death. But when a patient fails to complete a whole course of an antibiotic, the consequences can be devastating. An unfinished antibiotic regimen might leave the patient apparently healthy, yet the illness can mount a surprise comeback, and this time the same antibiotic that once worked wonders might now have little or no effect.

The principle of natural selection contains the explanation for this: The short course of antibiotics wipes out the weaker bacteria infecting the patient, but leaves the stronger bacteria to survive and multiply. This is "survival of the fittest," and it generates a hardier, more drug-resistant population of disease-causing bacteria.

The facts, theories, and principles of science enable people to explain puzzling phenomena. But knowing a scientific theory is not the same as being able to use it to understand an event or phenomenon, points out NRCSL senior scientist Stellan Ohlsson. "Strictly speaking, a theory does not explain anything," he says. "The person who is using the theory is the one doing the explaining."

Ohlsson believes it is vital for science education to help students understand and construct scientific explanations. And yet, he says, "Current science instruction does not teach the skill of articulating theories. As a result, students never experience firsthand the intellectual power of scientific theories, and therefore never acquire the motivation to learn those theories."

Why do giraffes have such long necks? Delving into questions like this can stimulate thinking and learning in students. Having students construct explanations can also highlight misconceptions

they might have. For example, a student may correctly reason that the long neck of the giraffe evolved in response to a shortage of food at ground level. But the student may also mistakenly infer that generations of giraffes gradually lengthened their necks by straining to reach high branches.

Ohlsson's work investigates whether students who are taught to construct their own scientific explanations learn better than students who are not given this kind of instruction. Student in test classroom receive instruction in evolutionary theory and read texts containing evolutionary explanations of the traits of animals, such as tigers, dinosaurs, and sharks. Then they construct their own evolutionary explanations.

Ohlsson sees scientific explanation both as a tool for learning and as a way to gauge student understanding. "The ability to explain is a result of successful learning, but attempting to explain is also a powerful learning experience," he says.

Ohlsson chose to study instruction surrounding the theory of evolution because it is complex and challenging subject that nevertheless requires no specialized scientific knowledge to understand. And many students, Ohlsson notes, emerge from school with an incorrect or incomplete grasp of Darwin's theory and how it is applied.

Ohlsson employs a divide-and-conquer approach to instruction in evolution, treating evolution not as a single, monolithic concept, but as a topic composed of smaller, simpler ideas. By middle school, students already understand many of the component concepts: selective survival, gradual change over time, and the passing of traits

from one generation to the next. The challenge for students is to combine these ideas with the new ones they will learn in class in order to construct their own accurate evolutionary explanations.

Ohlsson hopes to identify effective ways in which teachers can use students' existing knowledge both of Darwinian concepts and of the everyday world as a foundation on which they can construct a solid understanding of evolutionary theory. Ohlsson's long-term goal is to create a framework for learning through explanations than be applied to other areas of science instruction.

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be useful.

Who actually does the explaining in the classroom?

Instructional explanations can come from a textbook, a teacher, or a student. They can also be jointly constructed by a teacher and an entire class, by a teacher and one student, or by a group of students. Explanations can be presented formally in a traditional didactic style, or orchestrated as an activity-oriented whole-class discussion. Whatever their format, for explanations to be effective everybody must understand what question or problem is being addressed, what counts as an explanation or evidence, and how particular examples, analogies, or activities relate to one another and to the question.

In today's classrooms, where there is a push to involve students in constructing their own knowledge, teachers must be able to promote not only discussion but also understanding. The teachers I observed who did this well accepted multiple ideas but then asked their students to analyze those ideas. They encouraged students to challenge ideas that were unsupported, expand on ideas that were sketchy or understated, and link ideas that were equivalent. Whenever students critique, defend, justify, or elaborate their own or other students' ideas, they use principles and evidence to reason about key concepts or procedures. In doing so, they explain to themselves and to one another.

How would expert teachers explain equivalent fractions?

Expert teachers often begin by exploring why a mathematical concept is of value. They might address the nature of fractions

themselves, comparing their properties with those of whole numbers. For example, you could note that it seems natural to count in whole numbers (1,2,3,4) but odd to "count" in fractions. Would it be $1/4$, $2/4$, $3/4$, or $1/4$, $1/3$, $1/2$, or $1/4$, $3/8$, $2/4$? This would lead the class into questions about ordering fractions and questions about equivalence.

Or teachers might pose the historical problem of measurement and the use of equivalent fractions. For example, "If I am making a quilt and I need two yards of red cloth and three yards of blue cloth, it's plain to see that I would need a total of five yards of cloth. But what if I need $2\frac{2}{3}$ yards of red cloth and $3\frac{3}{4}$ yards of blue cloth? Then it's not as easy to tell how much cloth I would need altogether. If we actually had the cloth, we could lay it end to end and measure it. But if we only have numbers to work with, it is more difficult." Helping students recognize the problem, namely, that the fractional pieces are not addable in this form, motivates the explanation of how these numbers can be transformed into equivalent fractions. This kind of explorations of engaging problems and questions leads to effective explanations of concepts, procedures, and principles.

What else makes an instructional explanation effective?

As I mentioned earlier, in an effective instructional explanation the central driving question relates clearly and directly both to the discipline and to the child's experience and knowledge. In the example above, equivalent fractions matter. They are what we call authentic. They have meaning in mathematics, and they have meaning in the child's experiences with measurement. Effective

explanations also tend to make clear when or how you might use the procedure or concept being taught. And when teachers orchestrate effective explanations, all the activities and explanatory devices they use serve to clarify the content, not just to entertain or occupy the students.

How do teachers you develop their explanations?

Teachers use what I call explanatory devices to explain target ideas or actions. Three important ones are examples, analogies, and manipulatives. In effective explanations, teachers are careful to select or design examples that serve their needs. They may need easy start-up examples, or messy problematic examples. When expert teachers explain equivalent fractions, they pay attention both to the numbers they use (judging when and whether familiar unit fractions such as $1/3$ would help or hinder understanding) and to the units of measure (evaluating how features of yards of cloth or pieces of pie might cause confusion). For an example to be effective, it must both clarify the content and be easily understood by the students.

This is also true of analogies. When we talk about analogies, we keep track of the target (the thing to be explained) and the base (the thing the target is being compared with). Analogies work only if the students are familiar with the base, see how it is like the target, and can reason about the target using features of the base. In ineffective explanations, teachers may use analogies with misleading or confusing bases. Then students get lost in winding conversations about the base itself, losing sight of the target altogether or actually introducing misconceptions about the target.

The same principles apply for

manipulatives. Hands-on materials aren't magic. If they are too complicated—for instance, if students trying to understand subtraction with regrouping get lost in the struggle to understand how a system of colored sticks and rubber bands works—they may never understand the target information. Or if the materials are too distracting—if students think only about eating the M&M's instead of counting them and looking for patterns—they may interfere with the goals of learning. Manipulatives should facilitate explanation of the content. If they become the content, there is trouble. Manipulatives, examples, analogies, and other devices don't directly explain anything. Neither do hands-on activities or projects. Teachers and students do the explaining. They use these devices to pose and to answer interesting questions as they explain their ideas and actions to one another and to themselves.

How can you tell when to end an explanation, or gauge how well it worked?

Here I see great differences between novice and expert teachers. Novice teachers often confuse their own explanation of a concept with their students' comprehension of it. They think, "Well, I covered equivalent fractions, so it's done." Expert teachers build into their explanations ways of assessing student understanding. They carefully choose problems and questions for the thinking they will provoke, and they ask students to explain their thinking. Teachers end their explanation when they have evidence that students have understood the target concept, can explain it themselves, have command of key ideas, can generate alternative examples, or can pose related or extended questions.

How do you think other teachers might use what you have learned about the nature of instructional explanations?

Several years ago Bill Cooley, a colleague and a former director of the Learning Research and Development Center, developed the idea of tinkering and tailoring. It means simply that when we observe or analyze reasonably effective teaching practice, we should ask, "How could we tweak and snip and push existing practice to make it better, more effective?" I see the theories and ideas we have developed as tools that teachers might use to reflect upon, tinker with, and tailor their practice. Teachers might use our constructs as they design activities that answer compelling questions, as they reflect on what has made a particular analogy or manipulative work well or poorly, or as they evaluate how well their textbooks identify key questions, use salient examples, or demonstrate reasoned explanations.

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Learning to Experiment and Experimenting to Learn

Anne Louise Fay, Leona Schauble, and Robert Glaser

In a sixth-grade science unit on Weathering and Erosion, students receive four kinds of rocks, a container with water, and a weighing scale. Following written directions, they weigh a rock, record its mass, and then put the rock in the container with water and shake it 100 times. Then they remove the rock, weigh it once more, and record its mass again. For each of the four rocks, students perform this set of procedures after 200, 300, and 400 shakes. By the end of the experiment, they have made a chart showing the mass of each rock before any shakes and after each 100 shakes, both to deepen students' understanding of a given topic -- in this case, weathering and erosion -- and to demonstrate the active, investigative nature of scientific practice. Such exercises often fail, however, leaving teachers frustrated and students bewildered and bored. It is not enough to provide materials,

directions, and forms on which students can record the outcomes of their work. Students may arrive at "correct" results this way, but they will not understand why. Somehow, instruction must ignite curiosity and then nurture the forms of reasoning that can deeply satisfy it. In our research, we interviewed a group of sixth-graders after they had completed a year-long curriculum that included the rock-erosion experiment and others like it. We found that even though these students had gained an understanding of weathering and erosion, they had trouble grasping the point of the experiment: Only one-fourth of the students saw the connection between each rock's diminishing mass and the number of times it was shaken. Many students also failed to notice that the rate of erosion was different for each kind of rock, and they did not realize that shaking the rocks, and the resulting

loss of mass by the rocks, together represented the real-world effects of weather on erosion.

"Students have a hard time understanding the *why* of experimentation," commented a teacher in our project. "They do the activities, but it never connects for them that experimentation is a way to represent the information they are studying, and that it can be used to test the validity of an idea."

"Making meaning" through experimentation

Teachers' observations and researchers' findings are coming together in joint efforts across the country to make experimentation in the science classroom richer and more effective. These efforts focus on experimentation as a "meaning-making" activity -- a strategy for learning new things and for testing and revising ideas. In some

THE MARS CURRICULUM: STUDENT-DRIVEN INQUIRY

A key component of scientific reasoning is the use of models. Scientists construct, think with, and refine models that explain and/or predict scientific phenomena. A prototype curriculum developed at the Learning Research and Development Center combines classroom laboratory activities and a set of interactive computer programs to help middle-school students learn how to reason with models.

The Model-based Analysis and Reasoning in Science (MARS) curriculum was developed by NRCSL director Robert Glaser and award-winning software designer Kalyani Raghavan. It has been implemented by math and science teachers for approximately 120 sixth-grade students at a public school district in Western Pennsylvania. The semester-long MARS curriculum teaches students to use models to explain phenomena that involve the balance of forces as manifested, for example, in simple systems consisting of magnets, springs, or objects in a fluid.

Early MARS sessions introduce students to basic properties of objects, such as surface area, volume, mass, and density. Students reason about these properties with simple models in problem-solving projects, using familiar items such as tiles and cubes and computer representations of these objects. In later units, through hands-on experiments and computer activities, students are introduced to the concepts of force, net

force, and forces in fluids. Students learn to represent these concepts symbolically. During interactive computer sessions, students test their conceptions about force, mass, and equilibrium in different situations. For example, students are asked to predict which of a given set of objects will float or sink by designing a computer model of the forces involved. The computer responds with simulations of both the students' predictions and what would actually happen. This helps students reflect on any inconsistencies and revise their predictions accordingly. Principles learned in the course of the computer sessions are reinforced through further hands-on and problem-solving activities.

The MARS curriculum is structured so that basic conceptual models serve as foundations on which students learn to reason about successively more complex phenomena. Assessment exercises require students to integrate and apply the various concepts and employ the scientific models they have been working with, as in the following problem: If you drop a coin into a container of water, it will sink. If the same coin is placed inside a small vial and then dropped into the same container of water, it will float. Explain why.

MARS emphasizes student-driven inquiry and cooperative group activity. Participating teachers are enthusiastic about the project. "There is not one kid in my classroom who is not engaged in

learning, which is a major difference," says one. "My gut feeling as an experienced teacher is that the quality of learning far surpasses the quality of the learning that took place before. What they are doing now they definitely understand and will be able to apply to other problems in their lives." A student comments: "I really pay attention to these classes more than other classes of the year. That is a first."

Additional reading

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programs, students propose the topics for investigation and develop the procedures they will use. In one project, students designed a study to test their hypothesis that people preferred drinking from one particular fountain in their school. Once they confirmed this, they searched for an explanation by analyzing and comparing the quality of the water at all the fountains.

Our research shares the goals of programs like these. We explore opportunities for reasoning that exist in typical classrooms, and we focus on enhancing and expanding

these opportunities. Our researchers, together with a group of middle-school science teachers and researchers from SEPIA (a project for developing alternative assessments for science classrooms), designed a science curriculum unit called the Vessels Unit. The goal of this two- to three-week project was to help students develop an understanding of (1) the physical principles that underlie sinking and floating and (2) the goals and procedures of experimentation. The activities in the unit were motivated by a letter

from the "city" asking students to submit designs for a boat that could efficiently transport heavy materials. The students' proposals had to justify their design decisions and provide supporting evidence. Students in the Vessels Unit learned about flotation and carrying capacity by building experimental boats from aluminum foil. The students themselves decided which design features were important. Although they all used the same-size piece of aluminum foil, they had very different ideas about how to build their boats, which led to a

varied assortment of vessels with a wide range of carrying capacities. Students compared and discussed the performance of their boats. The teacher encouraged them both to generate new theories about which design features maximized carrying capacity and to design new boats to test these theories. Cycling through the process of generating, testing, and evaluating their ideas gave students an opportunity to learn and reason about scientific concepts through experimentation.

New roles for teachers and students

After the students completed the Vessels Unit, we interviewed them as we had interviewed students after the Weathering and Erosion activity. Although the Vessels Unit lasted only a few weeks, we found that students had learned to reason effectively about the principles of flotation and the properties of boats that affect carrying capacity. More importantly, they had a deeper understanding of the goals, logic, and nature of experimentation. The students saw how critical features of their experiments could yield information about design features that would influence the flotation of real boats. They were also able to design an effective experiment for testing a new feature's influence on carrying capacity. Other aspects of experimentation were more challenging for students; for example, finding patterns in their data and using these patterns to make inferences, or comparing and contrasting items of data to support conclusions.

The students' new role in the Vessels Unit led to changes in the teacher's role as well. Teachers had to learn to become coaches and facilitators, helping students when they got stuck and introducing and modeling new strategies when

needed. One teacher said, "The biggest challenge for me was to back off from acting as the center of the class activity and to become more of a helper. By doing this I was able to see much more of the interaction in the class and was able to help students while they were working." Teachers found it was difficult to maintain a careful balance between allowing students to construct their own meaning of procedures and guiding them toward a more sophisticated and scientific understanding. This is a challenge, because the balancing point changes. As students become more proficient in their inquiry, the teacher must transfer increasing control of the learning to them.

Potential pitfalls in an activity-based curriculum surfaced when students in the Vessels Unit became so absorbed in their boat building that they had to be prompted to think about why one boat performed better than another. Teachers can model the reflection process for the students by stopping them in their activity to ask why their boats hold more weight after a certain design change or why a certain design feature seems especially important for carrying capacity.

Projects like the Vessels Unit demonstrate that middle-school students are capable of designing their own experiments when they are given the opportunity to deeply explore questions that are meaningful to them. The success of such projects hinges on the opportunities they provide for reasoning and thinking. When teachers carefully monitor hands-on activities to take advantage of those opportunities, they can guide students to a deeper understanding. Experimentation in the middle school can be more than "recipe-following" exercises. It can be a truly effective approach to learning

about science as it is practiced by scientists.

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Developing Information Literacy: Advocates Promote Resource-Based Learning

Philip Cohen

Today's students are surrounded by more information coming from more sources than ever before. After graduation, they will change careers and job functions with increasing frequency and will thus be called upon constantly to learn new skills and solve unforeseen problems.

Schools cannot teach students all they will need to know, advocates of information literacy say. There is simply too much information, much of it too specialized. "A better way is to teach them to manage the information resources," says Susan Smith, principal of Summit Park Elementary School in Baltimore.

Although educators should still identify "the basic information we want students to graduate knowing," says Smith, schools must also "teach them how to find and use the information they haven't committed to memory."

The term "information literacy"

dates from the 1970s, but advocates have only recently begun to reach a consensus on what the concept means for schools and students. The National Forum on Information Literacy (NFIL), an umbrella group of more than 60 organizations, including ASCD, has adopted an outline of outcomes for information-literate students. These are students who can successfully complete a complex problem-solving process that requires them to define the need for information, determine a search strategy, locate the needed resources, assess and understand the information they find, interpret the information, communicate the information, and, finally, evaluate their conclusions in view of the original problem.

While these skills are not unique to an information society, the abundance of information and the pace of change in today's society

create a new sense of urgency for their development. Some states, including Colorado, are designing guidelines for integrating the goals of information literacy into their content standards. The new guidelines "provide all students with a process for learning that is transferable among all content areas and from the academic environment to real life," according to the document preamble.

Barbara Campbell, supervisor of information literacy and technology at Plainville (Conn.) Community Schools, says information literacy used to refer to developing skills specifically for the work place, but now "it has evolved to an educational agenda for our society." There are still questions, however. "Is information literacy a *separate* form of literacy, or is it a *new* literacy?" she asks. "I'm of the mind that it's the new literacy. What we're really talking about is the definition

of literacy itself changing over time."

Practical Methods

Advocates of information literacy promote resource-based learning as the methodological tool to realize it. Patricia Senn Breivik, coauthor of *Information Literacy: Educating Children for the 21st Century* and associate vice president for information resources at Towson State University in Maryland, calls resource-based learning "a down-to-earth, practical way of accomplishing the goals we've had in education for so long." These include making learning more authentic, encouraging interdisciplinary studies, developing more meaningful assessments, as well as accommodating learning styles and making inclusion more effective.

In this model, students are active learners (under the guidance of teacher coaches) charged with finding information and turning it into knowledge -- making their own meanings while integrating information from a variety of sources and media. "When you go toward information literacy, that requires getting students to use all the information resources that are available," Breivik says. And that process "lets students individualize the information they use." The challenge of becoming an "information detective" also "puts the excitement back into learning," she finds. In her research on *Information Literacy*, "fun" was a word that "came up time and time again," she says.

At first, resource-based learning may be unsettling for teachers, says Campbell, who has heard more than one teacher complain about not having control over what students are learning. Instead, she argues, teachers should see themselves as

"setting up the conditions for learning" and coaching students through it. At the same time, there is less guidance available for teachers. Resource-based learning cannot flow from the pages of detailed lesson plans. It's "so open-ended that there is almost a point beyond which you can't provide help" to teachers, Campbell says. "Resource-based learning is more about forming questions and about following the trail the questions take you down." By definition, then, the teacher cannot know the answers before the learning begins.

Kerri Cravens, who teaches at Lanphier High School in Springfield, Ill., says she has been frustrated by the lack of developed curriculum in this area, especially for high school students. So she has created her own units, including one in which students created a TV viewer's guide to the O. J. Simpson trial. "You can't imagine how wonderful it was to hear students complain when it was time to move on to another project," she says.

More curriculum may be on the way, with the introduction of guidelines such as those in Colorado, says Vicki Hancock, assistant director of ASCD's Education and Technology Resources Center and vice chair of the NFIL. The tools are in place, she believes, for "curriculum specialists and library media specialists together to develop powerful curriculums that include engaging content while at the same time developing the skills of information literacy."

New Roles

Resource-based learning puts new demands on library media resources -- and offers new opportunities for collaboration, says Campbell. Library media specialists face a new schoolwide role that

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"really allows them to assume the role of teacher," she says. Library media specialists act as "modeling staff developers and co-planners" in resource-based learning, she adds. Instead of merely providing materials, they now help develop curriculum and work more individually with students. Library media specialists bring useful experience to those tasks, Campbell says, as they often work with several students doing different projects simultaneously. With resource-based learning they can now "pass that experience on to teachers and help them assume the role of coaches and guides."

The Colorado guidelines suggest that library media specialists should not only hold an "overall view of the school curriculum," they should also use their resources to promote interdisciplinary learning and forge connections between school and community.

Kim Carter, Information Specialist at Souhegan High School in Amherst, N.H., says new technologies and roles do not mean leaving behind common sense. Confronted with an information problem, she frequently reaches for (believe it or not) the telephone. There is no substitute for speaking directly with the right person or reading the right book. Carter says she has found some resistance to resource-based learning from teachers -- especially at lower grade levels--who display what she calls "the mother-hen syndrome," in which they are not comfortable letting children out of their sight or control. But she believes those concerns can be ironed out. "Once teachers give it a chance," she says, "they very rarely want to go back."

Common Hurdles

Campbell points out that many library media specialists themselves

are not used to teaching. Most of today's corps "were not socialized into the profession with the expectation that they were going to play this instructional role," she says. To adopt a resource-based learning model requires commitment at all levels, she adds. "The biggest challenge is the people. Anything new requires a personal change for the teacher -- and the student." Changing attitudes and learning to collaborate can be more difficult than the (often expensive) tasks of getting classrooms and libraries equipped with the technology they need.

Teachers and library media specialists must look at themselves as "co-learners who need to dialogue with each other, as co-explorers. That's a [new] attitude," Campbell concludes. "If we can get them to see themselves in that role, then we would be 85 percent of the way to doing what's best for kids."

One important aspect of that change, says Carter, is being "comfortable with the ambiguity and uncertainty" inherent in new school technology. She argues that teachers need to work at learning not only how to use new technologies, but also how to evaluate the information that technology makes available.

Cravens has found that adaptation challenging. "A lot of the technology that brings information to students has developed since I was in school," she says. Although she takes classes to stay up to date, she often finds herself learning alongside her students in the classroom.

For teachers, Smith says, "training is probably the key factor" to getting resource-based learning off the ground. But Carter points out that teachers also need planning time built into the schedule, which has been "an ongoing struggle for teachers."

With the increased role of technology and greater staff collaboration, teachers have an even greater need for planning, she says. Student schedules also need to be more flexible, proponents of information literacy argue. For students to become information literate, they will need access to information resources when a question comes up -- not on a fixed schedule, Smith says. The days of weekly group marches down the hall to the library should be over, she contends. "We need to have them use the media center [when] they have a real purpose for being there."

To effect these changes at the school level also requires the commitment of principals, and they are often reluctant at first, Breivik notes. "With all the things that are pushing on principals, how can you get them to make a commitment to an instructional shift?" she asks. Most of the time, however, "they don't know what they're missing." Given the chance to explore and witness resource-based learning, principals become much more willing, Breivik has found.

Smith, who as a principal has encouraged the process, says resource-based learning is more engaging, and that makes students better learners who perform better on tests -- and in life. With resource-based learning, she believes, "students are going to get better at handling all kinds of problems."

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